2017-2018
UNIVERSITY CATALOG

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4400 UNIVERSITY DRIVE FAIRFAX, VA 22030-4444
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ABOUT MASON

- About the University
- Campuses and Instructional Sites
- Administration
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About the University

The Mason Vision

Our Motto
Freedom and Learning

Mission
A public, comprehensive, research university established by the Commonwealth of Virginia in the National Capital Region, we are an innovative and inclusive academic community committed to creating a more just, free, and prosperous world.

Our Values

Our students come first
Our top priority is to provide students with a transformational learning experience that helps them grow as individuals, scholars and professionals

Diversity is our strength
We include and embrace a multitude of people and ideas in everything we do and respect differences

Innovation is our tradition
We strive to find new and better ways to deliver on our mission while honoring time-tested academic values

We honor freedom of thought and expression
We protect the freedom of all members of our community to seek truth and express their views

We are careful stewards
We manage the economic and natural resources entrusted to us responsibly and sustainably

We act with integrity
We hold ourselves to the highest ethical standards as educators, scholars, students and professionals

We thrive together
We nurture a positive and collaborative community that contributes to the well-being and success of every member

The Mason Graduate is...

... an engaged citizen:
- ethically oriented and committed to democratic ideals
- respectful of individual differences, rights and liberties
- knowledgeable of important issues affecting the world
- focused on the well-being of others, today and tomorrow
- committed to building a just society

... a well-rounded scholar:
- thinks critically and creatively and demonstrates professional competence
- possesses an inquisitive nature
- appreciates science, humanities and the arts
- skilled as a communicator
- committed to lifelong learning

... prepared to act:
- innovative, resourceful and entrepreneurial; ready to do or create a job
- interested and practiced in working with individuals from other cultures, backgrounds and perspectives
- equipped to make positive and meaningful changes in society

George Mason, the Man

George Mason was the central genius of the American Revolution. He was the primary author of both the Virginia Declaration of Rights and Virginia’s first Constitution, written in May and June of 1776, which served as examples for other states. He was highly regarded by contemporaries for his intellect and abilities. Thomas Jefferson described him as “a man of first order wisdom,” and James Madison described him as “the soundest and clearest reasoner I have ever listened to.”

Always a reluctant public servant, he has been referred to as the “forgotten” or “unknown” founder. Most content at Gunston Hall, his home in Fairfax County, he participated in politics only out of a sense of duty. Unconcerned with fame or his reputation in history, he preferred the happiness of “a private station” to “the vexations of public business.”

In 1787, Mason attended the Constitutional Convention at Philadelphia. James Madison, although known as the “Father of the Constitution,” attributed much of the final document to Mason. Mason refused, however, to sign the Constitution, as it did not guarantee the rights of the people. By his principled opposition, Mason ultimately assured the adoption of the federal Bill of Rights based on his Virginia Declaration of Rights.

As demonstrated in the language set forth in Mason’s own documents, no other founder was more acutely aware of the moral depravity of slavery and the contradiction it created. He proposed an elimination of the slave trade as a first step toward eventual emancipation. The institution of slavery was so ingrained in a pre-industrial agricultural society that it was only ended by the American Civil War.

If patriotism is defined as selfless devotion to a country conceived in liberty, then George Mason is our purest Patriot. On April 12, 1996, a seven-foot statue of him presenting his handwritten draft of the Virginia Declaration of Rights was dedicated at the university. This statue serves as a constant reminder of the ideals of freedom and learning most important to Mason the man and the university that bear his name.

University History

The idea for George Mason University was born in 1949 when the Northern Virginia University Center, essentially an adult-education extension of the University of Virginia at Charlottesville, opened under
the direction of John Norville Gibson Finley. In 1955 and again in 1956, the Board of Visitors of the University of Virginia and Virginia legislature authorized the establishment of a two-year branch college to serve Northern Virginia.

The university’s formal history began in 1957 as University College, the Northern Virginia branch of the University of Virginia, offering courses in engineering and the liberal arts. It opened in a renovated elementary school in the Bailey’s Crossroads area with an enrollment of 17 students.

Eager to support the fledgling institution, the Town (now City) of Fairfax purchased 150 acres in 1958 and donated the land to the University of Virginia for a permanent branch campus. The following year, the University of Virginia Board of Visitors selected the name George Mason College. Construction of the campus’ first four buildings was completed in 1964. In September of that year, 356 students began their studies in the new classrooms.

In March 1966, the General Assembly authorized the expansion of George Mason College into a four-year, degree-granting institution and gave it the long-range mandate to expand into a major regional university. The first senior class received degrees in June 1968. Graduate programs began in September 1970, with the first master’s degrees conferred in June 1971. The George Mason College Board of Control, supported by citizens of the cities of Alexandria and Falls Church, and Arlington and Fairfax counties, acquired an additional 422 acres. By the end of 1970, the college’s Fairfax Campus reached 572 acres; it is now 677 acres.

In 1972, the Board of Visitors of the University of Virginia recommended that the college separate from its parent institution. On April 7 of that year, the governor signed the General Assembly legislation that established George Mason University as an independent member of Virginia’s system of colleges and universities.

Since 1972, the university’s development has been marked by rapid growth and innovative planning. In 40 years, enrollment has risen from 4,166 to more than 33,000 students. In 1979, Mason was given the authority to grant doctoral degrees and began offering programs at this level. In the same year, the university acquired what became George Mason University School of Law, located on the Arlington Campus, and now known as the Antonin Scalia Law School.

In 1985, Mason partnered with area businesses to develop an engineering program geared toward the emerging information technology field and started what is now the Volgenau School of Engineering. With the Volgenau School, Mason was the first institution in the country to offer a doctoral degree in information technology.

The establishment in 1990 of the Institute of the Arts, which became the College of Visual and Performing Arts in 2001, solidified the university’s commitment to make the arts an integral part of students’ lives. The Center for the Arts and the arts complex, which includes art galleries, studio and rehearsal space, and performing venues such as Harris Theatre and TheaterSpace, are all components of the college.

On the Fairfax Campus, the innovative George W. Johnson Center was dedicated in April 1996. By combining student life resources and educational support facilities such as an interactive library, Mason created the learning workspace of the future. Educational administrators from around the world have toured the center.

The university’s facilities continue to grow. In 2006, the university opened its first facility dedicated to research, Research Hall, which contains an observatory and laboratories for a number of campus research centers.

In 2009, the university opened the Long and Kimmy Nguyen Engineering Building, which is now the largest academic building on campus. In addition to being the university’s first LEED-certified building on the Fairfax Campus, the Nguyen Engineering Building is also the first in Virginia’s public university system to offer corporate lease space. Also opening in 2009 was the Art and Design Building, which is now home to the School of Art.

Masonvale, a townhome community on campus that provides short-term housing for faculty and staff, opened in late 2009. The Hylton Performing Arts Center on the Science and Technology Campus celebrated its grand opening in May 2010. On the Arlington Campus, Founders Hall was ready for occupation by the academic units in early 2011.

The university’s growing reputation as an innovative educational leader is rooted in Virginia’s strong educational tradition. By emphasizing research and study in fields relevant to government and area economic centers, Mason has created a curriculum and mission to meet the needs of Northern Virginia’s extraordinary cosmopolitan constituency. The university has also achieved national distinction in many areas. Its reputation continues to grow as Mason provides educational, cultural, and economic resources for the people of Virginia, the nation, and the world.

### Faculty and Students

The university’s more than 1,400 full-time instructional and research faculty members are experts in a broad range of fields. They have published widely, contributed to major research findings, and consulted with government and business officials. Drawing prominent scholars from all fields, Mason’s outstanding faculty have received grants and awards from the Guggenheim Foundation, the Templeton Foundation, the National Science Foundation, the National Endowment for the Arts, and the National Endowment for the Humanities; they have won numerous awards such as Fulbright Scholar grants, Pulitzer Prizes, Mellon Fellowships, Institute of Electrical and Electronics Engineers Centennial Medals, and Nobel Prizes. More than 47 endowed chairs at the university have also brought many internationally renowned artists and scholars to campus.

Of particular interest to undergraduates are the Robinson Professors, outstanding scholars in the liberal arts and sciences who have come to Mason from prestigious positions elsewhere. They are concerned with broad and fundamental intellectual issues and are dedicated to undergraduate teaching and working with Honors College students. In 1984, the first Robinson Professors joined the faculty as the result of a generous bequest from the estate of Clarence J. Robinson.

The majority of the university’s more than 33,000 students are from Virginia; however, all 50 states and Washington, D.C., as well as 130 countries, are represented in the student body. While full-time undergraduates make up the largest student group, part-time graduate and undergraduate students account for nearly half of the student population. Mason welcomes qualified students with a wide range of interests and backgrounds.

### Accreditation

George Mason University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award bachelor’s, master’s, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of George Mason University.
Individual programs or units may also be accredited by discipline-specific agencies.

**George Mason University Foundation**

**Mission**
The George Mason University Foundation was established in 1966 to assist the university in generating private support and to manage, invest, and administer private gifts, including endowment and real property.

**Campuses and Instructional Sites**

Mason is a distributed university, with regional campuses in Fairfax, Arlington, and Prince William counties, and instructional sites in Loudoun County, Herndon, Front Royal and Songdo, South Korea. Each Mason campus has a distinctive academic focus that plays a critical role in the economy of its surrounding region. At each campus, students and faculty have access to all the university's resources, while the duplication of programs and support services is minimized through the use of technology.

**Fairfax Campus**

Situated on 677 acres of wooded land, the Fairfax Campus offers a wealth of opportunities beyond the numerous academic programs and is the principal center for undergraduate residence and life. The resident student population of 6,023 is expected to grow to more than 7,000 during the next few years as new residential units are constructed.

The George W. Johnson Center, the first building of its kind in the country, fosters university-wide learning by integrating students’ curricular and extracurricular activities and strengthening relationships among university communities.

The Center for the Arts and the Patriot Center offer numerous opportunities to experience the arts, as well as sports and other entertainment. Professional artistic events presented on campus include music and dance from around the world and regional, national, and international visual art exhibitions. Free tickets are available to these events for full-time Mason students.

The Aquatic and Fitness Center provides state-of-the-art exercise equipment and competitive and recreational swimming to the university community and outside teams. The 120,000 square foot Recreation and Athletic Complex (formerly the PE Building) boasts three gymnasiums, two racquetball courts, two squash courts, and a two-story fitness gallery. Additional equipment and exercise space is also available in Skyline Fitness, adjacent to the residence halls.

**Arlington Campus**

The Arlington Campus, established in 1979, is located near Washington, D.C., on 5.2 acres of land. Mason's most urban location, the Arlington Campus is situated conveniently in the Virginia Square neighborhood and offers easy access via Metro and key transportation routes.

The campus has a strong focus on professional and graduate education and is home to the Antonin Scalia Law School, the Schar School of Policy and Government (formerly SPGIA) and the School for Conflict Analysis and Resolution. The Arlington Campus is also home to graduate programs in nonprofit management and arts management. In addition, the School of Business now offers its Executive MBA, Accounting, MS and Real Estate Development, MS programs in Arlington. Learning Solutions is redefining the way we offer executive and professional education. In addition to these executive, graduate and professional programs, some undergraduate courses are also available in Arlington.

The Arlington Campus is home to the Mercatus Center and the Institute for Humane Studies, independent initiatives affiliated with the university. The Law and Economics Center (LAW), Center for World Religions, Diplomacy, and Conflict Resolution (S-CAR), Center for Regional Analysis (SCHAR) and the Interdisciplinary Center for Economic Science (CHSS) are some of the many research centers located at the Arlington Campus.

The campus includes four buildings: Hazel Hall, Founders Hall, the Metropolitan Building and the Original Building. Founders Hall, which opened on the campus in 2011, provides 256,000 square feet of space for academic and student support services. In addition, the building features a 300-seat auditorium, a public plaza, and a large multipurpose room. These additional spaces enable the university to highlight and showcase much of the exciting work taking place at the Arlington Campus - as well as throughout the university - through the hosting of conferences, meetings and other events.

**Science & Technology Campus (formerly Prince William)**

The Science & Technology Campus (SciTech), established in 1997, is the nucleus of the largest research business park in Northern Virginia, Innovation Park. The 134 acres campus in Manassas is surrounded by advanced technology companies and agencies. The campus serves all of Northern Virginia and offers convenient access to the university for citizens of Prince William, Fauquier, and western Fairfax counties; the cities of Manassas and Manassas Park; and adjoining areas to the west and south. A major focus of the campus is research and academic programs in the life sciences, including biodefense and infectious diseases, cancer proteomics, genomics, medical education and bioinformatics. Graduate studies in Advanced Biomedical Sciences are offered for students preparing for medical school or careers in health professions. Programs in nursing, teacher education, information technology, health and fitness, recreation, exercise science, health promotion, parks and outdoor recreation, sport management, therapeutic recreation, tourism and events management, and athletic training also are offered on the campus. Professional certificate programs are available through the Mason Learning Solutions.

Campus resources available to all university students, faculty, and staff include a full-service library, large drop-in computer lab, information center, University Police, university bookstore, dining services, student lounge, shuttle bus service between the Fairfax and SciTech Campuses, and full complement of student and academic services. In addition, there are numerous opportunities to get involved in campus life through a variety of co-curricular and extracurricular activities.

Many campus facilities and services are available to serve university and community needs. The 300-seat Verizon Auditorium boasts innovative audiovisual technologies suitable for presentations, meetings, and ceremonies, along with lobby space for receptions and displays. The campus is also home to the Virginia Serious Game Institute, where students and faculty can pursue true multidisciplinary translational applied-research in Simulation, Modeling, and Game Design and Development. A new partnership on the SciTech Campus between Mason and the Uniformed Services University allows, Army, Air Force, Marine and Navy service members to remain on active duty during two years of preparatory coursework for application to medical school.

The campus comprises eight buildings: three research facilities, two academic buildings, a student housing facility, a recreation and
fitness center and a performing arts center. Graduate student housing with ground level retail space opened in fall 2012. Through mutually beneficial partnerships with local government and area businesses, the campus has positioned itself to tap into the unique assets of the surrounding community while providing access to university resources and programs for students and citizens. The university’s Biomedical Research Laboratory (BRL) opened in 2010. This regional biocontainment facility, the largest of only 12 facilities of its kind in the nation, is funded in part by the National Institute of Allergy and Infectious Diseases and houses research on emerging infectious diseases and those caused by biological threat agents.

The 110,000-square-foot Freedom Aquatic & Fitness Center™ offers state-of-the-art exercise equipment, group fitness programs, a full gymnasium with elevated track, and recreational and instructional swimming in a 50-meter competition pool, classrooms, and other meeting spaces. It is also home to EDGE, Mason Center for Team and Organizational Learning’s Challenge Course. The SMART Laboratory-Freedom Center is a 2,000 square foot facility that serves as the primary research facility for faculty and students in the Athletic Training and Sports Medicine degree programs.

Prince William County, the City of Manassas, and Mason have joined to create the region’s first state-of-the-art performing arts center. The Hylton Performing Arts Center, opened in 2010, provides outstanding professional performances by artists from around the world in world-class venues. With resources for community arts groups; regional business, civic, and service organizations; county and city school students and teachers; Mason students and faculty, The Hylton Performing Arts Center educates, entertains, and enriches the community.

The Governor’s School @ Innovation Park began conducting dual-enrollment classes for high school guest matriculates at the SciTech Campus in 2010.

**Instructional Sites**

Mason in Loudoun, conveniently located directly on Route 7 in Sterling, Virginia, connects students and businesses in one of the nation’s fastest-growing areas to one of the Commonwealth’s premier universities. Mason in Loudoun offers undergraduate and graduate level coursework in nursing, health science, education, information technology, leadership studies and management. Professional and executive education programs are also held at this site, as well as classes through the Osher Lifelong Learning Institute. Co-located with Northern Virginia Community College in leased space adjacent to their Loudoun Campus, Mason in Loudoun offers students the same privileges and access as those on Mason’s Fairfax, Arlington, and SciTech Campuses.

Smithsonian Mason School of Conservation was established as a partnership between the Smithsonian Institution and George Mason University to provide experiential education for current and future generations of global conservation professionals, leaders, and practitioners. Located in in Front Royal, Virginia, the campus offers undergraduate, graduate and certificate programs for students and professionals.

**Administration**

**Board of Visitors**

Thomas M. Davis, Rector, BA, Amherst College; JD, University of Virginia Law School; Vienna, Va.

Jon M. Petersen, Vice Rector, BA, Middlebury College; Fairfax Station, Va.

Kelly McNamara Corley, Secretary, BA, University of Southern California; JD, George Mason University; Winnetka, Il.

Mahfuz Ahmed, BS, George Mason University; Great Falls, Va.

Karen Alcalde, BS, George Mason University; JD, George Mason University School of Law; Arlington, Va.

Stephen M. Cumbie, MBA, University of North Carolina; McLean, Va.

Claire Dwoskin, BA, Marymount University; McLean, Va.

Anne Gruner, BS, Georgetown University; MALD, Tufts University; JD, Georgetown University; McLean, Va.

James W. Hazel, JD, George Mason University; Charlottesville, Va.

John Jacquemin, BA, Pennsylvania State University; MBA, Dartmouth College; McLean, Va.

Wendy Marquez, BA, University of Maryland; McLean, Va.

David Petersen, BA, Grinnell College; Vienna, Va.

Shawn Purvis, MS, George Mason University; Manassas, Va.

Tracy Schar, BA, George Mason University; Great Falls, Va.

Bob Witeck, BA, University of Virginia; Arlington, Va.

Lisa Zuccari, BIS, George Mason University; McLean, Va.

Keith Renshaw (faculty representative), PhD, University of North Carolina, Chapel Hill, Fairfax, Va.

Nathan Pittman, (student representative), undergraduate student, Government and International Politics; King George, Va.

Christian Suero, (student representative), graduate student, Sociology; Bronx, NY.

This list reflects appointments as of July 2016.

**Administration**

*University President: Ángel Cabrera, PhD*

*Chief of Staff and Vice President for Communications and Marketing: Frank Neville, MBA*

*Provost and Executive Vice President for Academic Affairs: S. David Wu, PhD*

*Senior Vice President for Administration and Finance: Jennifer (J.J.) Wagner Davis, MS*

**Vice Presidents**

*Vice President for Academic Innovation and New Ventures: Michelle Marks, PhD*
Vice President for Communications and Marketing: Frank Neville, MBA
Vice President for Compliance, Diversity and Ethics: Julian R. Williams, JD
Vice President for Enrollment Management: David Burge, MA
Vice President for Facilities: Thomas G. Calhoun, MS
Vice President for Government and Community Relations: Paul J. Liberty, BA
Vice President for Information Technology: Marilyn Smith, MBA
Vice President for Research: Deborah Crawford, PhD
Vice President for University Advancement and Alumni Relations: Janet Bingham, PhD
Vice President for University Life: Rose Pascarell, MA
Assistant Vice President and Director of Intercollegiate Athletics: Brad Edwards, MBA
President, George Mason University Korea: Steven K. Lee, PhD

Deans and Directors
Dean, College of Education and Human Development: Mark Ginsberg, PhD
Dean, College of Health and Human Services: Thomas Prohaska, PhD
Dean, College of Humanities and Social Sciences: Deborah Boehm-Davis, PhD
Dean, College of Science: Peggy Agouris, PhD
Dean, College of Visual and Performing Arts: Richard A. Davis, DFA
Dean, Honors College: Zofia Burr, PhD
Interim Dean, School of Business: Anne Magro, PhD
Dean, School for Conflict Analysis and Resolution: Kevin Avruch, PhD
Dean, Antonin Scalia Law School: Henry Butler, JD
Dean, Schar School of Policy and Government: Mark Rozell, PhD
Dean, Volgenau School of Engineering: Kenneth S. Ball, PhD

Office of the Provost - Academic Affairs
Associate Provost for Academic Administration: Renate Guilford, MA
Associate Provost for Academic Initiatives and Services: Janette Kenner Muir, PhD
Associate Provost for Faculty Development and Enrichment: Kimberly Eby, PhD
Associate Provost for Graduate Education: Cody Edwards, PhD
Associate Provost for Institutional Research and Assessment: Raghuraman Thulasir Kumar, PhD
Associate Provost for Undergraduate Education: Bethany M. Usher, PhD
Assistant Provost for Academic Affairs: Claudia Rector, PhD
University Registrar: Eve Dauer, MPA

University Libraries
University Librarian: John Zenelis, MLS, MA

Faculty
Instructional and Administrative Faculty 2017 - 18
The faculty list reflects appointments as of March 2017.

A
Abdalla, Wagida, Physician and Executive Director, Student Health Services. MD 1972, Alexandria University, Egypt; Diplomate of the American Board of Pediatrics, 1982.
Abdelfattah, Belal, Assistant Professor of Information Systems and Operations Management. BBA 2004, MBA 2006, PhD 2013, University of Texas at El Paso.
Abramson, Alan J., Professor, Schar School of Policy and Government. BA 1976, Wesleyan University; MA 1977, MPhil 1979, PhD 1990, Yale University.
Acs, Zoltan J., University Professor of Public Policy. Director, Center for Entrepreneurship and Public Policy. BA 1972, Cleveland State University; MA 1974, PhD 1980, The New School.
Adams, Leah, Assistant Professor, Psychology and Women & Gender Studies. BS 2008, University of Richmond; PhD 2014, George Mason University.
Addleson, Mark S., Associate Professor, Schar School of Policy and Government. BA 1972, 1973, Rhodes University; MA 1980, University of Natal, Pietermaritzburg; PhD 1992, University of Witwatersrand.
Agnarsson, Geir, Associate Professor, Mathematical Sciences. BS 1990, University of Iceland, PhD 1996, University of California, Berkeley.
Agoston, Kathryn E., Graduate Fellowship Director, Office of the Provost. BS 1993, Georgetown University; MA 96, PhD 2002, University of Texas at Austin.
Agouris, Peggy, Professor and Dean, College of Science. Director, Center for Earth Observing and Space Research. Dipl Eng 1986, National Technical University of Athens, Greece; MS 1988, PhD 1992, The Ohio State University.
Agrawal, Nitin, Assistant Professor, Bioengineering. BE 1999, Regional Engineering College, Durgapur, India; PhD 2006, Texas A&M University.
Aguirre, A. Alonso, Associate Professor, Environmental Science and Policy. PhD 1990, Colorado State University.
Ahmadi, Pouyan, Assistant Professor, Department of Information Sciences and Technology. BS 2006, Azad University; MS 2009, Iran University of Science and Technology; PhD 2015, George Mason University.
Ahn, Changwoo, Associate Professor, Environmental Science and Policy. BS 1992, MS 1996, Seoul National University; PhD 2001, The Ohio State University.

Aidoo, Abena, Assistant Professor, Tourism and Events Management, School of Recreation, Health, and Tourism. BA 1997, University of Ghana; MHRD 2002, Clemson University; PhD 2010, University of Delaware.


Ainsworth, Melissa, Assistant Professor, Graduate School of Education in the College of Education and Human Development. BA 1986, West Virginia University; MA 1988, University of Wyoming; MEd 1999, PhD 2014, George Mason University.

Albanese, Denise, Director, Cultural Studies PhD Program; Professor, English and Cultural Studies. BA 1978, New York University; PhD 1987, Stanford University.

Albanese, Massimiliano, Assistant Professor, Information Science Technology. BS, MS 2002, Laurea; PhD 2005, University of Naples "Federico II".

Aldatmaz, Serdar, Assistant Professor of Finance. BA 2008, Koc University; PhD 2013, University of North Carolina at Chapel Hill.

Alemi, Farrokh, Professor, Health Administration and Policy. BS 1976, MS 1978, PhD 1983, University of Wisconsin-Madison.

Aler, John, Associate Professor of Music. BM 1971, MM 1972, Catholic University of America.

Al-Seoudi, Nizar, Term Assistant Professor of Arabic. BA 2002, MA 2006, PhD 2011 University of Jordan, Amman, Jordan.

Allbeck, Jan M., Associate Professor, Computer Science. BS 1995, Bloomsburg University; MS 1997, PhD 2009, University of Pennsylvania.

Allen, Susan H., Associate Professor of Conflict Analysis and Resolution, School for Conflict Analysis and Resolution. BA 1992, University of Virginia; MS 1995, PhD 2000, George Mason University.

Alligood, Kathleen T., Associate Dean, Honors College. Professor, Mathematical Sciences. BA 1970, George Washington University; MS 1974, PhD 1979, University of Maryland.

Almond, Sonya, Term Assistant Professor of Nursing. BSN 2001, Norfolk State University; MSN 2006, DNP 2016, George Mason University.

Ambegaonkar, Jatin, Associate Professor, Athletic Training, School of Recreation, Health and Tourism. BS 1998, T. N. Medical College, India; MS 2003, Springfield College; PhD 2006, University of North Carolina, Greensboro.

Amireh, Amal, Associate Professor, English. BA 1983, Birzeit University, Palestine; MA 1987, PhD 1997, Boston University.

Ammann, Paul E., Associate Professor, Computer Science. AB 1983, Dartmouth College; MS 1985, PhD 1988, University of Virginia.

Anacker, Katrin B., Associate Professor, Schar School of Policy and Government. MA 1999, MCRP 1999, PhD 2006, Ohio State University.

Anand, Priyanka, Associate Professor of Health Administration and Policy. BA 2002, University of California, Berkeley; MA 2009, MPhil 2009, PhD 2012, Yale University.

Anderson, Daniel M., Professor, Mathematical Sciences. BA 1989, St. Olaf College; PhD 1993, Northwestern University.


Anderson, Heather, Director of Academic Affairs, Honors College. BA 2000, Portland State University; BFA 2004, University of Nevada - Reno; MFA 2007, University of Idaho.

Anderson, Jacqueline, Director, Human Resources, College of Education and Human Development. BA 1988, Saint Leo University.

Anderson, Mike, Assistant Professor of Finance. BS 2001, California Polytechnic State University; MS 2003, City University of New York, Baruch College.

Anderson, Nancy, Training and Technical Assistant Coordinator, College of Education and Human Development. BA 1982, Gallaudet University; MEd 1985, Western Maryland College.


Arminio, Jan, Professor and Director of Higher Education Program. BS 1977, Ohio Northern University; MA 1978, Bowling Green State University; PhD 1993, University of Maryland, College Park.

Ascoli, Giorgio A., University Professor, Department of Molecular Neuroscience, Krasnow Institute for Advanced Study and Bioengineering Department, Volgenau School of Engineering. Director, Center for Neural Informatics. BS 1991, Scuola Normale Superiore, Italy; MS 1993, Pisa University, Italy; PhD 1996, Scuola Normale Superiore.

Asen, Sheryl, Assistant Professor, Education, Graduate School of Education. BS 1974, State University of New York; MS 1977, University of South Carolina; PhD 1997, George Mason University.

Ashley, Jennifer, Term Assistant Professor of Global Affairs, BA 1999, Kenyon College; MA 2004, PhD 2011, Brown University.


Atkinson, Jennifer H., Associate Professor, English. BA 1978, Wesleyan University; MFA 1984, MA 1985, University of Iowa.

Atwater, Christopher, Assistant Professor, Sport Management, School of Recreation, Health, and Tourism. BA 1996, Skidmore College; MS 2006, PhD 2010, Virginia Commonwealth University.

Auerswald, Philip E., Associate Professor, Schar School of Policy and Government. BA 1988, Yale University; MA 1995, PhD 1999, University of Washington.
Auffret, Jean-Pierre, Instructor of Technology Management and Director, Research Partnerships and Grant Initiatives. BS 1979, Duke University; MBA 1982, University of Virginia; PhD 1999, American University.

Augustyn, Kevin, Director of Development, College of Humanities and Social Sciences. BA 1999, Francisca University of Steubenville; STB 2004, The Pontifical Lateran University; MDiv. 2004, St. John Vianney Theological Seminary; MPhil. 2015, Catholic University of America.

Austin, Leila, Assistant Professor of Business Foundations. BA 1989, Bryn Mawr College; MA 1993, Johns Hopkins University; PhD 2006, Columbia University.

Avila, Kimberly A., Assistant Professor, Graduate School of Education in the College of Education and Human Development. BS 1998, Colorado State University; MA 2000, University of Northern Colorado.

Avramovic, Sanja, Assistant Professor of Health Administration and Policy. MS, University of Belgrade; PhD 2015, George Mason University.

Avruch, Kevin Andrew, Dean and Henry Hart Rice Professor of Conflict Resolution and Anthropology, School for Conflict Analysis and Resolution. BA 1972, University of Chicago; MA 1973, PhD 1978, University of California, San Diego.

Axtell, Robert, Professor, Department of Computational and Data Sciences. BS 1983, University of Detroit; PhD 1992, Carnegie Mellon University.

Aydin, Ayhan, Assistant Professor of Information Systems and Operations Management. BS 2004, MS 2006, Sabanci University; MBA 2012, PhD 2012, University of Chicago.

Aydin, Hakan, Associate Professor, Computer Science. BS 1991, MS 1994, Istanbul Technical University; PhD 2001, University of Pittsburgh.

Azam Salahuddin, Syed, Director of Fiscal Services, Schar School of Policy and Government. BS 1996, Indiana University; MBA 2003, Vanderbilt University.

B

Back, Michele, Assistant Professor of Spanish. BA 1992, University of Minnesota, Twin Cities; MA 1995, University of California, Berkeley; PhD 2009, University of Wisconsin, Madison.

Bailey, Charles, Distinguished Professor, Biology. Executive Director, National Center for Biodefense and Infectious Diseases. BS 1965, MS 1966, PhD 1968, Oklahoma State University.

Baily, Supriya, Associate Professor, Education, Graduate School of Education. BA 1995, University of Nevada, Reno; MA 1997, George Washington University; PhD 2008, George Mason University.

Baker, Courtney K., Assistant Professor, Mathematics Leadership, Graduate School of Education in the College of Education and Human Development. BS 1997, Virginia Polytechnic Institute and State University; MEd 2008, PhD 2014, George Mason University.

Baker, Pamela, Associate Professor, Education, Graduate School of Education. BA 1984, MEd 1987, College of William and Mary; EdD 2002, Bowling Green State University.


Baker, Sarah, Term Assistant Professor of English. BA 1988, Wesleyan University; MA 2007, George Mason University.

Balakerskaia, Anna, Term Professor of Music. MM 1969, DMA 1974, St. Petersburg State Conservatory, Russia.

Balasch, Sonia, Term Assistant Professor of Spanish. BA 2001, Universidad Metropolitana (Caracas, Venezuela); MA 2006, PhD 2011, University of New Mexico-Albuquerque.

Balbuena, Ken, Communications and Marketing Officer, College of Education and Human Development. BA 2002, Old Dominion University.

Balint, Peter John, Professor, School of Policy and Government. BA 1971, Haverford College; MA 1972, State University of New York, Albany; MS 1998, PhD 2000, University of Maryland.

Ball, Kenneth, Dean, Volgenau School of Engineering. BS 1982, Lehigh University; MSME 1984, PhD 1987, Drexel University; PE 1992 Texas.


Bannan-Ritland, Brenda, Associate Professor, Education, Graduate School of Education. BS 1986, Millersville University; MS 1991, Bloomsburg University; PhD 1995, Pennsylvania State University.

Banville, Dominique, Associate Professor, Physical Education, School of Recreation, Health and Tourism. BPE 1990, MS 1994, PhD 1998, Laval University, Canada.

Baranova, Anna, Associate Professor, Systems Biology. Director, Center of Chronic Metabolic Diseases. MS 1995, PhD 1998, Moscow State University; DSci 2004, Vavilov Institute of General Genetics, Russian Academy of Sciences.


Barcher, Peter, Associate Dean, College of Education and Human Development. BA 1968, MA 1972, PhD 1973, Syracuse University.

Barnes, Steven, Associate Professor, History and Art History. Director of the Eurasian Studies Program. BA 1993, Harvard University; MA 1997, PhD 2003, Stanford University.

Barreto, Ernest, Professor, Department of Physics and Astronomy and The Krasnow Institute for Advanced Study. BS 1990, University of Chicago; MS 1995, PhD 1996, University of Maryland.

Barthold, Christine H., Assistant Professor, Graduate School of Education in the College of Education and Human Development. BA 1995, Moravian College; MEd 1999, Temple University; PhD 2007, University of Maryland.

Barton, Jr., Oscar, Professor, Mechanical Engineering. BS 1984, Tuskegee University; MS 1987, PhD 1993, Howard University.
Batarseh, Feras A., Assistant Professor, Geography and Geoinformation Science. BS 2006, Princess Sumaya University for Technology, Amman, Jordan; MS 2008, PhD 2011, University of Central Florida.

Bauer, Scott, Professor, Education, Graduate School of Education. BS 1981, MS 1983, PhD 1996, Cornell University.

Bauman, Lisa Passaglia, Term Assistant Professor of Art History. BA 1980, Saint Louis University; PhD 1990, Northwestern University.

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Rita Carty, BSN, MSN, DNSc, Dean Emerita, College of Nursing and Health Science

Jack Censer, AB, MA, PhD, Professor Emeritus of History and Art History

Peter Ceperly, BA, MS, PhD, Professor Emeritus of Physics

Shih-Chun Chang, BS, PhD, Associate Professor Emeritus of Electrical and Computer Engineering

Sandra Cheldelin, BS, MEd, EdD, Professor Emerita of Conflict Analysis and Resolution

Arthur H. Chickering, AB, AMT, PhD, Professor Emeritus of Education

Elizabeth Chong, BSN, MSN, PhD, Professor Emerita of Nursing

Jae W. Chung, BC, MC, MA, PhD, Professor Emeritus of Economics
Robert Purdue Clark, BA, MA, PhD, Professor Emeritus of Public and International Affairs

Richard L. Coffinberger, BA, MS, JD, Associate Professor Emeritus of Business Legal Studies

Martin B. Cohen, BA, MA, PhD, Assistant Professor Emeritus of History

Virginia Collier, BA, MA, PhD, Professor Emerita of Education

John Henry Cooper, BA, MA, DPE, Chair Emeritus of Health, Sport, and Leisure Studies

Anne Cordero, MA, PhD, Associate Professor Emerita of French

John L. Costello, AB, JD, MA, LLM, Professor Emeritus of Law

Robert F. Cozzens, BS, PhD, Professor Emeritus

John Crockett, BA, PhD, Professor Emeritus of Finance

Keith Davies, BS, PhD, Professor Emeritus of Chemistry

Kenneth A. De Jong, BA, MA, MA, PhD, Professor Emeritus of Computer Science

Sharon deMonsabert, BS, PhD, Associate Professor Emerita of Civil, Environmental and Infrastructure Engineering

Marion Deshmukh, BA, MA, MPhil, PhD, Professor Emerita of History and Art History

Richard J. Diecchio, BS, MS, PhD, Professor Emeritus of Atmospheric, Oceanic and Earth Sciences

Dimitr M. Dimitrov, BS, PhD, Professor Emeritus of Education

Edward Clark Dobson, BME, MS, PhD, Associate Professor Emeritus of Education

George Donohue, BSME, MS, PhD, Professor Emeritus of Systems Engineering and Operations Research

Daniel Druckman, BA, MS, PhD, Professor Emeritus of Public and International Affairs

Lloyd Duck, PhD, Associate Professor Emeritus of Education

Jean-Paul Dumont, Licence es Lettres, PhD, Clarence J. Robinson Professor Emeritus

Dennis R. Dunklee, BME, MEd, PhD, Associate Professor Emeritus of Educational Leadership

Mary Ann Dzama, BA, MEd, DEd, Associate Professor Emerita of Education

Albert W. Edgemon, BAE, MA, EdD, Professor Emeritus of Education

Robert Ehrlich, BS, PhD, Professor Emeritus of Physics

Esther Elstun, BA, MA, PhD, Professor Emerita of German

Michael G. Emsley, BS, ARCS, PhD, Professor Emeritus of Biology

Carol J. Erdwins, BA, PhD, Associate Professor Emerita of Psychology

Carl Ernst, BS, MEd, PhD, Professor Emeritus of Environmental Science and Policy

John Evans, BS, MS, PhD, Professor Emeritus of Physics

Michael G. Ferri, AB, MA, PhD, Professor Emeritus of Finance

Sheila ffolliott, AB, PhD, Professor Emerita of History

James H. Finkelstein, BS, MA, PhD, Professor Emeritus of Public Policy

Edwin A. Fleishman, BS, MA, PhD, DSc (Honorary), Professor Emeritus of Psychology

James Fletcher, BA, MA, PhD, Professor Emeritus of Philosophy

Joel Foreman, BA, MA, PhD, Associate Professor Emeritus of English

Martha P. Francescato, BA, MA, PhD, Professor Emerita of Spanish

Sheryl Ann Friedley, BS, MA, PhD, Professor Emerita of Communication

Lee Fritscher, BA, MPA, PhD, Professor Emeritus of Public Policy

Michael Gabel, BS, MA, PhD, Associate Professor Emeritus

Arnald D. Gabriel, BS, MS, DMus (Honorary), Professor Emeritus of Music

Gary Galluzzo, BA, MS, PhD, Professor Emeritus of Education

Donald Gantz, AB, MA, PhD, Professor Emeritus of Statistics

Helen S. Garson, BA, MA, PhD, Professor Emerita of English

Janos J. Gertler, PhD, DSc, Professor Emeritus of Electrical and Computer Engineering

Theodore Lee Gessner, BS, MA, PhD, Associate Professor Emeritus of Psychology

Paula Gilbert, BA, MA, PhD, Professor Emerita of Modern and Classical Languages

Martha M. Giles, BMEd, MMEd, DMEd, Associate Professor Emerita of Music

Barbara Knight Given, BS, MEd, PhD, Associate Professor Emerita of Education

Mark G. Goldin, BS, PhD, Associate Professor Emeritus of Spanish

Louis Golomb, BS, MA, PhD, Associate Professor Emeritus of Anthropology

Thomas Goodale, AAS, BS, MS, PhD, Professor Emeritus of Health, Fitness, and Recreation Resources

John Jeffrey Gorrell, BA, MA, PhD, Professor Emeritus of Education and Human Development

Harold Gortner, AB, MPA, MA, PhD, Professor Emeritus of Public and International Affairs

Vernon Gras, PhD, Professor Emeritus of English

Lloyd Griffiths, BS, MS, PhD, Dean Emeritus of the Volgenau School of Engineering

Gregory A. Guagnano, BS, PhD, Associate Professor Emeritus of Sociology and Anthropology

Thomas Gulledge, BS, MA, PhD, Professor Emeritus in Public Policy
David Haines, BA, MA, PhD, Professor Emeritus of History

Henry Hamburger, PhD, Professor Emeritus of Computer Science

Jayne Hart, BA, MS, PhD, Professor Emerita of Biology

Nand Hart-Nibbrig, AB, MA, PhD, Associate Professor Emeritus of Government and Politics

Kingsley E. Haynes, BA, MA, PhD, Founding Dean and Professor Emeritus of the School of Public Policy and Ruth D. and John T. Hazel, MD Endowed Chair

Hugh Heclo, AB, MA, PhD, Clarence Robinson Professor Emeritus of International Studies

Kenneth H. Heller, BSBA, MA, PhD, Professor Emeritus of Accounting

James T. Hennessey, Jr., BA, MPA, PhD, Chief of Staff Emeritus

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Jack C. High, BA, MA, PhD, Professor Emeritus of Public Policy

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Thomas H. Hill, BM, MM, DMA, Professor Emeritus of Music

Devon Hodges, BA, MA, PhD, Professor Emerita of English

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Emmett Holman, BS, MA, PhD, Associate Professor Emeritus of Philosophy

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Lorna Irvine, BA, MA, PhD, Professor Emerita of English

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Evelyn Jacob, BA, PhD, Professor Emerita of Education

Rosemary Jann, BA, MA, PhD, Professor Emerita of English

Helen Jenkins, MSN, PhD, Professor Emerita of Nursing

Ronald Jensen, BA, MA, PhD, Associate Professor Emeritus of History

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Yehuda Lukacs, BA, MS, PhD, Associate Professor Emeritus of Global Affairs

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Jay Shaffer, BS, PhD, Professor Emeritus of Biology

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Mary Silva, BS, MS, PhD, Professor Emerita of Nursing

Judith Skog, BS, MS, PhD, Professor Emerita of Environmental Science and Policy

Shannon Skousgaard, BA, MA, PhD, Associate Professor Emerita of Philosophy

Carlos Sluzki, MD, Professor Emeritus of Global and Community Health

James G. Smith, BM, MM, DMA, Professor Emeritus of Music

Kitty Parker Smith, BSN, MSN, Associate Professor Emerita of Nursing and Health Services

Robert F. Smith, BA, MA, PhD, Professor Emeritus of Psychology

Vernon L. Smith, BSEE, MA, PhD, University Professor Emeritus

John P. Soder, BA, MA, PhD, Associate Professor Emeritus of History

Jeanne Sorrell, PhD, RN, FAAN, Professor Emerita of Nursing

Valery Soifer, BA, MA, PhD, Distinguished University Professor Emeritus

Mark Spikell, BA, MEd, EdD, Professor Emeritus of Education

Melissa Stanley, BS, MA, PhD, Professor Emerita of Biology

Peter N. Stearns, AB, AM, PhD, Provost Emeritus of George Mason University

Patrick Story, Associate Professor Emeritus of English
William Sutton, BS, MS, PhD, Associate Professor Emeritus of Electrical and Computer Engineering

Eileen Sypher, AB, PhD, Professor Emeritus of English

Daniel Tabak, BSEE, MS, PhD, Professor Emeritus of Information Technology and Electrical Engineering

Stephen R. Taub, AB, PhD, Professor Emeritus of Biology

Anita Taylor, BS, MS, PhD, Professor Emerita of Communication

Wayne Thomas, BA, MEd, PhD, Professor Emeritus of Education

Eva K. Thorp, BA, MA, EdD, Associate Professor Emerita of Education

Ellen Todd, BA, MA, PhD, Associate Professor Emerita of History and Art History

C. Alan Turner, BS, MA, MPA, PhD, Professor Emeritus of Criminology, Law and Society

Zita Tyer, PhD, Professor Emerita of Psychology

James D. Vail, BSN, MSN, PhD, Associate Professor Emeritus of Nursing

Harry Van Trees, BSc, MS, ScD, University Professor Emeritus

Karen Vaughn, BA, MA, PhD, Professor Emerita of Economics

Rex A. Wade, BA, MA, PhD, University Professor Emeritus of History and Art History

Irmgard Wagner, MA, PhD, Professor Emerita of German

Dorothy J. Walker, BSNE, MSNE, PhD, JD, Professor Emerita of Nursing

Gerald Wallace, BS, MEd, EdD, Professor Emeritus of Education

Patricia Wanschura, BA, MA, PhD, Associate Professor Emerita of Psychology

Keith Q. Warner, D.de l'U Professor Emeritus of French

Lenore J. Weitzman, BS, PhD, Clarence J. Robinson Professor of Sociology and Law Emerita

Philip Wiest, BA, MS, PhD, Associate Professor Emeritus of Economics

Inge Wekerle, BA, AM, PhD, Assistant Professor Emerita of German

C. Stephen White, BA, MA, PhD, Professor Emeritus of Education

Louise White, PhD, Professor Emerita of Public and International Affairs

Roger W. Wilkins, AB, LLB, Clarence J. Robinson Professor Emeritus

Chien-Yun Wu, MSN, DNSC, PhD, Associate Professor Emerita of Nursing

Norman A. Yance, BS, BD, ThM, MA, PhD, Associate Professor Emeritus of Religious Studies

Margaret R. Yocum, BA, MA, PhD, Emerita of English

Terry Zawacki, BA, MA, DA, Associate Professor Emerita of English
Admissions is competitive because the number of qualified candidates exceeds the number of new students who can be accommodated. Each candidate who presents sufficient admission qualifications is reviewed in the context of other qualified applicants. An offer of admission is valid only for the semester for which the student applied. Programs with limited space or special requirements may need a second review process for admission.

Applying for Admission

Application for undergraduate admission should be made to the Office of Admissions. Applications are available at the website (http://www2.gmu.edu/admissions-aid/apply-now). A non-refundable and non-transferable fee must accompany the application.

Application Deadlines for Freshmen and Transfer Students

The application deadline for fall admission is January 15 for freshman applicants, and March 1 for transfer applicants. The transfer application deadline for the spring semester is October 1. Freshman applicants who wish to be considered for merit-based scholarships must apply by November 1. Applications received after published deadlines will be considered on a space-available basis only. The university reserves the right to close applications before published deadlines if conditions warrant. Admission is contingent on satisfactory completion of in-progress course work and graduation from high school or community college, if relevant.

Early Admission

High school juniors who have completed high school graduation requirements except for senior English and government courses may, with the approval of their high school guidance counselor or principal, apply for admission and thereby enter the university as degree-seeking students one year early. Applicants should present exceptional grades, SAT or ACT scores, and a high school course of study demonstrating rigorous academic preparation for university-level work. Competitive candidates will have pursued the most rigorous curriculum available at their school (i.e., AP/IB/Honors level coursework). Candidates must also submit first-semester junior year grades.

Application for a Second Bachelor’s Degree

Those holding one or more bachelor’s degrees may earn an additional bachelor’s degree at Mason in another discipline. Application for a second bachelor’s degree after conferral of a first degree from any regionally accredited institution must be conducted through the Office of Admissions. Second Bachelor’s degree applicants should follow the transfer application process outlined on the Transfer Admissions homepage (http://www2.gmu.edu/admissions-aid/how-apply/transfer), and are subject to the same competitive admissions review as first-degree applicants. After admission, students work with the appropriate academic program to develop an approved contract or course of study of at least 30 credits beyond the first degree, taken after admission to the second degree, to meet university residency requirements. Some units will have more stringent requirements. This contract will detail college-level and major requirements that must be met to satisfy graduation requirements.

Enrollment after Previous Attendance

Students in good academic standing who have missed one or more consecutive semesters of enrollment (excluding summer term) at Mason and do not meet any of the excluded categories listed below under Readmission after Previous Attendance may enter by completing a re-enrollment form available through the Office of the University Registrar (http://registrar.gmu.edu/forms). Undergraduate students do not need to submit a re-enrollment form if an approved Leave of Absence is on file. Upon re-enrollment, undergraduate students who do not have an approved Leave of Absence on file will be required to meet new catalog year requirements. Some academic programs require departmental approval prior to re-enrollment.

Readmission after Previous Attendance

Undergraduate students who have missed one or more consecutive semesters of enrollment (excluding summer term) at Mason must apply for readmission through the Office of Admissions if any of the following conditions are true:

- The student has not been enrolled at Mason for more than 2 years and an approved Leave of Absence form is on file.
- The student is an undergraduate returning after any absence during which he or she studied at another institution without prior written permission of his or her school or college. Such students must reapply as transfer students.
- The student was suspended or dismissed from any college or university for nonacademic reasons.
- The student was academically dismissed from Mason.
- The student was ever convicted of a felony.

Right to Withdraw Offer

Mason reserves the right to withdraw offers of admission if applicants fail to satisfy all requirements or it is determined that admission was obtained through the use of incomplete, falsified, altered, or embellished information. In the case of withdrawal of admission from a matriculated
student, credit earned at Mason may be withheld. Additionally, the university reserves the right to withdraw the offer of admission to any student based on cancellation of any test score required for admission.

Records Maintenance and Disposal

All admissions documents, including academic records sent from other institutions, become part of the official university file. Admission credentials are retained for only 12 months. They are subsequently destroyed if applicants do not register for courses within the period for which the offer of admission is valid; have been denied admission; do not respond to requests for additional information; or fail to submit complete applications, including all official transcripts and test results.

Freshman

Freshman Requirements

Freshmen applicants to George Mason University are encouraged to apply online by using the Common Application (for those applying to more than one school) or Mason’s Exclusive Online Application (for those applying only to Mason) by visiting the website. (http://www2.gmu.edu/admissions-aid/apply-now) The following factors are considered when reviewing freshman applications for admission:

- Cumulative high school grade point average (GPA) for course work completed in grades 9 through 12
- Level of difficulty of course work elected throughout the high school years, particularly in English, mathematics, laboratory science, social science, and foreign language
- Scores from SAT I or ACT (see exceptions under Score Optional Consideration below)
- For all non-native English speakers, scores from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) exam.
- Essay(s)
- List of extracurricular activities
- Teacher and guidance counselor recommendations

Early action applicants who meet the November 1 deadline will be notified of their non-binding admissions decision in mid-December. Regular decision applicants who meet the January 15 deadline are notified of decisions by April 1. All other applicants are notified on a space-available basis.

The following table specifies the minimum units of college preparatory work required for admission, as well as the minimum units recommended. The recommended units reflect the typical high school program of students who have succeeded in competing for admission in recent years.

Note that one unit equals one academic year of study.

Required Minimum

<table>
<thead>
<tr>
<th>Subject</th>
<th>Bachelor of Arts</th>
<th>Bachelor of Science</th>
<th>Applicants with Specific Majors</th>
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</thead>
<tbody>
<tr>
<td>English</td>
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<td>4</td>
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</tr>
<tr>
<td>Social Sciences</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
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<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Laboratory Science</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Other Academic Electives</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>22</td>
<td>23</td>
</tr>
</tbody>
</table>

Recommended Minimum

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<th>Subject</th>
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<tbody>
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<td>English</td>
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<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Social Studies</td>
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<tr>
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<td>Total</td>
<td>23</td>
<td>22</td>
<td>23</td>
</tr>
</tbody>
</table>

1. Refers to students applying for a bachelor of arts, excluding those in the "Applicants with Specific Majors" column
2. Refers to students applying for a bachelor of science degree program, excluding those in the "Applicants with Specific Majors" column
3. Refers to candidates who intend to major in pre-business, chemistry, computer science, engineering, geology, mathematics, or physics
4. Selected from algebra I, algebra II, geometry, trigonometry, analytic geometry, functions, math analysis, pre-calculus or calculus
5. Selected from biology, chemistry, physics, or other advanced lab science

Freshman Score Optional Consideration

Score optional review provides an opportunity for applicants to be considered for admission without submitting or in disregard of standardized test scores. Admission to Mason remains a highly competitive process, and score optional candidates are considered on their own merits. Qualifying for score optional review does not guarantee admission to Mason. Some programs are not eligible for score optional consideration. Qualifications for score optional consideration can be found at the website (https://www2.gmu.edu/admissions-aid/how-apply/freshman).
Dual-Enrollment Policy

The term dual-enrollment refers to students being enrolled concurrently in two distinct academic programs or educational institutions. The term is most commonly used in reference to high school students taking college courses while they are still enrolled in a secondary school (i.e., a dual-enrollment student), or to the programs that allow high school students to take college-level courses (i.e., a dual-enrollment program).

If you have enrolled in, or will have completed dual-enrollment college coursework prior to high school graduation, be certain to indicate this on the admission application. Dual-enrollment students are responsible for notifying the Office of Admissions of all dual-enrollment coursework at the time of application, and providing official transcripts of all course work attempted at other colleges/universities at the completion of those courses.

All dual-enrollment students are considered freshman applicants regardless of the number of college-credits earned while in dual-enrollment status. Students taking dual enrollment courses will be evaluated using our transfer credit policy (https://www2.gmu.edu/admissions-aid/how-apply/transfer/transfer-credit-policy), and will receive a formal evaluation of credit from the Office of Admissions upon receipt of the final official transcript following admission and receipt of enrollment deposit. Please click here (https://admissions.gmu.edu/transfer/transferCreditSearch.asp?_ga=1.161425407.398027023.1483996478) to search for courses using our Transfer Credit Matrix.

Coursework from institutions not included in the admission application will not be eligible for credit. George Mason University reserves the right to revoke admission, withhold the award of credit, or disenroll students who fail to indicate all previous institutions attended on the admission application.

Acceptance of Freshman Admission Offer

Mason complies with the national freshman candidate reply date of May 1. Students confirm by completing the enrollment confirmation online. The deposit is nonrefundable after May 1.

Transfer

Transfer Requirements

Students who have graduated from high school and subsequently attempted course work at a college or university are considered transfer applicants. The Admissions Committee considers each transfer application individually and reviews all grades received in courses attempted, as well as the rigor of the applicant's academic program. Transfer applicants are expected to present 30 transferable hours including courses to fulfill Mason Core requirements in English Composition and mathematics, with a 2.00 minimum cumulative grade point average. Transfer admission is competitive and the number of applications received annually exceeds the available spaces in the transfer class. Meeting minimum standards does not assure transfer admission.

Transfer applicants who have earned less than 30 transferable credits are evaluated for admission on the basis of their secondary school record as well as any post-secondary course work attempted. Such applicants must provide an official high school transcript or secondary school leaving certificate, ACT or SAT1 scores and official transcripts from all colleges and universities attended. Transfer applicants who have earned more than 30 transferable hours upon application may be exempted from providing the secondary school record and ACT or SAT1 results at the discretion of the Admissions Committee. Transfer applicants who have completed 45 or more credits are required to declare a specific major on the application to benefit from academic advising within their intended major.

All non-native English speakers are required to meet the University's English language proficiency requirement. Most students satisfy this requirement by submitting official TOEFL or IELTS results that meet the University's minimum score requirement. At the discretion of the Admissions Committee, non-native English speakers may alternatively satisfy the English language proficiency requirement. Applicants who complete at least two English Composition courses with grades of C or better at a regionally accredited U.S. college or university may be waived from the TOEFL or IELTS requirement. The Office of Admissions makes the sole determination of whether an applicant satisfies the English language proficiency requirement for admission.

Virginia Community College System and Richard Bland College graduates transferring with Associate of Arts, Associate of Arts and Sciences or Associate of Science transfer degrees may be considered for GAA admission via the Guaranteed Admission Agreement. Virginia community college students without transfer degrees and those transferring from other institutions will be considered for regular transfer admission. GAA or regular admission status is specifically noted in the transfer admission letter.

Students on active academic or non-academic suspension or dismissal are not eligible for admission.

Transfer Credit

Transfer students receive a formal evaluation of transfer credit from the Office of Admissions after admission and receipt of the enrollment deposit. Students are responsible for providing the Office of Admissions official final transcripts of all course work attempted at other colleges/universities by the first day of the semester in which they enroll. The University will award a maximum of 90 transfer credits. No more than 75 credits may transfer from a community college.

Transfer credit is accepted from regionally accredited colleges and universities, provided that a grade of C or better has been earned in the course and the course content is equal to that offered at Mason. Note that only credits, not grades, are transferred; grades for transferred courses will not become part of a student’s GPA at Mason. Transfer credit is not granted for study in non-regionally accredited institutions. An exception may apply to Individualized Study, BIS or Applied Science, BAS majors, where college-level credit earned at institutions accredited by bodies other than recognized regional accrediting organizations (http://admissions.gmu.edu/transfer/TransferCreditAccreditation.asp) is subject to approval by the BIS/BAS program directors. Applicants to the University who have attempted college courses at other institutions are required to disclose their complete academic enrollment history in the admission application. George Mason University reserves the right to revoke admission, withhold the award of credit or disenroll students who fail to indicate all previous institutions attended on the admission application. Course work from institutions not included in the admission application will not be eligible for transfer credit.

A minimum of 30 credits must be completed in residence at Mason and 45 credits of upper-level course work must be completed to qualify for graduation. While lower-level courses taken at previously attended institutions may meet the content requirement of some upper-level
courses, they do not reduce the 45-credit upper-level requirement, and courses from other institutions do not reduce the 30-credit residency requirement.

George Mason University honors the service of military personnel by awarding up to six (6) credits of undistributed undergraduate elective credit to honorably discharged military students upon receipt of a DD-214 or Joint Services Transcript showing completion of training equivalent to six semester hours, as per the American Council on Education (ACE) Guide to the Evaluation of Educational Experiences in the Armed Services. Undistributed or elective credit cannot fulfill specific degree program requirements, but counts toward the overall number of credits that a student must fulfill for the baccalaureate degree. These credits effectively recognize learning through basic training and the service member’s Military Occupational Specialty.

Acceptance of Transfer Admission Offer

Admitted transfer students are required to confirm their enrollment by submitting an enrollment deposit by June 15 for fall entrance or December 1 for spring entrance. Transfer students admitted after June 15 or December 1 are required to submit their enrollment deposit within 7 days of the admission letter. Enrollment deposits are non-refundable after these deadlines. Admitted students who do not accept the offer of admission by the published deadline may forfeit their space in the transfer class. Under certain circumstances, students unable to enroll may defer their transfer admission to the next semester. Contact the Office of Admissions no later than the first day of the semester for which you were initially admitted.

Graduate Admission Policies

Admission to graduate programs is competitive. Selection criteria differ by program and are established by departmental faculty. Applicants are evaluated on the strength of their academic background, results of standardized exams (if required by the program), work experience, and any additional evidence of potential success in the program. Each year, program faculty members determine the number of admission offers they may extend by the university resources available for their program.

Admission Standards

To be considered for degree status, the general university graduate admission requirements are as follows:

- An earned baccalaureate degree from a regionally accredited institution of higher education, or international equivalent, verified from official transcripts. (For details, see Admission of International Students (p. 68).) Expectation of an earned baccalaureate degree prior to the first day of classes for the term for which the student is applying will also meet this requirement. Students who are awaiting conferral of the degree will be permitted to register for their first semester. Enrollment, however, beyond the first semester in any graduate program requires an official transcript that verifies conferral of a bachelor’s degree. Students enrolled in classes who have not submitted the required proof of degree will have a hold placed on their record. This hold, which will prevent future registration, will not be released until the proper documentation has been provided.

- A minimum 3.00 GPA on a 4.00 scale in baccalaureate study. The GPA requirement may be higher for some graduate programs. The university, at its discretion may, in evaluating the meeting of this requirement, additionally consider the difficulty of the baccalaureate degree, relevant work experience, or other evidence of ability to succeed in graduate study.

- For students with post baccalaureate credits, a separate GPA is calculated for each institution.

International students should reference Admission of International Students (p. 68) for additional requirements.

Graduate Applications

Applicants should apply online (http://www2.gmu.edu/admissions-aid/how-apply/graduate). Applications for the Antonin Scalia Law School can be found online (http://www.law.gmu.edu/admissions).

Graduate applications are generally reviewed by the Admissions Committee only upon completion of the application, and submission of all supplemental materials as required by the program. At their discretion, the academic units may issue a decision before an application is complete. Applicants receive written notification of the official admission decision.

Graduate Application Requirements

For full consideration for graduate admission, applicants must submit the following:

- Completed online application for graduate study
- Nonrefundable application fee
- Application for Virginia In-State Tuition Rates, if claiming entitlement to these rates
- One unofficial transcript from all institutions previously attended. For information on how to submit unofficial transcripts, visit the website (http://www2.gmu.edu/admissions-aid/how-apply/graduate).
- Goals statement as required by the program
- Letters of recommendation as required by the program
- Other materials specified by the program, including official exam scores from Graduate Admission Exams (such as GRE or GMAT), departmental forms, portfolios, or interviews

Specific departmental admission requirements for degree-seeking students are listed in this catalog under the relevant discipline, with supplemental material requirements listed online (https://www2.gmu.edu/admissions-aid/how-apply/graduate/application-deadlines-and-requirements).

Applicants with international educational credentials earned outside of the US should read the Admission of International Students section for more information on required documentation and English Proficiency Standards.

Graduate Admission Exams

Most graduate programs use test scores as an additional measurement of an applicant’s qualifications. The exams most often required by graduate programs include the GRE, GMAT, MAT and/or Praxis Core. Specific departmental admission requirements for degree-seeking students are listed in this catalog under the relevant discipline.

For information on how to submit graduate admission exam scores, visit the website (http://www2.gmu.edu/admissions-aid/how-apply/graduate).

English Proficiency Standards

Mason students participate in rigorous graduate coursework as part of their university educational experience. Therefore, students at Mason
must have a full command of academic English at the graduate level in order to be successful throughout their studies. All new graduate students are expected to accurately comprehend written graduate-level English, clearly understand rapidly spoken English in classroom lectures and in professional settings, write with proper grammar and syntax, and be able to respond quickly in English using a vocabulary appropriate for collegiate settings.

For this reason, Mason has a high standard of English proficiency for graduate admission. All Mason graduate programs strictly require applicants to meet that English proficiency standard. Applicants who have earned a bachelor's, master's, or doctoral degree from a regionally accredited university in the United States, Canada (excluding province of Quebec), Commonwealth Caribbean (Antigua, Barbuda, Belize, Cayman Islands, Dominica, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and Grenadines, and Trinidad and Tobago), United Kingdom, Ireland, Australia, and New Zealand are considered to have met that standard. All other applicants are required to take an English proficiency examination and meet minimum scores set by Mason in order to be considered for admission. The TOEFL, Pearson Test of English, or IELTS exams can be used to meet this requirement.

For details on English proficiency requirements, see Admission of International Students (p. 68). Individual programs reserve the right to set higher minimum scores and, therefore, their admission requirements in this catalog should be reviewed.

Self-Service Center

Mason provides all graduate applicants with an online Self-Service Center (SSC) at the point of the application submission. The SSC can be accessed online (https://www2.gmu.edu/admissions-aid/how-apply/application-status). Applicants are responsible for regularly reviewing the SSC for uploading many of the required items for their application and reviewing important information regarding their admission status.

E-mail

Mason uses the e-mail account provided at the point of application to communicate with applicants. Applicants should use this to communicate with the Office of Graduate Admissions, school/department/program and other administrative units, and check it regularly for important information regarding their admission application.

Offer of Admission

Applicants will be notified that a decision has been made on their application via their email. In order to view their official decision letter, applicants must log in to their online Self-Service Center. The offer of admissions will not be sent via postal mail. The offer of admission specifies the effective date of admission, category of admission offered, and name of the advisor or advising team assigned to the applicant. This offer is good only for the semester and program for which the applicant applies. The offer must be accepted by submitting an online Intent to Enroll form and a deposit, if required by the school, college or program. A denial of admission is not subject to appeal. Questions pertaining to admission waitlists should be directed to the appropriate college or school as policies vary by graduate program.

Right to Withdraw Offer

Mason reserves the right to withdraw offers of admission if applicants fail to satisfy all requirements or it is determined that admission was obtained through the use of incomplete, falsified, altered, or embellished information. In the case of withdrawal of admission from a matriculated student, credit earned at Mason may be withheld. Additionally, the university reserves the right to withdraw the offer of admission to any student based on cancellation of any test score required for admission.

Admission of Graduate Degree Holders

Those holding one or more graduate degrees may earn an additional graduate degree in another discipline. For admission to a second graduate degree program, students should submit an application, transcripts, and other documents as required by the second degree program. Course credits used to satisfy the degree requirements for the first graduate degree may not be used to satisfy the degree requirements for the second graduate degree. In programs with overlapping or similar requirements, students will be advised in the subsequent degree program regarding appropriate course substitutions for subjects already covered.

Provisional Admission

Provisional admission specifies requirements that must be met prior to graduation, as detailed below.

It is intended for those applicants who have provided evidence that suggests they are able to pursue graduate work but have not taken foundational or pre-requisite coursework requirements, or do not meet GPA minimum requirements.

A degree-seeking graduate applicant with a baccalaureate degree from a regionally accredited institution of higher education, or international equivalent, with a GPA below the minimum for the graduate program or missing specific foundational or pre-requisite coursework requirements may, at the discretion of the academic unit or program, be offered provisional admission if sufficient evidence is presented to suggest the applicant has the ability to pursue graduate work. As a first priority when starting the graduate program, a provisionally admitted student must satisfy the provisions of admission. Once the student has satisfied the provisions specified in the offer of admission and submitted all admission credentials, the provisional qualifier will be removed from the student's record. Written confirmation indicating the removal will be sent to the student from the academic unit, institute dean or director.

Provisionally required courses must be completed successfully, earning a grade of B or better, on the student’s first attempt within the first 12 credits of enrollment (or a more restricted time frame specified by the department in the offer of provisional admission). Provisionally required courses may not be repeated. Students who do not complete these courses successfully will be terminated from the program. All applicants admitted provisionally are in degree-seeking status, and course work taken appears as part of their graduate-level transcript. Students in provisional status may not take courses in the consortium or elsewhere, or transfer graduate course work into their program until the provisions of admission have been met.

While the provision is in effect, graduate students whose registration includes undergraduate courses are considered full time if they meet the undergraduate standard by being registered in at least 12 credit hours per semester. For more information on full-time status, see the Student Classification sections in AP.5 Undergraduate Policies (p. 84) and AP.6 Graduate Policies (p. 87) of this catalog.

Conditional Admission

Conditional admission specifies requirements that must be met prior to enrollment, as detailed below.
It is intended for those applicants who do not meet the academic standards of admission but provide sufficient evidence to suggest the ability to pursue graduate work. Conditional admission cannot be offered to applicants who have not met minimum English language proficiency requirements as outlined in the English Proficiency Standards (p. 68) under Admission of International Students. It also may not be offered to applicants who do not have or will not earn a baccalaureate degree from a regionally accredited institution of higher education, or international equivalent. An applicant will not be fully admitted and allowed to enroll into the graduate program until meeting the conditions set for admission.

A graduate applicant who does not meet the minimum admission standards may, at the discretion of the academic unit or program, be offered conditional admission if sufficient evidence is presented to suggest that the applicant has the ability to pursue graduate work. Conditionally admitted students must satisfy the conditions of their admission prior to enrollment in courses. Once the student has satisfied the conditions specified in the conditional offer of admission and submitted all admission credentials, including test scores, the conditional offer of admission will be updated to full or provisional admission. Notification of full or provisional admission will be provided to the student in the form of an updated letter of admission from the Office of Graduate Admissions.

The conditional offer of admission will be withdrawn if the student does not meet the conditions within one academic year from the first day of classes for the semester to which they applied (or a more restricted time frame specified by the program in the offer of admission).

Deferred Application Decision Pending Additional Coursework

Applicants are notified when action on an application has been deferred pending completion of courses that are prerequisite to graduate study in a chosen field. Applicants should notify the Office of Graduate Admissions in writing via email at masongrad@gmu.edu as soon as the prerequisites have been met. Applicants are responsible for furnishing unofficial transcripts confirming that prerequisite courses have been satisfactorily completed. Applicants have one academic year or less, dependent upon the program, to complete prerequisites. An admission decision cannot be made until these grades are received.

NOTE: The above admission decisions (provisional, conditional, and deferred pending additional coursework) are utilized at the discretion of each academic unit. Applicants should refer to the admissions website of the academic unit to which they are applying for further clarification on the types of admissions decisions that are made for their program of interest.

Deferral or Reconsideration of Admitted Students

The Office of Graduate Admissions, in coordination with the program of admission, will consider requests from admitted students to either defer enrollment or reconsider their application for a future term. Depending on program of admission, the applicant will either be granted a deferral or reconsideration.

A deferral is an automatic admission that does not require an applicant to go back through admissions review. A reconsideration is not an automatic admission and an applicant must go through admissions review again, regardless of previous decision.

Offers of funding are not guaranteed for deferrals or reconsiderations and are at the discretion of the program of admission.

All requests for deferral or reconsideration must be submitted using the directions in the Self-Service Center by the enrollment deadline listed in the student’s offer of admission. Deferral or Reconsideration is granted only for a period of one full academic year (Ex. Fall to Fall) or less, with some programs having specific term restrictions for delaying enrollment. These restrictions, along with program by program information on deferrals and reconsideration, are listed online (https://www2.gmu.edu/admissions-aid/how-apply/graduate/frequently-asked-questions).

Reopening Incomplete Applications

The Office of Graduate Admissions will allow applicants to reopen submitted, but incomplete applications that never received an admission decision for the term of original application. An application may only be reopened for the original program to which the student applied. The reopened application must meet deadlines and requirements for the new term. This reopen is offered as a one-time courtesy without fee. Applications may be moved no further than one full academic year forward from the term of original application (Ex. Fall to Fall), with some programs having specific term restrictions for reopening an application. These restrictions are listed online (https://www2.gmu.edu/admissions-aid/how-apply/graduate/frequently-asked-questions). To request a reopen the applicant may either email masongrad@gmu.edu or submit the request form in their Self-Service Center.

Records Maintenance and Disposal

All admissions documents, including academic records sent from other institutions, become part of the official university file. Admission credentials are retained for only 12 months. They are subsequently destroyed if applicants do not register for courses within the period for which the offer of admission is valid, have been denied admission, do not respond to requests for additional information, or fail to submit complete applications, including all official transcripts and test results.

Admission of International Students

Office of Admissions
Undergraduate Admissions
4400 University Drive, MS 3A4
Fairfax, VA 22030
Graduate Admissions
4400 University Drive, MS: 4C8
Fairfax, VA 22030
Phone: 703-993-2400
Fax: 703-993-4622 (Fax)
Website: admissions.gmu.edu

General Requirements

Application for admission by international students should be made directly to the Office of Admissions via the online application.

Application deadlines are as follows:

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<tr>
<th>Freshman Fall</th>
<th>Transfer Fall</th>
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<tr>
<td>April 1</td>
<td>March 1</td>
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These deadlines ensure adequate time to process applications and prepare immigration documents. All international applications must be accompanied by the nonrefundable application fee. Items that must be submitted with the application form and fee are official transcripts and degree certificates (in original language and, if applicable, certified English translation); evidence of English proficiency (via official score reports from the TOEFL, IELTS or Pearson exam); the Certificate of Financial Responsibility (CFR); financial support documents; copy of passport identification page; and for those present in the United States, copies of immigration documents verifying current nonimmigrant status. Other documentation such as recommendation letters, essays, portfolios, etc., may be required by the academic program. Please visit Admissions (https://admissions.gmu.edu) for full details on items required and deadlines.

Applications from international students are reviewed with all other applications. Admission to the university is competitive; therefore, while minimum standards ensure that an application will be considered, they do not guarantee admission. The number of applicants, qualifications of the applicant pool, and the amount of available space determine the number of admission offers that Mason can make. In addition to overall admission requirements, some schools and colleges have individual requirements for acceptance into the major. For more information, see school or college admission requirements.

Applicants who are accepted to a program will receive a written offer of admission. Most students come to the United States on an F-1 visa, but students who are sponsored by the U.S. government, their home government, or another organization may be required to enter the United States on a J-1 Exchange Visitor’s Visa. To be issued an immigration document (Form I-20 for F-1 status or Form DS2019 for J-1 status), students must prove they have sufficient financial support to cover their expenses while at Mason. If the documentation submitted is satisfactory, the university will issue Form I-20 for F-1 status or Form DS2019 for J-1 status and mail it to the address indicated on the Certificate of Financial Responsibility.

International students outside the United States may use their immigration documentation to schedule a visa interview with the U.S. embassy or consulate nearest their place of residence and apply for an F-1 or J-1 student visa. For more information about the visa application process, check with the nearest U.S. embassy or consulate, or go to the Department of State’s website (https://www.state.gov).

Students in a nonimmigrant visa category other than F-1 or J-1 may submit the CFR and copies of immigration documents indicating their immigration status. They do not need to submit financial support documents unless they plan to change to a student visa. For more information pertaining to immigration status, contact the Office of International Programs and Services (OIPS) at 703-993-2970. Additional information is available on the OIPS website (https://oips.gmu.edu).

Freshman and Transfer Requirements

A freshman student is a first time university student who has never enrolled in a college or university before while a transfer student is one who has completed course work at another college or university after graduating from high school. In addition to the requirements defined for all applicants, international students must meet the following standards:

- Freshman applicants must submit certified official copies of all secondary or high school transcripts in the original language along with an English translation, if applicable. Official results of any leaving certificates or university entrance exams also must be submitted.
- Transfer applicants must submit official transcripts from each post-secondary institution attended, sent directly to Mason from the institution.
- International students may be considered for admission without an SAT or ACT score through our score optional admission program; however, SAT or ACT results may be required for merit-based scholarship consideration. Applicants to Mason’s science and engineering programs must also submit a qualifying SAT or ACT score.
- Applicants must demonstrate English language proficiency. Applicants whose native language is not English are required to submit TOEFL, Pearson Test of English, or IELTS exam results. To be considered for admission, applicants must have scored at least 80 with a minimum of 18 in each subsection on the Internet-based TOEFL, 550 on the paper-based TOEFL or must have received a score of 6.5 or higher with a minimum 6.0 in each subsection on the IELTS exam, or a 59 overall band score on the Pearson Test of English. All English proficiency scores are valid for two years from the test date. Official test scores must be sent directly from the Educational Testing Service or IELTS. For more information, visit Test of English as a Foreign Language website (https://www.ets.org/toefl), the IELTS website (https://www.ielts.org), or the Pearson Test of English website (https://www.pearsonpte.com).
- Applicants with English proficiency exam results below the minimum qualifying score for direct entry may be referred to an INTO Mason Pathway or Academic English program (https://intohigher.com/us/en-us/the-universities/into-mason).
- All transcripts from colleges or universities outside the United States must be translated into English and evaluated course by course by a NACES (National Association of Credential Evaluation Services) recognized U.S. evaluation agency before an admission decision can be made. Applicants are responsible for the timely translation and evaluation of documents and all costs and fees associated with these services. A list of accepted evaluation agencies is available here (https://www.naces.org/members.htm).
- International students already in the United States with F-1 status must complete immigration transfer procedures within 15 days of the program start date. For processing of immigration transfers, contact OIPS at 703-993-2970 or visit their website (https://oips.gmu.edu).

Graduate Requirements

International students interested in pursuing graduate study must meet the following requirements:

- In order to be considered for admission, applicants must complete the online Application for U.S. Graduate Study and submit all required materials, including any supplemental documentation required by their academic program directly to the Office of Admissions.
English Proficiency Standards

Mason students participate in rigorous graduate coursework as part of their university educational experience. Therefore, students at Mason must have a full command of academic English at the graduate level in order to be successful throughout their studies. All new graduate students are expected to accurately comprehend written graduate-level English, clearly understand rapidly spoken English in classroom lectures and in professional settings, write with proper grammar and syntax, and be able to respond quickly in English using a vocabulary appropriate for collegiate settings.

For this reason, Mason has a high standard of English proficiency for graduate admission. All Mason graduate programs strictly require applicants to meet that English proficiency standard. Applicants who have earned a bachelor’s, masters, or doctoral degree from a regionally accredited university in the United States, Canada (excluding province of Quebec), Commonwealth Caribbean (Antigua, Barbuda, Belize, Cayman Islands, Dominica, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and Grenadines, and Trinidad and Tobago), United Kingdom, Ireland, Australia, and New Zealand are considered to have met that standard. All other applicants are required to take an English proficiency examination and meet minimum scores set by Mason in order to be considered for admission. The TOEFL, Pearson Test of English, or IELTS exams can be used to meet this requirement.

Decisions regarding English proficiency are the sole discretion of the Mason Admissions office.

Listed below are the English proficiency examinations that Mason accepts and the corresponding minimum score requirements and submission procedures. Individual programs reserve the right to set higher minimum scores:

**TOEFL**
- IBT - 88 points total AND a minimum of 20 points in each section
- PBT - 570 points

**IELTS - Academic**
- 6.5 total band score

**Pearson Test of English**
- 59 overall score

All English proficiency scores are valid for two years from the test date. Official test scores must be provided directly from the testing agency. For TOEFL, IELTS, and the Pearson Test of English, please make sure you have scores sent to the Mason Office of Graduate Admissions. It is not necessary to use the exact department code as test scores arrive to our institution electronically.

Applicants with English proficiency exam results below the minimum qualifying score for direct entry may be referred to an INTO Mason Pathway or Academic English program (https://intohigher.com/us/en-us/the-universities/into-mason).

Students with International Degrees

Mason requires the equivalent of a four-year U.S. bachelor’s degree from an appropriately accredited international institution of higher education for direct admission to a graduate degree program. All applicants who were educated outside the United States are required to submit an official credential evaluation, written either by an approved evaluation company or by Mason evaluators. Please review the International Transcript Submission Guidelines (https://admissions.gmu.edu/documents/internationalTranscriptGuidelines.pdf) for further details. Complete information on this and all international admissions requirements can be found at Admissions (https://www2.gmu.edu/admissions-aid/how-apply/international). Mason Admissions has final authority on equivalency of degrees.

- All transcripts from colleges or universities outside the United States must be translated into English, if applicable, and submitted to the Office of Admissions for evaluation. Mason will provide evaluation service free of charge for all international transcripts. Because of the volume, more time may be needed to process applications requiring a Mason evaluation. For expedited services, students can submit their documents to a recognized U.S. evaluation service at their own expense. A list of recognized evaluation services is available at Mason’s Admissions Office or online (https://www.naces.org).
- Graduate students’ documents should show the award for either a bachelor’s degree or equivalent, or a graduate degree.

Special Conditions for International Applicants

A complete list of application requirements at all levels can be found online (https://www2.gmu.edu/admissions-aid/how-apply/international).

Note the following:

- Federal regulations prohibit students on visitor visas (B-1 and B-2) from enrolling in school. Students who entered the United States on a visitor visa should not plan to study. For more information, contact OIPS.
- Federal regulations prohibit F-2 spouses of F-1 students from engaging in full-time study, and F-2 children may engage in full-time study only from kindergarten through 12th grade. F-2 dependents may engage in study that is vocational or recreational in nature. F-2 dependents seeking to pursue full-time or degree study in the United States must change their status to F-1. For more information, contact OIPS.
- Students enrolled at the university in F-1 or J-1 nonimmigrant status must maintain full-time enrollment each fall and spring semester. For undergraduate students, this means 12 credit hours each semester. Full-time status for graduate students is defined by the Office of the University Registrar, and information can be found in the AP.6 Graduate Policies section of this catalog. Because of this requirement, F-1 or J-1 international students do not qualify for part-time programs.
- Admission for international students is offered for fall (August) and spring (January).
- Prospective students who seek to enter the United States in F-1 or J-1 immigration status, or who seek to attend Mason following attendance at another US school, must complete the Certificate of Financial Responsibility (CFR), which can be downloaded online (https://admissions.gmu.edu). The form and financial support documents must be submitted to the Admissions Office with the application.
- Students already in the United States should submit copies of immigration documents verifying current nonimmigrant status. This documentation should be submitted with the application for admission.
INTERNATIONAL STUDENT HEALTH INSURANCE

University policy requires all F-1 and J-1 visa students to have health insurance. Federal law requires all students on a J-1 visa to have health insurance that includes coverage for medical evacuation and repatriation. Medical evacuation coverage pays for returning a seriously ill student to his or her home country. Repatriation coverage pays for returning a student’s remains to his or her home country.

Mason offers health insurance for students on J-1 and F-1 visas. When international students register for classes, the cost of this coverage is automatically billed to their account by the Office of Student Accounts. This fee is due by the tuition payment due date. Failure to pay this insurance fee or successfully obtain an exemption may result in the cancellation of class registration. Late fees may be assessed if charges are not paid by the deadline established by the Student Accounts Office.

International students are required to purchase insurance for fall and spring/summer semesters.

EXEMPTION FROM THE INTERNATIONAL STUDENT HEALTH INSURANCE

International students are automatically enrolled in the Mason Student Health Insurance Plan. International students with health insurance coverage from the following list may request an exemption from the Mason Student Health Insurance Plan. Submission of a request does not guarantee that a waiver will be granted. The Student Health Insurance Office reserves the right to audit all waivers in order to ensure compliance with University Policy 6002.

Students may apply for an exemption:

1. If they have a scholarship or government-sponsored program that provides insurance for them that meets or exceeds the Mason Student Health Insurance Plan.
2. If they or their spouse or parent have a United States employer who provides health insurance for them that meets or exceeds the Mason Student Health Insurance Plan.

Each fall, continuing F-1 and J-1 visa students are required to either pay for the Mason Student Health Insurance or successfully obtain an exemption. Exemptions must be obtained no later than one week after the last day to add/drop classes.

See here (https://shs.gmu.edu/insurance) for more information and exemption form.
High School Guest Matriculant Special Programs
Select high school students may be invited to participate in one of several partnership programs offered through George Mason University. Students enrolled in Guest Matricular Special Programs have unique admissions and enrollment requirements set forth by the University. Only students that meet these requirements and agree to the University Honor Code will be admitted. Mason cannot guarantee that non-degree credit awarded will fulfill requirements at other institutions.

Undergraduate Non-degree
Visiting undergraduate students from other colleges or universities or community members who have completed one academic year of course work at a regionally accredited institution may be considered for Undergraduate Non-degree admission. Students who intend to transfer to Mason to earn a bachelor’s degree are ineligible for Non-degree study. To be considered for admission, Non-degree Undergraduate applicants must present a minimum 2.00 cumulative grade point average and be eligible to return to all previous institutions attended. Non-native speakers of English are required to meet the University English language proficiency requirement. Students who are actively suspended or dismissed will not be offered admission. Admission is offered for one semester and students may enroll in a maximum of 10 undergraduate (100-799) credits per semester. Admitted Non-degree Undergraduate students are assessed undergraduate tuition rates. Non-degree students are ineligible for financial aid. Additional non-degree study beyond the first semester requires a new application and admission review. Non-degree Undergraduate students are expected to maintain a 2.00 or better Mason GPA and are subject to the AP.5 Undergraduate Policies section of this catalog.

Graduate Non-degree
Current graduate students visiting from other colleges or universities or community members who hold a conferred baccalaureate degree from a regionally accredited institution may be considered for Graduate Non-degree admission. The minimum standard for Graduate Non-degree admission is a 3.00 cumulative grade point average on the baccalaureate record. Non-native speakers of English are required to meet the University minimum TOEFL/IETLS requirement. Official TOEFL/IETLS scores must be received directly from the testing agency. One official transcript from all institutions previously attended is required. For more information on how to submit transcripts, visit admissions.gmu.edu/grad/applynow/ (http://admissions.gmu.edu/grad/applynow). Applicants who present Ministry of Education recognized international transcripts are also required to provide an official NACES approved course-by-course credential evaluation.

Students may enroll in a maximum of 10 undergraduate or graduate (100-799) credits per semester. Admitted Non-degree Graduate students are assessed graduate tuition rates for all (100-799) courses. Non-degree Graduate students are ineligible for financial aid. Meeting the minimum standard for Graduate Non-degree study neither guarantees admission nor implies future admission to a degree-seeking program. Among the factors that may be considered in the admissions process are previous academic performance, professional experience and academic fit.

Non-degree Graduate students are expected to maintain a 3.00 or better Mason GPA and are subject to the AP.6 Graduate Policies (p. 87) section of this catalog.

Senior Citizen Enrollment
Mason welcomes applications from Virginia’s senior citizens. Under the terms of the Senior Citizens Higher Education Act of 1974, eligible Virginia residents, 60 years or older with a taxable individual income not exceeding $23,850 may apply to take university courses for credit in either degree or non-degree seeking status without paying tuition. Admitted senior citizens may register to audit courses regardless of income level.

All application and admission requirements and deadlines apply to Senior Citizen Enrollment. The University waives the application processing fee for seniors enrolling under the Senior Citizens Higher Education Act of 1974. Senior citizens must select the Senior Citizen Application Processing Fee waiver within the online application before submission of the application. Upon admission the Senior Citizen Tuition Waiver form must be completed with the Office of the University Registrar.

Academic Advising
Non-degree Undergraduate students may seek academic advising from the Office of Academic Advising, Retention and Transitions. Graduate Non-degree students may seek academic advising from the academic department offering their course(s) of interest.

Grades earned through non-degree studies remain a part of the student’s permanent non-degree record and are recorded on the university non-degree transcript. They will not appear on the degree transcript unless the student is accepted to a degree program and permission is given by the dean to apply the non-degree credit to the degree program. A maximum of 30 undergraduate credits taken in non-degree status may apply to an undergraduate degree program if approved by the relevant program dean.

International Students
International students holding F or J visas are not admitted in non-degree status. Exceptions exist for those students enrolled in either the Undergraduate International Year One Program (p. 124), Graduate International Year One Program (p. 129) or Academic English Program (p. 131) or those who attend George Mason University pursuant to the terms of an exchange agreement or memorandum of understanding between Mason and their home university.

Academic Testing
Office of Admissions
4400 University Drive, MS 3A4
Fairfax, VA 22030
Phone: 703-993-2400
Fax: 703-993-4622
Website: admissions.gmu.edu

Credit by Exam
The Office of Admissions awards transfer credit for several advanced standing examinations based upon minimum score requirements established by Mason academic departments. A complete list can
be found online (http://admissions.gmu.edu/exams). Students are responsible for providing official test score transcripts at time of application. Transfer credit evaluations are considered final after the first academic year of enrollment.

**Mason Departmental Exams**

Proficiency exams are offered in a number of courses usually taken during the first two years. Students may not earn credit by exam for courses in which they are currently enrolled beyond the time allotted to add courses in that semester, or for courses already audited or failed at the university. Transfer students may not earn by exam any part of the 30 credits that must be completed at Mason to earn a degree.

**English 101 and English 302 Proficiency Testing**

The English Department offers proficiency testing for the required composition courses ENGH 101 Composition (Mason Core) (p. 135) and ENGH 302 Advanced Composition (Mason Core) (p. 135). Students seeking a waiver for ENGH 101 Composition (Mason Core) (p. 135) may take the ENGH 101 Composition (Mason Core) (p. 135) Proficiency Exam. Students seeking a waiver for ENGH 302 Advanced Composition (Mason Core) (p. 135) may submit a writing portfolio to the English Department and complete a timed exam. Students who receive a waiver through these processes do not also receive course credit. Additional information can be found on the exemptions page of the Composition website (http://composition.gmu.edu/waivers).

**Foreign Language Placement**

SAT Subject Tests in foreign languages are used for placement in many of the languages offered at Mason. Freshman applicants who wish to receive the appropriate foreign language placement should take this exam during their senior year in high school. Transfer students receiving credit for college-level foreign language study completed at other colleges usually do not need a placement test, but should consult the Department of Modern and Classical Languages to determine correct placement.

For students who wish to continue the study of a language at Mason, it is the student's responsibility to take a placement exam and obtain results before enrolling in a foreign language course. The placement exam is given in conjunction with orientation. The schedule can be found on the website of the Department of Modern and Classical Languages. Specific information on interpreting test scores can be obtained from the department.

Some students whose degree programs require intermediate proficiency in a foreign language may be eligible for a waiver of the requirement based on prior knowledge of foreign language. For information on waiver of the foreign language requirement see the website of the Undergraduate Academic Affairs Office of the College of Humanities and Social Sciences.

**Math Placement Exam**

The Math Placement Exam is a computer-based test to help assess a student's proficiency. Entering students are required to complete the exam successfully during orientation unless they have received transfer credit for a mathematics course used to satisfy the University's quantitative reasoning Mason Core requirement. The math placement test schedule can be found online (http://math.gmu.edu).
POLICIES

- Academic Policies
- General Policies
- Honor Code and System
- Student Rights and Responsibilities

Academic Policies

- AP.1 Registration and Attendance
- AP.2 Course Information
- AP.3 Grading
- AP.4 Degree Application, Conferral and Graduation
- AP.5 Undergraduate Policies
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- AP.7 Research Policies

AP.1 Registration and Attendance

AP.1 Registration and Attendance

Registration for the next semester or summer term begins after mid-
semester of fall or spring semesters and is opened to various groups
according to priority (graduate students, seniors, juniors, and so on).
The Office of the University Registrar (http://registrar.gmu.edu) assigns
each student a time ticket, which is a specific date and time after which
a student may register. The time ticket is based on the number of credits
earned. Thus, the time ticket will not be the same for all students within
a particular priority group. Students should consult the Office of the
University Registrar (http://registrar.gmu.edu) and Patriot Web (http://
patriotweb.gmu.edu) for information about their registration date and
time.

AP.1.1 Academic Calendar

The academic calendar may be accessed at the Office of the University
Registrar (http://registrar.gmu.edu). Mason runs on a semester schedule,
including an active summer term.

AP.1.2 Academic Load

The minimum full-time load for undergraduate students is 12 credits
per semester. For graduate full-time classification, see AP.6 Graduate
Policies (p. 87). For planning purposes, applicants for admission are
asked to indicate their preference for full- or part-time status, and day
or evening classes; however, they may freely choose between evening
and day sections of courses and may change their full- or part-time status.

Although many students must work to meet living expenses, employment
must not take priority over academic responsibilities. Students employed
more than 20 hours a week are strongly urged not to attempt a full-
time academic load. Students employed more than 40 hours a week
should attempt no more than 6 credits per semester. Students who fail
to observe these guidelines may expect no special consideration for
academic problems arising from the pressures of employment.

Although 12 credits per semester represent a minimum full-time
undergraduate load, students planning to graduate in four years
need to carry an average of at least 15 credits per semester. Written
approval must be submitted to the Office of the University Registrar
(http://registrar.gmu.edu) before students can register for more
than the maximum allowable credits. Undergraduate and Nondegree
students should contact their Dean for permission. Graduate and Nondegree
students should contact their department for permission.

<table>
<thead>
<tr>
<th>Student Status</th>
<th>Maximum Credit Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>18</td>
</tr>
<tr>
<td>Undergraduate on warning, probation or returning from suspension</td>
<td>13</td>
</tr>
<tr>
<td>Graduate</td>
<td>12</td>
</tr>
<tr>
<td>Nondegree</td>
<td>10</td>
</tr>
</tbody>
</table>

AP.1.2.1 Financial Good Standing; No Holds on Record

Financial good standing and a university record clear of holds are
required for students to receive academic services. Services, including,
but not limited to, transcript issuance, diploma release, and class
registration (add, drop, withdrawal, and such) will not be provided to
students with a financial balance due or a hold of any kind on their
record. Holds are based on outstanding obligations and may be financial.
Examples include fines owed for traffic or parking violations, incomplete
immunization records, fines owed to the Mason or consortium libraries,
and other administrative holds.

AP.1.3 Registration Procedures

Patriot Web (https://patriotweb.gmu.edu) will list specific course
information before priority registration each semester. Courses listed
may be canceled for insufficient enrollment. Mason reserves the right to
change the class schedule and adjust the individual section enrollment
as necessary.

Registration is usually accomplished using Patriot Web (https://
patriotweb.gmu.edu); however, if a section is closed or registration into
a selected section is controlled, permission to enroll must be obtained
from the academic program offering the course. Various schools and
departments have their own processes for granting this permission. For
some courses, the student must submit a completed and signed course
permit form in person to the Office of the University Registrar (http://
registrar.gmu.edu). Students may not attend classes for which they are
not registered.

Students must be present at the first meeting of every laboratory course
(lecture and laboratory) to validate their registration. If students cannot
attend the first meeting, they must notify the instructor beforehand if they
intend to continue in that section. Otherwise, their name may be removed
from the class roll in both lecture and lab.

Students are responsible for registering properly and paying by the
deadline. Students should confirm the correctness of their enrollments
(including drop and add) via Patriot Web (https://patriotweb.gmu.edu).
Incorrect enrollments may result in academic and financial penalties.

Students are responsible for tuition payments and grades received for
all courses in which they are registered unless registration is canceled
administratively because of suspension, dismissal, or termination;
the section is canceled; or the student drops the course before the
tuition liability begins. See Office of the University Registrar (http://
registrar.gmu.edu) for deadlines.
AP.1.3.1 Course Prerequisites, Corequisites
Course prerequisites or corequisites state requirements for student entry into courses and reflect necessary preparation for attempting the course. It is the student’s responsibility to be aware of these as stated in the catalog and to have taken prerequisites recently enough to be of value. The administrator of the academic unit in which the course is taught or the instructor of the course may summarily drop students who have not met the prerequisites.
Graduate course prerequisites are normally met with a grade of B- or better; undergraduate course prerequisites are normally met with a grade of C or better. Individual programs may have higher standards. Questions should be addressed to the local academic unit or course instructor.

AP.1.3.2 Changing Registration
Registration changes must be completed within the schedule adjustment period defined below. Changes to registration are usually made via Patriot Web (https://patriotweb.gmu.edu).
The last day for adding a 14-week course is eight calendar days after and including the first day of classes. The last day for dropping a 14-week course is five calendar weeks after the first day of classes (including the first day). Courses meeting for fewer than 14 weeks have add, drop, and tuition-liability dates proportional to their length. These dates are published on the Office of the University Registrar (http://registrar.gmu.edu) web site each semester.

Students who drop all courses during the drop period will have no entry on their transcript for that semester and will not be considered an enrolled student for that semester. If it is the student's first semester, the student will not have a Mason transcript and must contact Admissions (https://www2.gmu.edu/admissions-aid) regarding enrollment in a future semester.

AP.1.3.3 Canceling Registration
Students cannot attend classes during the semester for which they have registered. Please cancel registration using Patriot Web (https://patriotweb.gmu.edu) prior to the first day of classes for the semester.

Refunds of tuition on and after the first day of classes are made according to the tuition-liability dates published in this catalog and the Office of the University Registrar (http://registrar.gmu.edu).

AP.1.3.4 Repeating a Course
Effective July 1, 2011, Federal Regulations no longer allow federal student aid funds to apply to courses that a student has already taken twice with a passing grade. This limitation does not include courses that are “repeatable for credit,” as described below. Students should contact the Office of Student Financial Aid (https://www2.gmu.edu/admissions-aid/) to determine how repeated course work would affect their financial aid eligibility.

Some courses are annotated in the catalog as “repeatable for credit.” These courses which students may repeat and receive additional credit for each time the course is taken. The maximum number of credits is specified in each course’s description. Special topics and independent study courses are examples. For all other courses, the following conditions apply:

- Graduate students who have passed a course with a satisfactory grade are not permitted to repeat the course for replacement credit. Grades of B- are considered satisfactory, unless the academic program specifies a higher minimum satisfactory grade. Students must obtain permission from their academic program to repeat a course in which they have earned an unsatisfactory grade. Each unit establishes procedures for granting such permission. Duplicate credit is not earned. When a course is repeated, all credits attempted are used to determine warning, termination, or dismissal; the transcript shows grades for all courses attempted; and only one grade per course may be presented on the degree application.

- Some courses, such as special topics courses, are repeatable for a limited number of additional credits. As long as students do not exceed the maximum allowable credits for repeatable courses, all takings of the course count for credit and in the student’s GPA. In cases where the student has exceeded allowable credits in a repeatable class, the transcript will exclude the grade and credits of the earliest taking of the class.

- For undergraduate classes not repeatable for credit, undergraduate degree students may repeat courses for which they seek a higher grade. Academic programs may restrict repeats of certain departmental or college courses in the major. Excessive repeats may result in termination from the major by a student’s dean. A grade received in a repeated course will replace the grade in a prior takings of the same course in the calculation of the cumulative GPA, even if the more recent grade is lower. Duplicate credit is not given. Repeat rules apply to taking the same course and courses designated in the catalog as equivalent. Repeat rules apply throughout a student’s academic history. All instances of courses and their grades remain part of the student’s transcript. No adjustment to the cumulative GPA will be made when the grade in the repeated course is W. A grade in a Mason course will not be excluded from the cumulative GPA if it is the student’s first semester, the student will not have a Mason transcript and must contact Admissions (https://www2.gmu.edu/admissions-aid) regarding enrollment in a future semester.

All students are expected to complete their initial enrollment before the first day of classes for the semester. Any additions to that enrollment must be processed by the end of the add period through official registration procedures. Students will not receive credit for courses unless their names are on the official class rosters and final grade sheets. Retroactive credits will not be awarded to students who report that they attended classes but were not on the official rosters. After the last day to add, students will not be added to courses except in unusual circumstances beyond the student’s control; such actions require approval by the administrator of the local academic department offering the course.

All students are expected to drop (by the end of the drop period) those courses they do not intend to continue. Registration is not canceled for failure to drop courses properly. Furthermore, registration is not canceled for failure to attend classes unless stated otherwise on Patriot Web (https://patriotweb.gmu.edu). All courses in which a student is enrolled past the drop deadline will remain part of the official academic record. For more information, see AP.3.3 Additional Grade Notations (p. 81). After the drop deadline, withdrawal approval is granted only for nonacademic reasons by the student’s academic dean. This approval is typically given for all courses at once, constituting withdrawal from a semester. For more information, see AP.1.5 Withdrawal (p. 78).

No change of registration transaction is complete until it is submitted through Patriot Web (https://patriotweb.gmu.edu) or processed by the Office of Student Accounts (http://studentaccounts.gmu.edu) and the Office of the University Registrar (http://registrar.gmu.edu) through in-person procedures.

Students will not receive written confirmation of schedule changes and are responsible for checking their schedules via Patriot Web (https://patriotweb.gmu.edu) before the end of the add or drop period to verify that their schedules are correct and they are properly enrolled. Students will not be allowed to remain in classes unless they are properly enrolled. Students are responsible, both financially and academically, for all courses in which they remain officially enrolled.
GPA based on a subsequent taking of an equivalent course via study elsewhere. The exclusion of earlier grades of repeated courses will not change the academic standing or dean's list notations for the earlier semester. Note that individual programs may disallow students from retaking certain high-demand courses simply for the purpose of improving their grade. Programs may also require departmental permission for students to repeat certain department, school, or college courses.

AP.1.3.5 Auditing a Course
Auditing a course requires the instructor's permission. Audit forms are available at Office of the University Registrar (http://registrar.gmu.edu). A previously-audited course may be taken again for credit in a later term. Students may also audit a course previously taken and passed; however, students may not change from credit to audit status or from audit to credit status after the end of the drop period, as defined above. The usual tuition and fees apply to audit status.

AP.1.4 Special Registration Procedures
AP.1.4.1 Advisor's Permission to Register
All newly-admitted students, undeclared undergraduates on academic warning or academic probation, and undergraduates returning from suspension, are required to obtain an advisor's approval for registration. All students are strongly encouraged to consult with their advisors concerning course registration each semester.

AP.1.4.2 Permission to Study Elsewhere
Currently enrolled George Mason University students who wish to take courses at another institution must obtain advance written approval. This process permits a student to enroll elsewhere in a suitable course unavailable at Mason or through the Consortium of Universities of the Washington Metropolitan Area. Students who wish to study abroad must contact the Mason Study Abroad (http://studyabroad.gmu.edu). Students wanting to pursue study elsewhere in a suitable course unavailable at Mason or through the Consortium of Universities of the Washington Metropolitan Area should contact the Office of the University Registrar (http://registrar.gmu.edu).

- The Permission to Study at Another Regionally Accredited U.S. Institution form can be found at the Office of the University Registrar (http://registrar.gmu.edu). Submission of this form does not guarantee approval.
- Catalog numbers and descriptions of courses to be taken elsewhere must be submitted with the request for approval.
- A minimum course grade must be achieved; however, grades themselves do not compute into any Mason GPA. For undergraduate courses, a minimum grade of C (2.0 on a 4.0 scale) is required. For graduate courses, a minimum grade of B (3.0 on a 4.0 scale) is required.
- Graduate students must obtain advance written approval from the director of their graduate program and the graduate dean of their school/college. Undergraduate students must obtain advance written approval from their academic advisor and the academic dean of the school/college offering the course to be taken elsewhere.
- Upon course completion, students must submit to the GMU Office of the University Registrar (http://registrar.gmu.edu) an official transcript from the visited institution for all coursework taken elsewhere.
- Advance approval to study elsewhere is required.

Special instructions for undergraduates:
- Once enrolled in degree status at Mason, students may request permission to take a limited number of credits at another regionally accredited institution.
- Students must be in good standing with a minimum cumulative GPA of 2.00 in their Mason courses to request permission to study elsewhere.
- Individual colleges/schools/institutes determine restrictions on the number, type, mode of delivery, location and offering patterns of courses that can be taken at another institution.
- Freshmen and transfer students in their first semester at Mason are not permitted to study elsewhere.
- Courses previously attempted at Mason (including withdrawals) cannot be taken elsewhere.
- Students must meet the minimum 30-hour residency requirement at Mason.

AP.1.4.3 Permission to Register as Graduate Student
Registration for courses in a graduate program is permitted only after the student has been notified of admission. Students admitted to degree programs are given preference over nondegree students through the registration process. Dual registration (for example, as a graduate student and nondegree enrollee) is not permitted. The graduate student is responsible for being properly registered and aware of all regulations and procedures required by a program of study. Regulations and degree requirements are not waived nor are exceptions granted because of ignorance of any regulations. Registration in graduate-level courses is restricted to admitted graduate degree students and nondegree graduate students (unless excluded by program). Undergraduate degree students may register for graduate courses only with special approval (see section below). Nondegree undergraduate students may not enroll in courses numbered 500 or above. Courses numbered 800 and above are available only to admitted graduate degree students.

AP.1.4.4 Graduate Course Enrollment by Undergraduates
Courses numbered 700 and above are closed to undergraduates. Undergraduates in degree programs may enroll in graduate-level courses 500 to 699 only with written permission, which must be obtained before registration. Forms are available at Office of the University Registrar (http://registrar.gmu.edu). Written permission is waived for undergraduate students admitted to combined bachelor’s/accelerated master’s programs.

To enroll in graduate courses for credit applicable to an undergraduate degree, undergraduates must have completed all course prerequisites, have exhausted all upper-level undergraduate courses relevant to their educational objectives, and be able to demonstrate the level of maturity required for graduate courses.

Approval to register for reserve graduate credit (earned credit held in reserve to apply later toward a graduate degree) is given only to Mason seniors within 15 credits of completing undergraduate study who have successfully completed all course prerequisites. In addition, this privilege is normally extended only to seniors who have completed at least 12 credits at the university, have a cumulative GPA of 3.00 or better, and have a major in the department offering the course. Approval for reserve graduate credit is limited to 6 credits and does not imply approval for admission into a Mason graduate program or that credit earned will be accepted at another graduate school.

Undergraduates enrolled in graduate courses are eligible to receive only those letter grades applicable to graduate grading. For more information,
AP.3 Grading (p. 80). Credit for the same course may not be applied to both graduate and undergraduate degrees.

AP.1.4.5 Special Registration for Nonenrolled Students
Degree-seeking students not enrolled in a credit-bearing course but whose academic unit certifies that they are pursuing an activity related to their Mason enrolled program can retain active status by registering for Special Registration (ZREG 200) for a $45 fee. Written approval from the student’s advisor and the local academic unit is required. Special registration allows students to retain library and computer privileges, receive a student ID, and buy a parking decal. Students must have active status to apply for or receive a degree, take an exam, or participate in cooperative education.

AP.1.4.6 Enrolling for Credit Without Grade Points (Satisfactory/No Credit)
Courses normally graded as satisfactory/no credit (S/NC) are annotated in the catalog, but students may elect to take credit without grade points. Undergraduates may take up to 6 credits to be graded S/NC; this option applies only to electives outside the field of the major, concentration, minor, general education requirement, or certificate program. Graduate students may elect the S/NC grade option only for courses that do not apply to the degree or certificate requirements. S/NC grading will also be used for courses numbered 998 and 999. For more information, see AP.3.3 Additional Grade Notations (p. 81).

AP.1.4.7 Senior Citizen Waiver Program
Under terms of the Senior Citizen Higher Education Act of 1974, eligible Virginia residents 60 years of age or older, with a taxable income not exceeding $15,000, are entitled to enroll in courses offered for academic credit on a space available basis without paying tuition and enrollment fees via the Senior Citizen Waiver Program. In order for this to occur, the applicant must meet all admission requirements. Senior citizens who meet all admission requirements, the income eligibility requirement, and have completed a minimum of 75 percent of degree requirements may enroll in a degree program during normal registration periods without paying tuition and enrollment fees. The admissions application fee cannot be waived, but students who qualify to have all tuition and fees waived will have the application fee reimbursed. For specific information about the program, please visit the Office of the University Registrar Senior Citizen Waiver Program (http://registrar.gmu.edu/topics/senior-citizen-waiver).

Citizens who wish to take advantage of this act must complete the appropriate online non-degree or degree application found at Admissions (https://www2.gmu.edu/admissions-aid) and submit all required transcripts and documents. If the application for admission is approved, qualified senior citizens can request a waiver of tuition and enrollment fees by completing the Senior Citizen Tuition Waiver Form, available from the Office of the University Registrar (http://registrar.gmu.edu/forms). To facilitate processing, senior citizens should provide their Mason student identification number on the waiver form.

In addition, the act allows admissible senior citizens to audit courses (no academic credit is received) and enroll in up to three noncredit courses per semester without paying tuition and enrollment fees, regardless of the taxable income level. Students seeking to audit a class must notify the Office of the University Registrar (http://registrar.gmu.edu) when registering for classes. Fees for course materials may apply to senior citizen enrollees, and tuition may be charged for courses designed exclusively for senior citizen groups. Senior citizens must adhere to all admissions and registration policies and processes and follow normal procedures to add and drop courses within the deadline dates outlined in each semester’s academic calendar.

AP.1.4.8 Summer Term
Phone: 703-993-2441
Web: registrar.gmu.edu/summer (http://registrar.gmu.edu/summer)

Summer enrollment provides an opportunity for eligible undergraduate, graduate, and non-degree students to begin or continue the pursuit of their academic goals. Courses are offered in intensive five to twelve-week sessions, as daytime and evening classes and as distance education courses.

Summer registration for current Mason students begins in mid-March while registration for non-degree students begins in late March to early April. Students who are new to Mason are required to apply and be evaluated for admission. Prospective students may contact the Office of the University Registrar (http://registrar.gmu.edu) at 703-993-2441.

AP.1.4.9 University Consortium
Mason is a member of the Consortium of Universities of the Washington Metropolitan Area, which includes American University, The Catholic University of America, Corcoran College of Art and Design, Gallaudet University, The George Washington University, Georgetown University, Howard University, Marymount University, National Defense Intelligence College, National Defense University, Trinity Washington University, the University of the District of Columbia, and the University of Maryland-College Park. Eligible Mason students may enroll in courses at any of the consortium institutions. The consortium’s cross-registration arrangement permits students enrolled in eligible degree programs at one member institution to take a course at another member institution.

Participation in consortium cross registration is available to degree-seeking juniors, seniors, and graduate students in good standing and currently enrolled at Mason. Participation is limited to courses that are approved by the student’s local academic unit and dean, apply to the student’s program of study, are not offered during that semester at Mason, and have space available at the visited institution. Additional restrictions apply. Students may take one consortium course per semester, with a career maximum of 6 credits for undergraduates (9–12 if foreign language study is approved) and 6 credits for graduate students. Credit earned through the consortium is considered resident credit, so grades count in the Mason GPA.

Information and regulations, including restricted and excluded courses, for both outgoing and incoming Mason consortium students are available on the web (http://registrar.gmu.edu/topics/washington-consortium). Information pertaining to all member institutions is available here (http://www.consortium.org). Questions may be directed to the consortium coordinator in the Office of the University Registrar (http://registrar.gmu.edu) at 703-993-2436.

AP.1.4.10 4-VA
4-VA began in 2010 as a collaborative of four universities: George Mason University, James Madison University, the University of Virginia, and Virginia Polytechnic Institute and State University. In 2015, Old Dominion University joined the collaborative. The presidents of these universities organized 4-VA in order to meet the needs identified by the Governor’s Higher Education Commission and his Commission on Economic Development & Job Creation.

4-VA’s mission is to promote inter-university collaborations that leverage the strengths of each partner university in order to accomplish much more than any individual university could achieve alone. 4-VA strives to:
define instructional models, including the clear definition of instructional costs; significantly expand access for all Virginians to programs preparing them for rewarding careers; increase research competitiveness, and enhance the success rate of students in Science, Technology, Engineering, and Mathematics (STEM) courses and programs. For more information, visit their website (http://4-VA.gmu.edu).

**AP.1.5 Withdrawal**

**AP.1.5.1 Selective Withdrawal for Undergraduates**

Undergraduates enrolled in bachelor’s degree programs are eligible to withdraw from a limited number of classes without the dean’s approval and at the student’s own discretion. Students may process a maximum of three such selective withdrawals during their entire undergraduate career at Mason. The three classes may have any number of credits. The academic calendar for each semester will include an open withdrawal period beginning the day after the last day to drop the class and extending through the ninth week. For classes shorter than a semester (14 weeks), the period will be set in proportion to the length of the class.

**AP.1.5.2 Course Withdrawal with Dean Approval**

For graduate and nondegree students, withdrawal after the last day to drop a course requires approval by the student’s academic dean, and is permitted only for nonacademic reasons that prevent course completion. For undergraduate students, withdrawal after the open withdrawal period, for cause within the period, or after a student has used all three selective withdrawals, requires approval by the student’s academic dean and is typically permitted only for nonacademic reasons that prevent course completion.

**AP.1.5.3 Semester Withdrawal with Dean Approval**

Undergraduates taking three or fewer classes may use the selective withdrawal for all courses for a semester; see the Selective Withdrawal for Undergraduates section. Otherwise, students may withdraw from a semester after the end of the drop period without academic penalty only for nonacademic reasons with the approval of the academic dean. Withdrawal forms are available at the appropriate academic dean’s office. Students who stop attending all classes without the dean’s approval and without processing selective withdrawals, if eligible, will receive a grade of F in all courses.

**AP.1.5.4 Effects of Course or Semester Withdrawal**

Approved or selective withdrawal results in a grade of W on the student’s transcript for the withdrawn course(s). While a grade of W does not affect the GPA, undergraduate students should note that withdrawn courses are part of “attempted credit hours,” which serve as the basis for the student’s credit level. In the university’s undergraduate retention system, GPA standards increase according to credit level. See AP.5.2.3 Student Retention Categories (p. 85).

**AP.1.6 Attendance Policies**

Students are expected to attend the class periods of the courses for which they are registered. In-class participation is important not only to the individual student, but also to the class as a whole. Because class participation may be a factor in grading, instructors may use absence, tardiness, or early departure as de facto evidence of nonparticipation. Students who miss an exam with an acceptable excuse may be penalized according to the individual instructor’s grading policy, as stated in the course syllabus.

**AP.1.6.1 Absence for Religious Observances or Participation in University Activities**

Mason encourages its faculty to make a reasonable effort to allow students to observe their religious holidays or to participate in university-sponsored activities (e.g., intercollegiate athletics, forensics team, dance company, etc.) without academic penalty. Absence from classes or exams for these reasons does not relieve students from responsibility for any part of the course work required during the absence. Students who miss classes, exams, or other assignments as a consequence of their religious observance or for participation in a university activity will be provided a reasonable alternative opportunity, consistent with class attendance policies stated in the syllabus, to make up the missed work. It is the obligation of students to provide faculty, within the first two weeks of the semester, with the dates of major religious holidays on which they will be absent, and the dates for which they are requesting an excused absence for participation in any university-sponsored activity scheduled prior to the start of the semester, and as soon as possible otherwise. Students requesting an excused absence for participation in a university-sponsored activity must provide their instructor with a letter from a university official stating the dates and times that participation in the activity would result in the student missing class. Faculty members are encouraged to take religious observances into consideration when constructing class schedules and syllabi.

**AP.1.7 Re-enrollment After Previous Attendance**

Undergraduate students who have missed one or more consecutive semesters must follow the requirements detailed in the Enrollment after Previous Attendance section in the Undergraduate Admission Policies section of the catalog. Graduate and Non-Degree students who have missed two or more consecutive semesters must re-enroll. All graduate students must receive departmental approval prior to re-enrollment. Students may find the re-enrollment form at the Office of the University Registrar (http://registrar.gmu.edu).

**AP.1.8 Undergraduate Leave of Absence**

All undergraduate students who are planning an absence from George Mason must submit a formal request for Leave of Absence (http://registrar.gmu.edu/forms) to the Office of the University Registrar (http://registrar.gmu.edu).

Students do not need to complete the Leave of Absence form if they are participating in a George Mason University sponsored study abroad program or have received permission to study elsewhere.

**Eligibility Requirements**

A student must:

- Be eligible to register for classes
- Be a degree-seeking undergraduate student
- Be registered during the semester immediately prior to the beginning of the Leave of Absence
- Have no holds (e.g., disciplinary, financial, etc.) which would restrict registration
  - The maximum time allowed for a Leave of Absence is two years.
  - A new admission application will be required if a student is away for more than two academic years. Re-admission is not guaranteed.
  - Prior approval is required. Advisors approve one-semester requests. Advisor and Dean approval is required if the leave of absence requested is for more than one semester.
  - Students are not permitted to study elsewhere while on a Leave of Absence.
  - A student who was admitted as a new first semester freshman or transfer student but did not attend will not be eligible for a Leave of Absence.
of Absence. Instead, he or she must contact Undergraduate Admissions.

- A student who was re-admitted but did not attend will not be eligible for a Leave of Absence. He or she must contact Undergraduate Admissions.
- Requests for extensions on a previously submitted Leave of Absence require submission of a new Leave of Absence form.

**AP.2 Course Information**

**AP.2 Course Information**

**AP.2.1 General Information**

Each course indicates:

- the number of credits earned
- course equivalencies
- the repeat status (see AP.1.3.4 (p. 75) for policies regarding repeating a course)

<table>
<thead>
<tr>
<th>Not Repeatable for Credit</th>
<th>student may attempt the course unlimited times during academic career but will receive credit towards the degree only once</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatable within Term for Credit</td>
<td>student may register and receive credit for more than one section of the course within the same academic term</td>
</tr>
<tr>
<td>Repeatable within Degree for Credit</td>
<td>student may register and receive credit for more than one section of the course during academic career</td>
</tr>
<tr>
<td>Limited to 2 Attempts</td>
<td>similar to ‘Not Repeatable’ but student may only attempt the course twice during academic career</td>
</tr>
<tr>
<td>Limited to 3 Attempts</td>
<td>similar to ‘Not Repeatable’ but student may only attempt the course three times during academic career</td>
</tr>
</tbody>
</table>

- prerequisites
- corequisites
- registration restrictions
- schedule type

Individual instructors set hours for independent study, readings, topics, or similar courses. If a course is listed as having an equivalent course, students may not receive credit for both courses.

**AP.2.2 Schedule Types**

**Activity-Based (ACT)**

Students receive instruction in a physical-discipline and then practice that discipline under instructor supervision. May include sports or drill formation exercises.

**Dissertation (DIS)**

Student is enrolled in a course working toward a doctoral dissertation supervised by a faculty member. Course must be numbered 998 or 999.

**Fieldwork (FLW)**

Coursework primarily consists of specialized fieldwork experiences, which may include professional licensure (in social work, nursing, legal, counseling, business) volunteering, service learning, science fieldwork, etc)

**Independent Study (IND)**

Refers to those situations where students work primarily on their own initiative on a project through reading and writing. Contact with an instructor may be one-on-one or in small groups and is generally only on a few arranged occasions throughout the semester to receive assignments, have progress checked, etc. Examples include: directed reading, problems and special projects.

**Internship (INT)**

Refers to those situations where the student applies previously-acquired knowledge and skills in a supervised situation which approximates the conditions under which those knowledge/skills will ultimately be used, usually off campus. Examples: practicums, on-the-job training, work experience programs, cooperative education programs, apprenticeships, externships, preceptorships, etc. Excludes Student Teaching PreK-12.

**Laboratory (LAB)**

Instructional activities in settings providing specialized facilities or equipment for students to master the subject matter either by performing experiments or practicing the skills being learned. The instructor generally supervises, assists, answers questions, etc., rather than making presentations.

**Lecture (LEC)**

Primary organization of class instruction. Instructors mainly present material by talking to the class about the subject matter.

**Private Music Instruction (PMI)**

Student receives one-on-one instruction from faculty member for a specific musical instrument.

**Recitation (RCT)**

Refers to a secondary organization of class instruction, typically smaller groups reviewing or discussing material previously presented in a lecture section.
### AP.2.3 Contact Hours

University coursework is measured in terms of quantity and quality. A credit normally represents one hour per week of lecture or recitation, or not fewer than two hours per week of laboratory work, throughout a semester. The number of credits is a measure of quantity. The grade is a measure of quality.

### AP.2.4 Course Numbering

Note: Course numbers which start with a U or L or end with a T are created for transfer credit purposes only.

| 100-199   | Lower-division undergraduate courses; primarily for freshman |
| 200-299   | Lower-division undergraduate courses; primarily for sophomores |
| 300-399   | Upper-division undergraduate courses; primarily for juniors |
| 400-499   | Upper-division undergraduate courses; primarily for seniors |
| 500-699   | Graduate-level courses; primarily for graduate, bachelor’s/accelerated master’s and non-degree graduate students. Advanced undergraduate students may request permission to register for these courses by using the Graduate Course for Undergraduate credit or the Reserve Graduate credit forms. Appropriate approval is required and is not guaranteed. Some restrictions may apply. |
| 700-799   | Graduate-level courses; primarily for graduate and non-degree graduate students. Some restrictions may apply. |

### AP.3 Grading

University coursework is measured in terms of quantity and quality. A credit normally represents one hour per week of lecture or recitation, or not fewer than two hours per week of laboratory work, throughout a semester. The number of credit hours is a measure of quantity, while the grade is a measure of quality. Faculty of record must assign a grade to all enrolled students at the end of the semester, term or part of term.

#### AP.3.1 Undergraduate Grading

The university-wide system for undergraduate grading is as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
<th>Undergraduate Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.00</td>
<td>Passing</td>
</tr>
<tr>
<td>A</td>
<td>4.00</td>
<td>Passing</td>
</tr>
<tr>
<td>A-</td>
<td>3.67</td>
<td>Passing</td>
</tr>
<tr>
<td>B+</td>
<td>3.33</td>
<td>Passing</td>
</tr>
</tbody>
</table>

### Special Course Number Designations

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>798</td>
<td>Master’s research</td>
</tr>
<tr>
<td>799</td>
<td>Master’s thesis</td>
</tr>
<tr>
<td>790, 890</td>
<td>Supervised practicum</td>
</tr>
<tr>
<td>794, 894</td>
<td>Internship</td>
</tr>
<tr>
<td>796, 896</td>
<td>Directed reading and research courses for master’s and doctoral students</td>
</tr>
<tr>
<td>998</td>
<td>Doctoral dissertation proposal</td>
</tr>
<tr>
<td>999</td>
<td>Doctoral dissertation research</td>
</tr>
</tbody>
</table>

### AP.5 University Courses

University (UNIV) courses are special undergraduate academic seminars that appeal to a wide range of majors. These courses fall into three general categories: transitional, interdisciplinary honors, and special topics. To encourage interaction among students and faculty, many of these courses have smaller class sizes. Some UNIV courses satisfy Mason Core (p. 135) requirements.

#### University Transitions Courses

This series of courses focuses on transition through the various stages of college. UNIV 100 – 199 courses help first-year college students adjust academically and socially, hone decision-making skills, learn about services and opportunities for involvement on campus, and solidify resources and techniques for assessing and improving their academic performance. UNIV 200 – 299 course topics focus on success in the second year of college and include choosing a major or career or participating in a Living Learning Community. UNIV 300 – 399 courses have three tracks: the first is for transfer students making the transition to a new university, the second focuses on career readiness for internships and research experiences, and the third is designed for specific groups of student leaders. UNIV 400 – 499 courses have a focus on research and scholarship, as well as life beyond college in the workplace or graduate school.

#### University Special Topics Courses

Upper-level University courses are open to all students unless specific prerequisites are indicated. They are usually repeated offerings.
unsatisfactory grade in determining probation, suspension, termination, or dismissal. Removal of INs from the transcript may result in retroactive elimination of probation, suspension, termination, or dismissal.

Incomplete, extended (IX)
IX is given by the Office of the University Registrar after receiving an Incomplete Extension form signed by the instructor and the appropriate dean. The extension gives students additional time to complete work; the amount of time is specified by the instructor. The final grade must be submitted to the University Registrar’s office before final exams for the semester in which the IN grade was originally due. A grade of IX affects the academic record in the same way as does a grade of IN.

In Progress (IP)
This grade may be given in selected courses, including graduate theses, dissertations, practicums, and internships. IP may also be used when the work of BIS 490 RS: Senior Project (Mason Core) (p. 135), CS 112 Introduction to Computer Programming (Mason Core) (p. 135), CS 211 Object-Oriented Programming, ECON 495 RS: Honors Thesis in Economics, or if a course that is graded S/NC or A/B/C/NC is not completed within one semester. IP has no effect on the GPA. With the exception of the formerly-mentioned courses, IP remains on the record until the work is completed and a final grade is assigned. An IP in BIS 490 RS: Senior Project (Mason Core) (p. 135), CS 112 Introduction to Computer Programming (Mason Core) (p. 135), CS 211 Object-Oriented Programming, or ECON 495 RS: Honors Thesis in Economics not changed to a final grade by the last day of classes of the next semester, not including summer term, is changed by the Office of the University Registrar to an F. IP grades will also be awarded in courses numbered 799, 998 and 999 until successful completion, and then they will be changed to S/NC. Upon successful completion of 799, 998 or 999 and submission of the final grade, grades for all prior sections will be changed to S/NC.

Absent with permission (AB)
A student who has received permission from the academic dean or director to be absent from a final exam for cause beyond reasonable control may receive a temporary grade of AB. A rescheduled exam must be administered within 10 business days of the original exam date, or the AB will automatically become an F. Final determination of academic status is not complete while the AB remains on the transcript.

Special Provision (SP)
The grade of SP may be given by a dean to students who are unable to complete the course requirements because of extraordinary long-term circumstances, such as major illness or military deployment. SP has no effect on the GPA and remains on the transcript until the work is completed and a final grade is assigned.

AP.3.4 Midterm Reports
Midterm progress is reported for all full-semester 100- and 200-level classes, and for 300- and 400-level classes at the discretion of the professor. The reporting period extends from the fifth through the eighth week of the semester, allowing flexibility to individual faculty in providing reports for their classes. Students should check with their instructors as to when reports will be complete and available for viewing through Patriot Web. These progress reports, which appear in Patriot Web as "Midterm Grades," do not become part of the student’s official record. They are not calculated in any GPA, and they do not appear on any official or unofficial transcript.
AP.3.5 Final Grades
Semester grade reports are available through Patriot Web. Students may print a grade report for their own records or to issue to a third party.

AP.3.6 Transcripts
Official transcripts include all credit coursework attempted at the university, including all courses taken as a graduate, undergraduate or non-degree student. Official transcripts will not be issued when unsatisfied financial obligations to the university exist. Unofficial transcripts may be printed by the student from Patriot Web. See the Office of the University Registrar (http://registrar.gmu.edu) for information and instructions on ordering official transcripts.

The Antonin Scalia Law School issues transcripts for courses taken as a law student. See Law School (http://law.gmu.edu) for information and instructions on ordering transcripts.

AP.3.6.1 Transcript Key
The transcript key, which appears on the reverse side of official transcript paper, summarizes policy information pertinent to understanding individual students’ transcripts and may be updated as necessary.

AP.3.7 GPA
Quality point values are assigned to letter grades as indicated in the grading system table. A quality point score is computed by multiplying the value of a letter grade by the number of credits for the course. For example, a student receiving an A (4.00) in a 3-credit course earns 12 quality points. The GPA is computed by dividing the quality points earned by the number of credits graded A+ through F (GPA hours).

For undergraduates, the GPA computed for the current term gives the current GPA, which is the measure of academic performance in one semester and affects eligibility for the dean’s list. The GPA computed for all institutional credit gives the cumulative GPA, which is the basis for the university’s retention policies, including good standing, warning, probation, suspension, and dismissal. Cumulative GPA also determines students’ eligibility to graduate and have university honors posted to their record at graduation.

Current GPA and cumulative GPA do not apply to graduate students. A notation of academic warning is entered on the transcript of a graduate student who receives a grade of C, or a grade of F in a graduate course or while a grade of IN or IX is in effect. A degree GPA is computed for graduate students based on graded courses completed at the university and applied toward the degree. For more information, see AP.6 Graduate Policies (p. 87).

AP.3.8 Change of Grade
The conditions and time limits for changes from the temporary grades IN, IP, AB, and SP to final grades appear in Additional Grade Notations (p. 81).

Once a final grade has been recorded by the Office of the University Registrar, it can be changed only in cases of computational or recording error, or pursuant to a successful appeal of the grade as described below. Additional work of any type submitted to improve a grade after the final grade has been assigned and sent to the Office of the University Registrar is never accepted.

All changes of final grades must be initiated, approved, and recorded by the last day of classes of the next regular semester (spring for fall grades, and fall for spring and summer term grades).

AP.3.9 Grade Appeals
Although faculty members are generally the best judges of student performance, there may be times when a student believes a grade is unfair. In such cases, the student should ask the faculty member to reconsider the grade. If the student is not satisfied, an appeal may be made to the local academic administrator of the unit offering the course. The administrator should ask the student to return to the faculty member who assigned the grade for further consultation.

If the faculty member is no longer associated with the university, the administrator will appoint a faculty surrogate, who will assume the authority of the instructor of record.

If a mutually satisfactory agreement is not reached, the student may request that the administrator form a review committee of three faculty peers of the faculty member who assigned the grade. If the administrator believes the student’s appeal does not have merit, this reservation is reported to the collegiate dean. If the dean concludes the student’s appeal does not have merit, no review is conducted.

The faculty member or the student may challenge and have replaced one of the three members of the committee without giving a reason for the challenge. The committee meets separately with the faculty member and the student to explore the full particulars of the case. A nonparticipating observer of the student’s choice may attend the meeting. Every effort is made to avoid an adversarial relationship.

After the committee has reviewed the case thoroughly, it issues to the administrator (with a copy to the faculty member) a written recommendation that includes the reasons for its findings. At this time, the faculty member has an opportunity to take the recommended action, if any. If the matter is not resolved at this point, the administrator considers the committee recommendation and makes a recommendation to the dean. If the dean decides that the recommendation to change the grade is appropriate and the faculty member refuses to make the change, then the dean may direct the Office of the University Registrar to do so. The decision of the dean is not subject to further appeal.

Grade appeals are not accepted after the last day of classes of the following semester (spring for fall grades, fall for spring and summer grades).

The Provost’s Office does not consider grade appeals, nor does the University Academic Appeals Committee.

AP.3.9.1 Pending Grade Appeal for Students in Academic Difficulty
A student may request a delay from the dean in imposing academic suspension because of a pending grade appeal that could change the student’s status. An approved delay allows the student to register.

If the grade appeal is successful, the official transcript is corrected and the student continues in classes as a student in good academic standing, on probation or on warning. If the grade appeal is not successful, the student is required to stop attending all classes immediately. No record of registration for the academic period appears on a transcript and the student receives the appropriate refund as of the decision date.

AP.3.10 Final Exams
Undergraduate courses usually culminate with a final exam. Except in predominantly laboratory courses, final exams may not be given during the last week of classes. Exams may not exceed the scheduled length of two hours, 45 minutes. Changes in location or time of in-class final exams must be approved by the appropriate department chair and dean.
professor who is considering assigning a take-home exam or significant end-of-semester paper or project should inform the students at the beginning of the semester. Such assignments should be distributed by the beginning of the last week of classes so that students can coordinate them with preparation for other exams. Students must not be required to submit exams before the date of the regularly scheduled exam for a course. Retaking final exams is not permitted. Students who have more than two examinations scheduled on the same day should consult their instructors to make other arrangements. If campus-wide disruptions to class meeting schedules occur during the semester (e.g., due to severe weather), a revised final exam schedule may be issued. In this event, students and faculty are expected to adhere to the revised schedule. The examination period may be prolonged and individual exams may be shifted to the last day of the revised exam period.

Students with permission to take deferred examinations may receive a temporary grade of AB (absent with permission). Rescheduled exams must be completed within the time deadline set by the university. See below for more information.

AP.3.10.1 Absences from Final Exams
Absences from final exams will not be excused by the instructor except for sickness on the day of the exam. Other causes must be approved by the student’s academic dean or director. The effect of an unexcused absence from an undergraduate final exam shall be determined by the weighted value of the exam as stated in the course syllabus provided by the instructor. If absence from a graduate final exam is unexcused, the grade for the course is entered as F. See AP.3.3 Additional Grade Notations (p. 81) for information on being absent with permission.

AP.4 Degree Application, Conferral and Graduation

AP.4 Degree Application, Conferral and Graduation

AP.4.1 Application for Degree
In the semester prior to the expected completion of degree requirements, students must confirm their intent to graduate through Patriot Web (https://patriotweb.gmu.edu). The deadline to apply to graduate is generally three to four months prior to the conferral date. Specific deadlines and complete instructions regarding graduation are published on the Office of the University Registrar’s website (http://registrar.gmu.edu). Separate applications for each graduate degree or certificate are required.

For a degree to be conferred, all coursework must be completed, even if the coursework is not being applied to the degree. All students must complete the following degree requirements prior to the conferral (graduation) date: credit-by-exam, oral exams, theses, scholarly papers, and comprehensive exams. Students in doctoral programs must also complete internship/practicum requirements prior to the conferral date. Master’s theses and doctoral dissertations are due in the library well before the conferral date. For more information see this page (http://thesis.gmu.edu).

Students must have active registration status in the semester or summer term of graduation. Students not registered for coursework in the term of graduation must obtain a special registration. (For more information, see AP.1 Registration and Attendance (p. 74.) Degree applications will not be automatically extended if graduation is postponed; students must reapply for each conferral date.

AP.4.2 Degree Conferral
Mason awards degrees and certificates in programs and at levels authorized by the State Council of Higher Education for Virginia (SHEV). The university confers degrees at the bachelor’s, master’s, and doctoral levels. An academic program may include a degree program and additional majors, minors, or certificates. The university offers no certificate program below the bachelor level; some post baccalaureate certificates, however, may be awarded concurrently with the bachelor’s degree. For more information, see listings in Find Your Program (http://catalog.gmu.edu/programs).

AP.4.2.1 Definitions of Degree Components
• Degree program, major, or field: A program of study that normally requires at least 30 credits of coursework in the specified field. The primary program name (degree and major or field) appears on the diploma for bachelor’s and master’s degrees. Only the degree name appears for doctoral degrees. An undergraduate who desires to graduate with a BA or BS degree in two or more subjects must meet departmental requirements for the major in each field. For each major, at least 18 credits used to fulfill its requirements must be applied only to that major, i.e., cannot be used to fulfill the requirements of a concentration, minor, undergraduate certificate, or another major.
• Concentration: A second-order component of a degree program. A concentration consists of at least 12 hours that are not applied to any other concentration. Undergraduate concentrations are approved by the Undergraduate Council at the undergraduate level or by the Graduate Council at the graduate level.
• Certificate: A nondegree program complementary to a degree that requires at least 24 undergraduate or 12 graduate credits. For each undergraduate certificate, at least 15 credits used to fulfill its requirements cannot be used to fulfill the requirements of a major, concentration, minor, or another undergraduate certificate. The name of a completed certificate program appears on the transcript after the conferral of an undergraduate degree. Certificates are approved by the school or college at the undergraduate level and by the Graduate Council at the graduate level. Credits from a maximum of one graduate certificate may also apply to a master’s or doctoral degree program.
• Minor: A complement to a bachelor’s degree program or major normally requiring at least 15 credits in a field other than the student’s major. Of the courses presented for a minor, at least 8 credits must be applied only to that minor and may not be used to fulfill requirements of the student’s major, concentration, an undergraduate certificate, or another minor.
• Option: The choice of a thesis or nonthesis path in graduate programs.

AP.4.2.2 Catalog Requirements for Degrees
Catalog year refers to the setting of course and non-course requirements within academic programs as stated in the school and college section of a specific catalog. Catalog year does not set academic policies other than program requirements in place, however. For more information, see the Knowledge of University Policies section of the Student Rights and Responsibilities section. Not all programs and degree components are available in all catalogs. For any one degree, all requirements must be met as stated in a single catalog. The only exception is that Bachelor’s
degree students may select a minor from another catalog year for which they are eligible, as noted below.

Bachelor’s degree candidates may choose to graduate under the terms of any catalog in effect during their enrollment in degree status. Students who have been inactive for two or more years or who have attended another institution without prior approval from their academic dean or director must graduate under a catalog in effect at or after their re-admission and during their enrollment in degree status.

Master’s and doctoral degree candidates who have been continuously enrolled may choose to graduate under the terms of any catalog in effect during their enrollment in degree status. Students who have been inactive more than one year, however, may be required by their program to graduate under a catalog in effect after they have been granted permission to re-enroll. In no case may a student choose the requirements of a future catalog year that take effect after the student’s degree is anticipated.

**AP.4.3 Graduation**

Graduation ceremonies provide opportunities for students and their families to share in the conferral of academic degrees. Students who wish to participate should check GMU Events (http://events.gmu.edu) for current information about all graduation details including tickets, regalia, and schedules. Note: there is one formal commencement ceremony per year, in May, that includes all schools and colleges; students are recognized in groups, by their degrees. Each college holds a separate convocation where individual student names are called. Bachelor’s and master’s degree candidates who declare their intent to graduate in August but who have not yet completed all degree requirements may participate in the graduation ceremonies in anticipation of degree completion. Their names are marked with an asterisk identifying them as candidates pending completion of all requirements. Doctoral students may participate only if they have successfully completed all degree requirements, including defending and submitting a signed, final copy of their dissertation by the deadline. A Winter Graduation ceremony is held for August and December graduates where each student is individually recognized.

**AP.4.4 Conferral of Posthumous Degree**

A posthumous degree is an official Mason degree that is awarded to a deceased student in recognition of the student’s academic achievement. The criteria for the award are established in order to uphold academic and institutional integrity. If a student does not qualify for a posthumous degree, an “In Memoriam” degree may be awarded to a student in good academic standing. Either degree award is subject to final review by the Provost.

**Criteria**

A posthumous degree may be awarded if, at the time of the student’s death, he or she was enrolled in George Mason University, was in good academic standing, and was nearing completion of the requirements in the major degree program.

- **Undergraduate**: The student must have completed 90 credit hours, with at least 30 credit hours completed at Mason.
- **Graduate – Masters**: The student must have been admitted into degree status; completed at least 80% of the credit hours required for the degree, with at least 18 hours completed at Mason; and have a minimum GPA of 3.00 which does not include more than 6 credits of C.

If the degree requirements include a thesis, the student must have completed sufficient research or scholarship such that a thesis or one or more articles can be prepared. The student’s thesis committee must approve the thesis or article(s) and recommend granting the degree.

- **Graduate – Doctoral**: The student must have advanced to candidacy; completed all coursework required for the degree with a minimum GPA of 3.00 which does not include more than 6 credits of C; and must have completed a full draft of the dissertation. The student’s dissertation committee must determine that the dissertation could have been defended and recommend granting the degree.

**AP.5 Undergraduate Policies**

**AP.5.1 Student Classification**

Admitted undergraduates are classified as follows:

- **Freshman**, 0–29 credits completed
- **Sophomore**, 30–59 credits completed
- **Junior**, 60–89 credits completed
- **Senior**, 90 or more credits completed

Full-time undergraduates are classified as those students enrolled in 12 or more credits per semester. Completed hours are defined as a combination of all credits earned at the university plus credits transferred from other institutions or obtained by testing. Please note that different criteria for full-time status may apply for tuition, verification, and financial aid purposes. For more information, contact the offices of Student Accounts (http://studentaccounts.gmu.edu), University Registrar (http://registrar.gmu.edu), and Student Financial Aid (https://www2.gmu.edu/admissions-aid/financial-aid), respectively.

**AP.5.2 Academic Standing**

The following system of academic progress became effective in fall 2004 and applies to all undergraduate degree and nondegree students at Mason.

Academic retention is based solely on the cumulative GPA. The cumulative GPA required for retention varies according to the credit level or attempted credit hours, which is a combination of all credits attempted at the university plus credits transferred from other institutions or obtained by testing.

**AP.5.2.1 Academic Period**

Academic period refers to fall semester, spring semester, or summer term. For determining the duration of academic warning, probation, and suspension, an academic period is defined as follows:

Each academic period begins on the 15th day following the last scheduled day of final exams for the previous period. Each academic period ends on the 14th day after the last scheduled day of final exams. For example, assume that the last scheduled day of final exams for a semester is Monday, December 23. That period then ends on Monday, January 6. The next period begins on Tuesday, January 7.

**AP.5.2.2 Good Academic Standing**

Students are in good academic standing unless they are academically dismissed, suspended, or on probation. Students on academic warning are still considered to be in good academic standing.
AP.5.2.3 Student Retention Categories
The university’s minimum standard for satisfactory academic achievement is 2.00 on a 4.00 scale. Students with at least 7 attempted credits and a cumulative GPA of less than 2.00 fall into one of three categories: warning, probation, and suspension. All notations of academic standing are included in a student’s permanent record. The cumulative GPA range that defines each of the categories varies according to the credit level, as noted below:

<table>
<thead>
<tr>
<th>Credit Level</th>
<th>Warning</th>
<th>Probation</th>
<th>Suspension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attempted Credit Hours:</td>
<td>Cumulative GPA</td>
<td>Cumulative GPA</td>
<td>Cumulative GPA</td>
</tr>
<tr>
<td>7-16</td>
<td>0.00-1.99</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>17-29</td>
<td>1.75-1.99</td>
<td>1.00-1.74</td>
<td>0.00-0.99</td>
</tr>
<tr>
<td>30-59</td>
<td>1.85-1.99</td>
<td>1.25-1.84</td>
<td>0.00-1.24</td>
</tr>
<tr>
<td>60-89</td>
<td>1.95-1.99</td>
<td>1.55-1.94</td>
<td>0.00-1.54</td>
</tr>
<tr>
<td>90+</td>
<td>-----</td>
<td>1.85-1.99</td>
<td>0.00-1.84</td>
</tr>
</tbody>
</table>

Exception for Freshmen and Transfer Students
Freshmen and transfer students in their first semester of study at Mason will receive probation as the strongest academic sanction. GPA retention levels, as stated above, will apply in all subsequent semesters. Students in this category should be on notice that they must improve their academic record to avoid suspension in future semesters; in particular, they should consult their advisors and consider repeating courses to achieve academic good standing.

AP.5.2.4 Termination from the Major
Undergraduate students in any retention category may be reviewed for possible termination by their dean. Termination from a major—or from all majors in a college—may be imposed as a result of excessive repeating of required courses without achieving the minimum standard, and for other evidence of continued failure to make adequate progress toward completion of the major. Students must be informed a semester in advance and given a chance to meet the standard or appeal. Once a termination decision has been made, a letter of termination is sent to the student by the dean or director of the school, college, or institute, and notification of termination from the major is affixed to the student’s academic record. Students who are terminated are no longer eligible to pursue that major, but may transfer to a different major within the university to complete their undergraduate degree.

AP.5.2.5 Academic Suspension
Students in degree status who incur a first suspension following a spring semester or summer term serve a period of suspension through the next fall semester. Students who incur a first suspension following a fall semester serve a period of suspension through the next summer term. A second suspension is for one calendar year: two semesters and a summer term. Students returning from suspension are on probation for one academic period. Course credits earned at other colleges during the period of suspension from Mason (for academic or nonacademic reasons) are not accepted for the degree program.

Nondegree undergraduate students placed on suspension have no specified rights of return to the university. Nondegree students who have been suspended and wish to resume their studies after a period of absence must qualify for readmission through the Office of Admissions (https://www2.gmu.edu/admissions-aid).

AP.5.2.6 Academic Dismissal
A third suspension results in academic dismissal, a status that is usually permanent. In exceptional cases, students who have been dismissed may apply for readmission after a minimum absence of three calendar years from the university, but only if they meet one or more of the following conditions after having been dismissed:

- Demonstrate academic success (2.50 GPA or better) in at least 18 credits of classes taken during the period of dismissal at an accredited two- or four-year college or university. Such credits may be considered for transfer back to Mason, but there is no guarantee of acceptance of the credit.
- Provide other evidence of a renewed ability to achieve academic success.
- Provide evidence that all degree requirements will be met once an additional 12 or fewer credits are complete.

Meeting the above requirements does not guarantee a return. The Office of Admissions and the appropriate school or college dean will make individual decisions in the best academic interests of the student and the university. For students seeking readmission to a new school or college, the new dean will make the decision in consultation with the former dean and the Office of Admissions (https://www2.gmu.edu/admissions-aid). For more information, see AP.5.2.9 Academic Clemency (p. 85).

AP.5.2.7 Academic Performance and Credit Limit
Undergraduate students on warning, probation, or returning from suspension are limited to a maximum of 13 credits for following semesters until they achieve good standing. Students registered for 14 or more credits are responsible for seeking academic advisement and adjusting their enrollment to a maximum of 13 credits.

AP.5.2.8 Academic Standing and Student Activities
Only students in good academic standing are eligible to hold or run for elective or appointive office in any organization or activity associated with Mason, compete in any athletic or other activity representing Mason on either an intercollegiate or a club level, or serve as a working staff member of any student organization. Note that students on warning are considered to be in good standing. Some organizations and activities may impose stricter academic criteria for participation.

A student whose eligibility for an activity requires the completion of a semester will have fulfilled that requirement when the student’s publicly scheduled exams are over, unless continued eligibility depends on the grades received. In the latter case, the student will not become eligible until the end of the semester as defined in AP.5.2.1 Academic Period (p. 84).

AP.5.2.9 Academic Clemency
Undergraduate students returning to Mason after a separation of a minimum of three calendar years may petition their academic dean to have up to 16 previous credits earned at Mason removed from the calculation of their cumulative GPA. Courses and grades so removed will not count toward graduation requirements. Note that the courses, with their original grades and the notation “Academic Clemency,” will remain listed on the student’s transcript permanently. The petition for clemency must be filed within 12 months starting from the first day of the re-enrollment semester at Mason; approval may depend on successful completion of that semester. Approval of the request is neither automatic nor guaranteed.

AP.5.3 Requirements for Undergraduate Programs
AP.5.3.1 Declaration of Major
To plan a sound academic program, undergraduates should select a degree and major as soon as it is practical but no later than four weeks before the end of the sophomore year. To declare a major, students
should confer with the appropriate advisor in the new major program. Students approaching the recommended point for declaring a major, but still uncertain of their choice, should consult:

Academic Advising and Transfer Center
Student Union Building I, Room 3500
advisor@gmu.edu

Note that all degree components including Mason Core, majors and concentrations must be contained in a single catalog year. See AP.4.2.2 Catalog Requirements for Degrees (p. 83) for exception regarding minors.

AP.5.3.2 Requirements for Bachelor’s Degrees
- **Admission.** Candidates must have been officially admitted into degree-seeking status.
- **Residency.** At least one-fourth of the total credits applied to the degree must be completed at Mason and include at least 12 upper-level credits (courses numbered 300 or above) in the major program. A maximum of 30 credits earned in non-degree status at Mason can be applied toward a bachelor’s degree.
- **Credit Hours.** Students must complete at least 120 credits that count toward graduation and fulfill all degree requirements. A few programs require more than the minimum 120 credits.
- **Quality.** Candidates must achieve a cumulative GPA of 2.00 or higher, and must meet all higher standards for grades allowable in majors, minors, or certificates. The Mason cumulative GPA does not include transfer courses.
- **Upper Level.** Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.
- **Mason Core** (p. 135) (formerly University General Education). Candidates must complete categories of general education courses and writing requirements as described for their catalog year. This includes satisfying the requirement of two semesters of English composition (ENGH 101 Composition (Mason Core) (p. 135) and ENGH 302 Advanced Composition (Mason Core) (p. 135)) with a grade of C or better. Additionally, as part of the university’s commitment to student writers in all undergraduate programs, at least one upper-division course in each major has been designated as fulfilling the writing-intensive (WI) requirement.
- **College/Department General Education.** Students must satisfy additional general education requirements for specific degree programs, as described on each individual college page.
- **Major.** Students must satisfy all requirements for their major and degree program, as described on each individual college page, and as detailed in the degree evaluation for their catalog year.

AP.5.3.2.1 English Composition Requirement
Mason requires students to complete at least two semesters of English composition. Students who complete the Honors curriculum complete the English composition requirement through coursework in those programs. Equivalent credit may be granted through course transfer or external exam. Exemption (but not credit) may be granted through a proficiency exam administered by the English department. All other students must enroll in ENGH 101 Composition (Mason Core) (p. 135) (or ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135)) upon admission and, after meeting its prerequisites, ENGH 302 Advanced Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in composition courses to fulfill degree requirements.

AP.5.3.2.2 Writing-Intensive Course Requirement
As part of the university’s commitment to student writers in all undergraduate programs, at least one upper-division course in each major has been designated as fulfilling the “writing-intensive” (WI) requirement. While other courses in the major may require written projects, teachers of the designated WI courses will devote class time to instruction on how to complete assignments successfully, assign and grade a minimum of 3500 words, provide constructive feedback on drafts, and allow revision of at least one graded assignment. See the description of each major for the specific course or courses that fulfill the WI requirement. For a complete list of approved courses, see Writing Intensive (p. 146) courses.

AP.5.3.3 Second Bachelor’s Degree
A second bachelor’s degree may be earned, either concurrently or sequentially. To graduate with two degrees, students must present at least 30 Mason credits beyond those required by either degree alone. For sequential awarding of degrees, students must be readmitted for the second degree through the Office of Admissions and complete a minimum of 30 credit hours after that point to have fulfilled the residency requirement for that degree.

Students who are concurrently pursuing two bachelor’s degrees at Mason must present a detailed program of study for both degrees and obtain authorizing signatures from the chair or director of each degree program and the dean or director, if required by the college, school, or institute. Students may declare the second concurrent degree by completing the Declaration of Second Bachelor’s Degree section of the Change/Declaration of Academic Program Form. Both degrees must be declared the semester before the student intends to graduate. Students pursing concurrent degrees should apply to graduate when both degrees are complete, or be prepared to meet the requirements noted above for sequential awarding of degrees.

AP.5.3.4 Minors
Students may elect minor programs of study in addition to major fields by submitting a completed Minor Declaration (Undergraduate) form to the Office of the University Registrar. Minors usually require between 15 and 21 credits of study, at least 8 of which must be applied only to that minor and may not be used to fulfill requirements of the student’s major, concentration, an undergraduate certificate, or another minor. Students must complete at least 6 credits in their minor at Mason and achieve a minimum 2.00 GPA in courses applied to the minor. Students interested in a minor should consult the appropriate departmental sections in this catalog. Note that these are university minimum requirements; individual programs may have higher standards and/or more restrictive requirements.

AP.5.3.5 Undergraduate Certificates
Students may elect undergraduate certificate programs of study in addition to major fields by submitting a completed Change/Declaration of Academic Program form to the Office of the University Registrar. Students pursuing undergraduate certificates must be admitted to Mason in degree-seeking status. Undergraduate certificate programs require at least 24 credits, 15 of which may not also be used to fulfill the requirements of a major, a concentration, a minor, or another undergraduate certificate. More than half of the credit hours for an undergraduate certificate must be taken at Mason, and more than half must be taken in degree-seeking status. Students must achieve at least a 2.00 GPA in courses applied to the certificate.

Students with a previous bachelor’s degree, who are admitted to an undergraduate certificate program alone, have four years to complete
The University was awarded a chapter in Phi Kappa Phi, the nation's oldest all-disciplinary honor society. In 2012, Mason was awarded a chapter of Phi Beta Kappa, the nation's oldest and most prestigious honor society dedicated to the liberal arts. Membership is by invitation only to both of these honor societies.

**AP.5.5 Dean's List**

Students in degree status who take at least 6 credits in a semester and earn a semester GPA of 3.50 or higher merit placement on the Dean's List. Courses subsequently repeated and excluded will not retroactively affect Dean’s List status. This notation will be placed on the individual’s permanent record.

**AP.6 Graduate Policies**

**AP.6 Graduate Policies**

At the graduate level, Mason offers certificates and master’s and doctoral degrees. There are also a number of combined bachelor’s and accelerated master’s degree programs for academically-strong undergraduates with a commitment to research.

**AP.6.1 Student Classification**

Students may access graduate classes and programs according to their status as nondegree or enrolled degree students. For more information, see Graduate Admissions (p. 66).

**AP.6.2 Full-Time Classification**

Graduate students are considered full time if they are enrolled in at least 9 graduate credits per semester or hold a full-time assistantship (total 20 hours a week) and are enrolled in at least 6 graduate credits per semester.

Master’s students may enroll in 1 credit of 799 and be considered full time only if they have completed 3 credits of 799 and the student along with their advisor and department chair certify each semester that the student is working full time on the thesis. See AP 6.9.3 Master's Thesis (p. 91) for more information regarding 799.

Doctoral students who are enrolled in dissertation credits (either 998 or 999) are considered full time if they are enrolled in at least 6 credits per semester, regardless of whether they hold an assistantship. Doctoral students who have advanced to candidacy and have completed the minimum number of credits required by the university and their degree program, including the minimum number of credits of 998 and 999, are considered full time if they are registered for at least 1 credit of 999 and the student along with their advisor and department chair certify and communicate to the Office of the University Registrar each semester that they are working full time on the dissertation. See AP 6.10.6 Dissertation Registration (p. 93) for more information regarding 998 and 999.

To be considered as full time under the aforementioned clauses, a student must complete and submit the appropriate forms to the Office of the University Registrar prior to the first day of classes for the semester.

Different requirements for full-time status may apply for tuition, verification, loan deferral, and financial aid. Contact Student Accounts (http://studentaccounts.gmu.edu), the Office of the University Registrar (http://registrar.gmu.edu), and Student Financial Aid (https://www2.gmu.edu/admissions-aid/financial-aid), respectively, for more information. Note that the official designation of time status for all students is determined by the Office of the University Registrar.
**AP.6.3 Academic Advising**
When a student is admitted to graduate study, the student is assigned a faculty advisor by the academic program responsible for the student's program of study. Registration for newly admitted graduate students, as well as continuing students, begins with a visit to the student's academic advisor. There, the student can obtain information about specific courses and degree requirements and develop an individual program of study. Progress in an approved program of study is the shared responsibility of the student and the advisor. The graduate student is responsible for compliance with the policies and procedures of the college, school, or institute, and all applicable departmental requirements that govern the individual program of study. Students should consult with their advisors before registration each semester.

**AP.6.4 Student Status**

**AP.6.4.1 Change from Nondegree Status**
A student admitted for graduate study in nondegree status may apply to obtain degree status within the same program. All admission requirements (as defined by the student's program for degree status) must be met, including official transcripts and letters of recommendation. If the student intends to use credits earned in nondegree status toward a degree, the credits must be approved on the Graduate Transfer of Credit Request form. The credit must have been earned within six years prior to first enrollment as an admitted student in the specific certificate or degree program, and a minimum grade of B (3.00) must have been earned. There is a limit on the number of credits that can be transferred when changing from nondegree to degree status; please see the applicable degree program for specific information.

**AP.6.4.2 Removing Provisional Qualifier**
For policies concerning students admitted provisionally, see Graduate Admission Policies (p. 66).

**AP.6.4.3 Permission to Re-Enroll**
Permission to re-enroll in a program must be obtained by all graduate certificate, master's and doctoral degree students who have failed to enroll in at least 1 credit of coursework for two or more consecutive semesters at Mason. A program may allow a student to petition to graduate under any catalog in effect while the student was enrolled. All program components, including concentrations, must appear in the catalog for the year selected. The final decision as to catalog year rests with the unit dean or director. The Graduate Re-enrollment form is available here (http://registrar.gmu.edu/forms).

**AP.6.4.4 Voluntary Resignation from Graduate Academic Program**
Degree-seeking students may officially resign from their academic program with the approval of their department or program chair and their dean. The Voluntary Resignation form must be approved by the student's program and Student Accounts, then submitted to the Office of the University Registrar for notation on the transcript. Resignations after the drop period will result in grades of W on the student's transcript for that semester and removal from any future registered courses. Program resignation is final.

**AP.6.5 Credit by Exam, Reduction or Transfer**

**AP.6.5.1 Credit by External Exam**
Degree credit for satisfactory completion of an external exam is limited to those exams and achievement levels specifically approved by the Graduate Council.

**AP.6.5.2 Reduction of Credits**
All students must meet the university residency requirement; however, the number of credits required by a doctoral, or master's program may be reduced on the basis of a relevant post-baccalaureate degree earned prior to admission. Reduction of credits requires the approval of the program director and the dean or director of the school, college, or institute. They determine whether the credits are applicable to the degree program and the number of credits to be reduced.

**Doctoral Programs**
The maximum reduction for doctoral programs derives from the total credits required by the program and the university requirements for institutional, resident, and unique credits. For a 72-credit program, the maximum reduction is 30 credits. Programs that require more than 72 credits may be reduced by more than 30 credits provided that the student meets the aforementioned university requirements. Doctoral students earning a secondary master's degree at Mason do not receive a reduction of credits and should indicate on their program of study which courses apply to the doctoral degree. Because individual doctoral programs may have more restrictive policies, make sure to consult with the program and/or academic unit to learn of their reduction of credit policies.

**Masters Programs**
The maximum reduction for master's programs derives from the total credits required by the program and the university requirements for institutional, resident, and unique credits. Because individual masters programs may have more restrictive policies, make sure to consult with the program and/or academic unit to learn of their reduction of credit policies.

Students requesting a reduction of credits must supply official transcripts. For transcripts from outside the United States, students must supply an official transcript evaluation and an official translation for transcripts not in English if these documents were not supplied in the admission process. Reduction of credits requests from students who are admitted provisionally are not considered until the students have fulfilled the conditions of their admission and had the provisional qualifier removed from their records.

Credits used in reduction of credits are not subject to time limits, and the credits must have been applied to a previous degree. The credits used in the reduction may include transfer credit used for a previously earned degree but may not include credits that are applied to both an undergraduate and graduate degree in a joint bachelor's/master's program or in Mason's Bachelor's/Accelerated Master's Programs. Reduction of credits may not be requested for more credits than were applied to the previous degree. Excess thesis credits beyond those allowed by the previous degree may not be applied to a reduction of credits.

Coursework applied to a reduction must have received a minimum grade of B. Courses graded ‘pass/fail’ or ‘satisfactory/no credit’ may be applied to a reduction of credits provided that is the standard grade mode for the course and that it can be reasonably interpreted as a B or better according to the home institution’s grading system. Graduate degrees that follow a non-standard format will be evaluated on a case-by-case basis.

**AP.6.5.3 Transfer of Credit**
Graduate credit earned prior to admission to a certificate, master's, or doctoral program may be eligible to be transferred into the program and applied to the certificate or degree. Transfer of credit requires the approval of the program director and dean or director of the school, college, or institute. They will determine whether the credit is eligible for
transferred and applicable to the specific certificate or degree program. Note that credits accepted for transfer do not compute into any Mason GPA. Limits on the number of credits that can be transferred derive from the degree requirements given below.

Credit is usually considered for transfer at the student’s request at the time of initial registration as a degree-seeking student. Students must supply official transcripts. For transcripts from outside the United States, students must supply an official transcript evaluation and an official translation for transcripts not in English if these documents were not supplied in the admission process. Credit transfer requests from students who are admitted provisionally are not considered until they have fulfilled the conditions of their admission and the provisional qualifier has been removed from their records.

To be eligible for transfer credit, the credit must be graduate credit earned at another accredited university, earned at another institution and recommended for graduate credit in the American Council on Education guidebook, or earned at Mason while in a nondegree status. The credit must have been earned within six years prior to first enrollment as an admitted student in the specific certificate or degree program, and a minimum grade of B (3.00) must have been earned. The course must be applicable toward a degree at the institution offering the course. Extension and in-service courses that are not intended by the institution offering the courses to be applied to a degree program are not eligible for transfer credit to Mason. The credits cannot have been previously applied toward a degree at another institution or Mason; however, up to 3 credits previously applied to a degree program at another institution may be transferred into a certificate program at Mason.

**AP.6.5.4 Permission to Study Elsewhere**

Students enrolled in a degree program may take graduate courses at another accredited institution and apply these credits to a master's or doctoral degree with prior approval. Approval must be secured in writing from the director of the graduate program and the dean or director of the school, college, or institute, and submitted to Mason's Office of the University Registrar before registering at the other institution. Upon completion of the course, students must arrange for an official transcript to be submitted to Mason so that the credits may be transferred into their Mason degree program. These credits are subject to all the other conditions given above for transfer credit, including limits on numbers of credits that can be taken elsewhere. Note that credits accepted for transfer do not compute into any Mason GPA. Permission to take a course elsewhere does not exempt a graduate student from satisfying the degree requirements given below.

Enrolled, degree-seeking graduate students may be eligible to take a limited number of courses through the Consortium of Universities of the Washington Metropolitan Area. See AP.1.4.2 Permission to Study Elsewhere (p. 76) for more information. Credits earned through the consortium are considered resident, not transfer, credits, and are therefore not subject to transfer of credit conditions or limitations.

**AP.6.6 Graduate Academic Standing**

**AP.6.6.1 Academic Warning**

A notation of academic warning is entered on the transcript of a graduate student who receives a grade of C or F in a graduate course or while a grade of IN is in effect.

**AP.6.6.2 Academic Termination**

A degree-seeking graduate student may be terminated for the reasons listed below. Non-degree graduate students may be terminated for unsatisfactory academic performance as described below. These are minimum standards of academic performance; some programs have higher standards. Note that the university reserves the right to terminate any student based on cancellation (by the testing administrator) of any test score required for admission.

**Students May be Terminated for Any One of the Following Reasons**

**Fully-Admitted Graduate Students Enrolled in Degree and/or Certificate Program**

1. Fail to make satisfactory progress toward degree as determined by the academic unit.
2. Accumulate grades of F in two graduate courses or 9 credits of unsatisfactory grades in graduate courses.

**Provisionally-Admitted Degree Seeking Graduate Students**

1. Fail to meet conditions of admission within time limits.
2. Fail to make satisfactory progress toward the degree, as determined by the academic unit.
3. Accumulate 12 credits of unsatisfactory grades in undergraduate courses.
4. Accumulate grades of F in two graduate courses or 9 credits of unsatisfactory grades in graduate courses.

NOTE: undergraduate and graduate course grades are not combined to reach the termination threshold; they are considered separately.

**Non-Degree Graduate Students**

1. Accumulate 12 credits of unsatisfactory grades in undergraduate courses.
2. Accumulate grades of F in two graduate courses or 9 credit of unsatisfactory grades in graduate courses.

NOTE: undergraduate and graduate course grades are not combined to reach the termination threshold; they are considered separately.

Although the university will make every effort to notify students when their performance reaches the threshold for termination, each student is responsible for knowing the termination criteria, for knowing when their grades have met the standard and for initiating any appeal to their dean. Once the appeal period has expired, or the student’s appeal has been denied, a letter of termination is sent by the dean or director of the school, college, or institute, and notification of academic termination is affixed to the graduate student's official record.

**AP.6.6.3 Readmission to Graduate Study at Mason**

Former graduate students who have been terminated, dismissed or have resigned from a Mason graduate program are not permitted to re-enroll in the program and are not eligible to take any additional coursework at Mason unless a new graduate program application has been submitted and the applicant has been admitted to a graduate program. Time limits for the degree begin with the date of admission to the new program. Academic units and programs may have additional restrictions concerning re-admission. If so, those restrictions apply.

**AP.6.7 Bachelor’s/Accelerated Master’s Degrees**

The university offers a number of Bachelor’s/Accelerated Master’s Programs for academically strong Mason undergraduates with a commitment to research or graduate or professional studies. Applicants receive a waiver of the graduate application fee and admitted students may obtain both a bachelor’s and a master’s degree after satisfactory completion of 144 - 150 credits (number of required credits depends on the graduate program).

**AP.6.7.1 Application and Admission**
Application to accelerated master’s degree programs should be made once the student has earned between 75 and 100 credits. Individual colleges, schools and programs may set more specific requirements for earned hours prior to application. Admission is competitive and must be approved by the faculty director of the student’s undergraduate program, the faculty director of the intended graduate program, and the relevant graduate dean or designee.

**AP.6.7.2 Coursework Requirements**

After admission and having earned 90 undergraduate credits, accelerated master’s students complete 3 to 6 credits of graduate coursework in their field of study (with a 3.00 GPA or better in each course), specified by their undergraduate and graduate advisors. These credits will apply to the undergraduate degree and provide the student advanced standing in the related Mason master’s program. All graduate course prerequisites must be completed prior to enrollment. While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree, including a minimum of 18 applicable graduate credits taken after the bachelor’s degree has been completed and posted to the student’s academic record.

**AP.6.7.3 Timeline Requirements**

Accelerated master’s students must graduate from their undergraduate program in the semester specified on their application to the accelerated degree program. Changes to the timeline for conferral of the undergraduate degree must receive written approval by the graduate program director. Students are also required to enroll in the related master’s program in the fall or spring semester that immediately follows the term of undergraduate degree conferral. Some programs may allow a deferral of no more than one year from time of admittance to graduate status. Students must abide by all timelines outlined in each specific program. Failure to enter the graduate program in accordance with specified timelines will result in forfeiture of graduate advanced standing courses earned in undergraduate status.

**AP.6.7.4 Instructions for International Students**

F-1 and J-1 students must request a change of program level and an I-20/DS-2019 extension at the time they move from the undergraduate to graduate level of study. Funding for the additional time in F-1 or J-1 status also must be documented as required by federal immigration regulations.

**AP.6.8 Requirements for Graduate Certificates**

Candidates must satisfy all applicable university requirements and all requirements established by the graduate certificate program faculty. Individual departmental graduate certificate requirements are listed under their academic departments in this catalog. Note that the following are university minimum requirements; individual programs may have higher standards and/or more restrictive requirements.

- Graduate certificate programs require a minimum of 12 graduate credits.
- Only graduate courses may apply toward the graduate certificate.
- A maximum of 3 graduate credits taken at another institution can be transferred into a graduate certificate program. See AP.6.5 Credit by Exam (p. 88).

- In the case of a certificate offered through consortial arrangement, at least one-third of the credit applied to the certificate must be earned through direct instruction at Mason.
- Candidates must have a minimum GPA of 3.00 in coursework presented on the certificate application, which may include no more than 3 credits of C. (Grades of C+, C, and D do not apply to graduate courses.) The GPA calculation excludes transfer credits.
- Certificate students are subject to graduate termination policies.

**AP.6.8.1 Students in Master’s or Doctoral Programs also Pursuing Graduate Certificates**

**Admission**

Students must be admitted to the master’s or doctoral program in degree status. They must also be admitted to the graduate certificate program at least one semester before completion of certificate requirements.

**Coursework in Degree Status**

More than half of the credits required for the certificate program must be taken in degree status for the master’s or doctoral degree.

**Time Limits**

The time limits coincide with the six-year time limit for master’s degrees or the six-year time limit for advancement to candidacy in a doctoral degree. Master’s and doctoral time limit rules apply.

**Multiple Programs**

Students may be enrolled in one graduate certificate program while they pursue a master’s or doctoral degree. Students who have completed a graduate certificate may subsequently be approved to apply many of the credit hours for that one certificate to a graduate degree, as long as they were taken within six years of official enrollment into the degree program. There is no limitation on the sharing of credits between the graduate degree and one certificate.

**AP.6.8.2 Students in Graduate Certificate Programs Only**

**Admission**

Students pursuing graduate certificates must be admitted to Mason in degree-seeking status. Failure to make satisfactory progress (as determined by the academic unit) toward certificate requirements may result in termination from the certificate program.

**Coursework After Admission**

More than half of the credits required for the graduate certificate program must be taken after admission to that program.

**Time Limits**

The time limit for completion is six years from the date of admission to the graduate certificate program. International students attending in F-1 or J-1 status have more restrictive time limits; contact the Office of International Programs and Services for information. The time limit is not extended because of an absence and subsequent re-enrollment into the graduate certificate program. Failure to meet the time limit or to secure an extension request may result in termination from the program.

**Multiple Programs**

Students not admitted to any graduate degree program (master’s or doctoral) may be admitted to two graduate certificate programs at the same time. The graduation application for each graduate certificate must include a minimum of 12 credits that apply only to that certificate and not to another. (Credits from only one certificate may be subsequently applied to a future degree program, subject to program approval and time limit.)
AP.6.8.3 Financial Aid for Students in Certificate Programs Only
Not all certificate programs are eligible for Federal financial aid. A list of the eligible graduate certificates can be found in Financial Aid (p. 118).

AP.6.9 Requirements for Master’s Degrees
Candidates must satisfy all applicable university degree requirements and all requirements established by the master’s program faculty. Individual departmental degree requirements are listed under the respective master’s programs in this catalog. Programs may impose more stringent requirements.

- Admission. Candidates must have been officially admitted into degree status.
- Credit Hours. Candidates must earn a minimum of 30 graduate credits.
- Credit Level. Only graduate courses may apply toward the degree.
- Institutional Credit. The majority of the credits applied to the degree must be earned at Mason or, in the case of programs offered through joint, cooperative, or consortium arrangements, at the participating institutions. At least one-third of the credits applied to the master’s degree must be earned through direct instruction at Mason.
- Residency. A minimum of 18 credits must be taken in degree status, after admission to the degree program.
- Thesis/Project Limits. A maximum of 6 credits of master’s thesis research (799) or master’s project may be applied to the degree.
- Quality. Candidates must have a minimum GPA of 3.00 in coursework presented on the degree application, which may include no more than 6 credits of C. (Grades of C+, C, or D do not apply to graduate courses. The GPA calculation excludes all transfer courses and Mason nondegree studies credits not formally approved for the degree.)

AP.6.9.1 Thesis Options
Requirements regarding a thesis vary with the degree program. A number of master’s programs offer both thesis and nonthesis options. The same quality of work is expected of students regardless of their chosen option. For more information, consult the section on degree requirements under each degree program.

AP.6.9.2 Time Limit
Master’s degree students have six years from the time of first enrollment as a degree-seeking student to complete their degrees. Individual master’s programs may have stricter time limits, which are published in this catalog. International students attending in F-1 or J-1 status also have more restrictive time limits; contact the Office of International Programs and Services for information. Students who are given permission to re-enroll following an absence from Mason may not count the six-year time limit as beginning on the date of re-enrollment. Students who will not meet published time limits because of circumstances beyond their control may petition for an extension. Failure to meet the time limits or to secure approval of an extension request may result in termination from the program. See detailed information (http://registrar.gmu.edu/forms/timelimit) regarding how to determine the initial deadline.

AP.6.9.3 Master’s Thesis
When a thesis proposal has been approved by the appropriate department, the department chair sends the collegiate dean or director a copy of the thesis proposal, including the approval signatures of the master’s thesis committee members. Students may enroll in thesis research (799) at the beginning of the next semester. Students must register for a minimum of three credit hours in their first semester of 799. After that semester, students may enroll for one credit of 799 per semester and be considered full time, if the following requirement is met: the student, advisor and department chair must certify each semester that the student is working full time on the thesis. Please note: Master’s students must maintain continuous enrollment in 799 while writing and submitting a thesis. Students registered in 799 are graded IP until work is complete; at that time they are graded S/NC, and previous IP grades are updated by the Office of the University Registrar to reflect the final S or NC grade. Graduation candidates who miss the library deadline for thesis submission but do submit officially before the next semester begins do not have to register for 799 in that next semester, but must stay active to graduate.

The master’s thesis committee is composed of at least three members of the graduate faculty, at least two of whom must be from the student’s department or program. Faculty who are not members of the graduate faculty or other appropriate persons not affiliated with the university may serve as additional members. Committee members are appointed by the chair or director of the academic unit or program, or designee, after consultation with the student’s adviser and the student. Only a member of the graduate faculty with a full-time appointment at George Mason University may serve as the thesis chair.

The thesis committee chair is primarily responsible for directing the candidate’s research and writing activities. The student is responsible for keeping all committee members informed of the scope, plan, and progress of the research as well as the writing of the thesis.

Students selecting the thesis option should obtain a copy of Mason’s Thesis, Dissertation, or Project Guide. Students may register in 799 only after their thesis proposal has been submitted and approved as prescribed in the guide. Any student not in attendance at Mason who is preparing a thesis under the active supervision of a member of the faculty or wishes to take an exam must maintain continuous registration in 799 for at least 1 credit per semester.

AP.6.9.4 Thesis Submission
On or before the thesis submission deadline for any semester, each student will submit a CD with a complete electronic copy of his/her thesis (signed Signature Sheet through Curriculum Vitae) as a PDF to University Dissertation & Thesis Services (UDTS). The PDF will be uploaded into the Mason Archival Repository Service (MARS). At the time of final submission, the student will also turn in completed versions of the Transmittal Sheet, ETD Submission Form, and MARS Agreement.

For degree conferral in a particular semester, the above materials must be submitted to the library by 5:00 p.m. on the Friday before the last day of class in that semester. (For specific deadlines and more information, please see The Office of the University Registrar (http://registrar.gmu.edu).)

Under circumstances determined by the student’s school, college, and/or program, a student may petition to embargo all or part of his/her thesis, preventing online access to it for a period of time (6 months, 1 year, or 5 years). A student may choose to embargo his/her work in order to avoid potential contract disputes with future publishers or to protect intellectual property. Not all schools, colleges, and/or programs will permit a student to embargo his/her work, and the both the student’s thesis chair and the graduate associate dean of the school/college must approve the student’s petition. Upon approval of an embargo, the thesis chair, the graduate associate dean and the student must all sign the embargo approval form. The student must turn in this completed, signed embargo form to UDTS at the time of submission of his/her thesis.
and all other materials. The UDTS Coordinator will confirm with both the chair/director and the associate dean that they have signed the submitted form. A hard copy of the confirmation will be retained by the UDTS Coordinator.

Only under extreme circumstances will a student’s work be considered for an indefinite embargo. A student must have proof that publication of his/her work poses a danger to themselves, national security, or similar scenario. An indefinite embargo requires the approval of the dissertation chair, graduate associate dean, Graduate Council, and the Provost.

It is the student’s responsibility to maintain the embargo; if the student wishes to extend the embargo past the thesis's release date, the student is required to secure the approval of the graduate associate dean at the time of the extension request. If approved, the student must notify UDTS via email (udts@gmu.edu) of his/her intention to extend the embargo. The UDTS Coordinator will confirm with the associate dean that the embargo extension has been approved, and will retain copies of both the student’s request and the associate dean’s confirmation that the embargo can be extended.

Once a student has submitted the final (i.e. defended, formatted, and signed) version of his/her project, thesis, or dissertation to University Dissertation & Thesis Services (UDTS), subsequent edits WILL NOT BE ALLOWED EXCEPT under the following circumstances:

1. A formatting error has been introduced into the PDF document when converting from another document type that affects the meaning of the dissertation. For example: in the process of formatting the document into a PDF, all of the ampersands (&) have disappeared and the error is not discovered until after final submission to UDTS. Re-submission would not be allowed to revise margins, fonts, or other non-substantive items.

2. Incidence of fraud or plagiarism. The relevant college/school must conduct a review of the thesis or dissertation and determine an appropriate course of action in accordance with the university catalog and approved by the Dean. If the approved course of action includes allowing the student to resubmit a corrected version of a thesis or dissertation, the UDTS Coordinator must be informed in writing by an appropriate college/school or LAU official.

UDTS will not allow corrections of theses and dissertations for the following:

- Reworking the Dedication, Acknowledgments, Abstract, or Biography.
- Correction of citations or quotations.
- Addition of new text, or deletion of existing text, in the body.
- Correction of misspellings or grammar issues.
- Replacing, adding, or deleting Tables, Figures, or Equations.
- Correction of any other minor errors or omissions.

AP.6.9.5 Doctoral Students Also Pursuing a First Master’s Degree

Requirements for master’s degrees apply with the following exceptions. Residency derives from the doctoral degree requirements. Time limit may derive from the doctoral requirements, although programs may reject coursework that is not sufficiently current. Students must be officially admitted to degree status in the master’s program a full semester before the one in which they will complete master’s degree requirements, i.e. admitted in fall for graduation the following spring.

AP.6.9.6 Individualized Dual Master’s Degree Programs

George Mason students have the option to pursue two master’s degrees simultaneously. For purposes of administration, if a different rate of tuition is assessed for each program, the student will be assessed at the higher rate. The program with the higher rate will be considered the primary program. The six year time limit for completion of dual master’s programs derives from the admission date of the initial program.

Students in dual master’s degree programs are not eligible for reduction of credit based on a previously earned relevant post-baccalaureate degree earned prior to admission. Any Reduction of Credits that was granted upon admission to the initial program will be removed from the student’s record upon matriculation into the second program.

Students are not eligible to pursue two master’s degrees until they have completed one semester in their initial master’s program. Interested students should know:

- A full admissions application must be submitted for both programs.
- Students must apply and be accepted to the second master’s degree within one year of matriculation in the initial program.
- A restricted number of credits may be shared across dual degree programs, according to University Policy 3007 (http://universitypolicy.gmu.edu/policies/dual-degree-program-arrangements).
- An Individualized Dual Master’s Degree Program of Study form (http://registrar.gmu.edu/wp-content/uploads/DMPS.pdf), approved by directors of both programs, must be submitted to the Office of the University Registrar (http://registrar.gmu.edu) upon matriculation in the second program. This will determine the maximum number of credits and specific courses that may be shared across programs.
- The Program of Study must include a written statement explaining the intellectual or pedagogical purpose behind the degree program, and the academic symmetries that exist between the underlying fields of study.

AP.6.10 Requirements for Doctoral Degrees

Candidates must satisfy all applicable university degree requirements and all requirements established by the doctoral program faculty. Departmental degree requirements are listed under the respective doctoral programs in this catalog. Programs may impose more stringent requirements.

- Admission. Students must have been fully admitted into degree status.
- Credit Level. Only graduate courses may apply toward the degree.
- Credit Hours. Candidates must earn a minimum of 72 graduate credits, which may be reduced on the basis of a completed master’s degree or other suitable, approved transfer work. (See AP.6.5 Credit by Exam, Reduction or Transfer (p. 88))
- Unique Credit. A minimum of 42 credits must apply only to the doctoral degree.
- Institutional Credit. More than half of the required credits (minimum 72) for the doctoral degree must be earned at Mason or in the case of programs offered through joint, cooperative, or consortium arrangements, at the participating institutions.
- Residency. More than half of the required credits (minimum 72) must be taken in doctoral degree status, after admission to the degree program.
- Candidacy. Candidates must pass a written or oral doctoral candidacy (qualifying) exam, or both.
- Dissertation. Candidates must complete a minimum of 12 credits of doctoral proposal (998) and doctoral dissertation research (999),
including at least three credits of 999. A maximum of 24 credits of 998 and 999 may be applied to the degree.

- **Defense.** Candidates must pass a final public defense of the doctoral dissertation.
- **Quality.** Candidates must have a minimum GPA of 3.00 in coursework presented on the degree application, which may include no more than 6 credits of C. (Grades of C+, C-, or D do not apply to graduate courses. The GPA calculation excludes all transfer courses and Mason extended studies or nondegree credits not formally approved for the degree.)

**AP.6.10.1 Time Limit**

For both full-time and part-time students enrolled in doctoral programs, whether entry is post-baccalaureate or post-master’s, the total time to degree will not exceed nine (9) calendar years from the time of first enrollment as a doctoral student. Doctoral students are expected to progress steadily toward their degree and to advance to candidacy within no more than six (6) years, although colleges may set a shorter time limit. Students who do not meet published time limits because of compelling circumstances may petition their dean for a single extension of one calendar year at any point during their program. If such an extension is granted, the total time limit for completion of the degree will not exceed ten (10) years. Reenrollment following an absence from Mason does not change the student’s time limit, which is based on the date of initial admission. Failure to meet the time limits or to secure approval of an extension request may result in termination from the program. Faculty and students share in the responsibility to progress toward completion of degree requirements, and faculty must be actively involved in helping students conform to the nine-year time limit.

Non-immigrant students in F-1 or J-1 status are further limited by the regulations governing their stay in the United States. The University issues visa documents (forms I-20 and DS-2019) that indicate the estimated length of the student’s academic program. Students who need extensions beyond the initial period of stay must request them through the Office of International Programs and Services (OIPS). Documentation of the compelling circumstances necessitating the extension request is required by federal regulations. For further information, please consult with an advisor in OIPS.

**AP.6.10.2 Doctoral Research Skill Requirements**

Some doctoral degree programs require demonstration of proficiency in a research skill, including knowledge of the research literature in a foreign language, computer language, statistical methods, or a research tool specific to the discipline. Research skill requirements are included with the degree requirements for the specific doctoral degree. Where demonstration of research skills is required, certification that this requirement has been met must be completed for advancement to candidacy.

**AP.6.10.3 Program of Study**

Usually before the end of the second year of graduate study but no later than consideration for advancement to candidacy, doctoral students must submit a program of study for approval by the dean or director of the college, school, or institute. The program of study must include major courses and supporting courses to be completed, research skills required, subject areas to be covered by the candidacy exam, and a proposed date for the candidacy exam. Program of Study Forms are available from each program’s doctoral coordinator. Any changes in the programs of study must be documented with an amended Program of Study Form.

**AP.6.10.4 Advancement to Candidacy**

Advancement to candidacy implies that a doctoral student has demonstrated both a breadth and a depth of knowledge in the field of study and is capable of exploring problems on the boundaries of knowledge, and has identified a research area that is likely to lead to a successful dissertation. The candidacy exam includes a written part and may include an oral part, depending on the particular doctoral program. Doctoral students should consult the degree requirements for each doctoral program to determine whether an oral portion is required, whether it is judged separately or with the written portion, the number of times a failed candidacy exam may be repeated and any associated time limits, and any time limits for attempting the candidacy exam.

Before doctoral students may be advanced to candidacy by the unit dean or director, they must have completed all coursework as indicated on the approved program of study, been certified in all doctoral research skills required, passed the candidacy exam, and been recommended by the doctoral supervisory committee or program coordinator. Students advanced to candidacy after the add period for a given semester must wait until the following semester to register for 999 Dissertation Research.

**AP.6.10.5 Dissertation Committee**

Before a doctoral student is advanced to candidacy, the dean or director of the school, college, or institute or its designee (as specified by the school/college/institute) appoints a dissertation committee upon recommendation of the student’s dissertation chair. Students work collaboratively with the program director and faculty to form the dissertation committee, with the understanding that some areas of research may be impossible to support due to available faculty expertise. Program personnel will facilitate the formation of the dissertation committee to the extent possible, but there can be no guarantee of successful formation.

All dissertation committees must consist of at least three members of the graduate faculty, at least two of whom must be from the student’s academic unit or program faculty. The committee consists of a dissertation chair, a member of the graduate faculty from the department or program of the student’s field of study and at least two other members of the graduate faculty. Only a member of the graduate faculty with a full-time appointment at George Mason University may serve as dissertation chair. Other Mason faculty, as well as individuals from outside the university, may be appointed as additional members to the committee. Such appointments are made where the additional member’s expertise and contribution add value to the dissertation, but appointment does not require graduate faculty status.

Student-initiated changes in the composition of the dissertation committee may occur only with the approval of the dean or director of the school, college, or institute or its designee in consultation with the committee. Faculty may resign from a dissertation committee with appropriate notice by submitting a written resignation.

**AP.6.10.6 Dissertation Registration (998, 999)**

Students working on dissertation research (999) must register for a minimum of 3 credits of 999 per semester (excluding summers) until they have completed the minimum number of credits of 998 and 999 required by the university and their degree program. Then, they must register for 1 credit of 999 until the dissertation is complete and has been officially submitted to the library. See AP.6.2 Full-Time Classification (p. 87) for more information. Students registered in 998 or 999 are graded IP until work in 998 or 999, respectively, is complete; at that time they are graded.
S/NC, and previous IP grades are updated by the Office of the University Registrar to reflect the final S or NC grade.

All registration for doctoral dissertation research (999) must be planned with the dissertation director and approved by the dean or director of the school, college, or institute. Dissertation research (999) is open only to doctoral students who have advanced to candidacy. Once enrolled in 999, students must maintain continuous registration in 999 each semester until graduation, excluding summers. Students who defend in the summer must be registered for at least 1 credit of 999 in the summer. Individual doctoral programs may require continuous registration beginning with 998. Graduation candidates who miss the library deadline for dissertation submission, but do submit officially before the next semester begins, do not have to register for 999 in that next semester, but must stay active to graduate.

It is the student’s responsibility to complete registration for dissertation proposal (998) or research (999) prior to the first day of classes for the semester. If this date is missed, students must still enroll in these courses via Add or Late Schedule Adjustment procedures and are subject to Late Registration fees. Failing to register on time in a particular semester does not alter the requirement for continuous registration in 999.

**AP.6.10.7 Doctoral Dissertation**

A dissertation is required for the doctor of philosophy degree and most professional doctoral degrees. The dissertation is a written piece of original thinking that demonstrates doctoral candidates' mastery of subject matter, methodologies, and conceptual foundations in their chosen field of study. This is generally achieved through consideration of a problem on the boundaries of knowledge in the discipline.

The director of the dissertation committee is primarily responsible for directing the doctoral candidate’s research and guiding the preparation of the written dissertation. After the dissertation committee is appointed, the student should begin discussions with the director to define a suitable problem for the dissertation. Before the student may enroll in doctoral dissertation research (999), the dissertation proposal must be approved by the dissertation committee and evidence of approval sent to the unit dean or director for approval. Before that time, the student may enroll in proposal research (998).

Guidelines for the content and general format of doctoral dissertations are in the *Thesis, Dissertation, or Project Guide*. Consult a doctoral coordinator to determine which additional reference manuals are suitable.

**AP.6.10.8 Doctoral Defense**

As soon as all degree requirements have been satisfied, including completion of the doctoral dissertation, the doctoral candidate may request a doctoral defense. Approval for the defense is given by the doctoral dissertation committee, department or program chair, and relevant dean or director of the school, college, or institute. Notice of a defense must be circulated to the university community two weeks before the defense date. The public defense should demonstrate the candidate’s maturity of judgment and intellectual command of the chosen branches of the field of study.

At the close of the final defense, the dissertation committee makes final judgments for approving the dissertation. The doctoral candidate is responsible for making all required changes promptly, submitting the original and required copies, and obtaining signatures. Final approval for the dissertation is given by the doctoral dissertation committee, department or program chair, and the relevant dean or director of the school, college, or institute, all of whom must sign the final copy.

For a dissertation to be approved, all members of the committee must sign. If a committee member refuses to do so, the student or any member of the committee may petition the unit dean or director for a review and ruling. The dean or director may seek the advice of outside reviewers to provide an assessment of the work. The final decision is that of the dean or director, and is not subject to appeal.

**AP.6.10.9 Dissertation Submission and Fees**

On or before the dissertation submission deadline for any semester, each student will submit a CD with a complete electronic copy of his/her dissertation (signed Signature Sheet through Curriculum Vitae) as a PDF to University Dissertation & Thesis Services (UDTS). The PDF will be uploaded into the Mason Archival Repository Service (MARS). At the time of final submission, the student will also turn in completed versions of the Transmittal Sheet, ETD Submission Form, and MARS Agreement.

For degree conferral in a particular semester, the above materials must be submitted to the library by 5:00 p.m. on the Friday before the last day of class in that semester. (For specific deadlines and more information, please see the University Registrar’s website (http://registrar.gmu.edu).)

Under circumstances determined by the student’s school, college, and/or program, a student may petition to delay embargo all or part of his/her dissertation, preventing online access to it for a period of time (6 months, 1 year, or 5 years). A student may choose to embargo his/her work in order to avoid potential contract disputes with future publishers or to protect intellectual property. Not all schools, colleges, and/or programs will permit a student to embargo his/her work, and both the student’s dissertation chair and the graduate associate dean of the school/college must approve the student’s petition. Upon approval of an embargo, the dissertation chair, the graduate associate dean, and the student must all sign the embargo approval form. The student must turn in the signed embargo form to UDTS at the time of submission of his/her dissertation and all other materials. The UDTS Coordinator will confirm with both the dissertation chair and the graduate associate dean that they signed the submitted form. A hard copy of the confirmation will be retained by the UDTS Coordinator.

Only under extreme circumstances will a student’s work be considered for an indefinite embargo. A student must have proof that publication of his/her work poses a danger to themselves, national security, or similar scenario. An indefinite embargo requires the approval of the dissertation chair, graduate associate dean, Graduate Council, and the Provost.

It is the student’s responsibility to maintain the embargo; if the student wishes to extend the embargo past the dissertation’s release date, the student is required to secure the approval of the graduate associate dean at the time of the extension request. If approved, the student must notify UDTS via email (udts@gmu.edu) of his/her intention to extend the embargo. The UDTS Coordinator will confirm with the associate dean that the embargo extension has been approved, and will retain copies of both the student’s request and the associate dean’s confirmation that the embargo can be extended.

Doctoral students are also required to submit their dissertations to ProQuest through University Microfilms International (UMI). Submission will take place through the UMI Administrator site (www.etdadmin.com/gmu (http://www.etdadmin.com/gmu)). Traditional submission, in which the dissertation is available only through ProQuest’s subscription service, costs nothing. Open Access submission, in which the dissertation is available through ProQuest’s Open Access site, costs $95. Students can...
also opt to register their dissertations with the U.S. Copyright Office via the Administrator; doing so costs $44, payable to ProQuest. Students can also choose to purchase their own bound copies through the Administrator. The student is responsible for any aforementioned fees, which can be paid by credit or debit card. At the time of final submission, the UDTS Coordinator will confirm that the student has uploaded his/her dissertation through the Administrator.

Doctoral students also must complete a Survey of Earned Doctorates. This form must also be turned in to the UDTS Coordinator at the time of final submission.

Once a student has submitted the final (i.e. defended, formatted, and signed) version of his/her project, thesis, or dissertation to University Dissertation & Thesis Services (UDTS), subsequent edits WILL NOT BE ALLOWED EXCEPT under the following circumstances:

1. A formatting error has been introduced into the PDF document when converting from another document type that affects the meaning of the dissertation. For example: in the process of formatting the document into a PDF, all of the ampersands (&) have disappeared and the error is not discovered until after final submission to UDTS. Resubmission would not be allowed to revise margins, fonts, or other non-substantive items.

2. Incidence of fraud or plagiarism. The relevant college/school must conduct a review of the thesis or dissertation and determine an appropriate course of action in accordance with the university catalog and approved by the Dean. If the approved course of action includes allowing the student to resubmit a corrected version of a thesis or dissertation, the UDTS Coordinator must be informed in writing by an appropriate college/school or LAU official.

UDTS will not allow corrections of theses and dissertations for the following:

- Rewording the Dedication, Acknowledgments, Abstract, or Biography.
- Correction of citations or quotations.
- Addition of new text, or deletion of existing text, in the body.
- Correction of misspellings or grammar issues.
- Replacing, adding, or deleting Tables, Figures, or Equations.
- Correction of any other minor errors or omissions.

**AP.6.10.10 University Dissertation and Thesis Services**

University Dissertation and Thesis Services (UDTS) facilitates completion and submission of dissertations, theses, and graduate-level projects. The program assists Mason students in all stages of production. The UDTS website (http://thesis.gmu.edu), provides students with useful tools, including downloadable templates of necessary elements, forms required for the submission process, and links to related web sites.

Students completing a thesis or dissertation are required to complete a format review. UDTS is located in Fenwick Library, Special Collections and Archives, Wing 2C. For more information, contact the university dissertation and thesis coordinator at 703-993-2222.

**AP.6.11 Graduate Council**

The Graduate Council is an advisory and legislative board on matters of graduate education whose purpose is to promote excellence in all graduate programs. The Council advises the Provost regarding academic policies governing graduate education; approval of new and revised graduate courses, programs and degrees; review and assessment of graduate programs; planning and attainment of graduate education strategic goals; and policies and resources for graduate student support. The Office of the Provost administers university graduate policies for the Graduate Council.

**AP.6.12 Graduate Faculty**

The graduate faculty consists of all George Mason University tenured and tenure-track faculty. Other Mason faculty members, as well as individuals from outside the university, may be appointed to the graduate faculty by the Provost for a specified duration of time.

**AP.7 Research Policies**

**AP.7.1 Human Subjects Research**

All research activities involving human subjects or human subjects data conducted by faculty, staff, or students must be submitted to the Office of Research Integrity & Assurance (http://oria.gmu.edu) for review and approval. All application forms must be submitted through the Institutional Review Board (http://irbnet.org). All covered research activities must be approved by the Institutional Review Board prior to initiation of the activity. Separate approval by the Confidential Student Contact Information (http://provost.gmu.edu/requesting-confidential-student-contact-information) (CSCI) committee is required if contact information for Mason students is needed to conduct the research. All student research must be supervised by a faculty member. The faculty member will serve as the principal investigator for the research and will assume responsibility for the legal and ethical conduct of the work.

**AP.7.2 Animal Use in Research**

All work with live vertebrate animals, whether for research, teaching, or testing, must be approved by the Institutional Animal Care and Use Committee (IACUC) prior to initiation of the work. All use of animals at Mason must be carried out under the supervision of a faculty member who is qualified and experienced in the work being conducted and assumes responsibility for legal and ethical conduct. Further information and submission forms can be found at the Office of Research Integrity & Assurance (http://oria.gmu.edu).

**AP.7.3 Misconduct in Research and Scholarship**

George Mason University is committed to the highest standards of ethical research and scholarship. All faculty, staff, and students are responsible for conducting research and scholarship in an ethical manner. The university has developed a comprehensive policy and procedures to address allegations of misconduct: University Policy 4007 (http://universitypolicy.gmu.edu/policies/misconduct-in-research-and-scholarship).

**General Policies**

Below is a list of policies which the University community most commonly refers to.

All university policies are available online (http://universitypolicy.gmu.edu).

George Mason University is committed to providing equal opportunity and an educational and work environment free from any discrimination on the basis of race, color, religion, national origin, sex, disability, veteran
status, sexual orientation, gender identity, age, pregnancy status, marital status or genetic information. It is the policy of the university to provide an academic and work environment free from sexual harassment. Please see the following policies for more information.

- 1202 - Sexual Harassment Policy (http://universitypolicy.gmu.edu/policies/sexual-harassment-policy)

The Responsible Use of Computing (RUC) Policy applies to all academic and operational departments and offices at all university locations owned or leased. The policies and procedures provided herein apply to all Mason faculty, staff, students, visitors and contractors.

- 1301 - Responsible Use of Computing (http://universitypolicy.gmu.edu/policies/responsible-use-of-computing)

All faculty, staff, and students who park on property owned or operated by the university must display a valid permit or park in a parking deck and pay an hourly or daily rate.

- 1108 - Motor Vehicle Parking (http://universitypolicy.gmu.edu/policies/motor-vehicle-parking)

Other Regulations

Other policies pertaining to safety and security:

- 1120 - Weapons on Campus (http://universitypolicy.gmu.edu/policies/weapons-on-campus)
- 2208 - Workplace Violence (http://universitypolicy.gmu.edu/policies/workplace-violence)

Annual Security Report

Mason’s 2016 Annual Security Report is available on the University Police web site. This report contains the previous three years’ crime statistics and includes policies concerning campus security, such as sexual assault, stalking, and other matters that pertain to safety on campus. To view a copy of the report, go to the website (http://police.gmu.edu/annual-security-report). Paper copies of this report are available at any police facility.

Student Rights and Responsibilities

Policies and Procedures Affecting All Students

Knowledge of University Policies

Each student is responsible for knowing Mason’s rules, regulations, requirements, administrative policies and Academic Policies. This catalog is the normal repository of academic policy statements, but corrections, changes, or interpretations can be promulgated by other means, including electronic publication.

When the university or one of its academic units changes course requirements, grading procedures, or criteria for acceptance into particular programs, academic standing, or graduation, the changes apply to all students enrolled at the time of implementation of the change and thereafter.

Students have certain choices regarding the set of degree requirements under which they graduate, as detailed in the Catalog Requirements for Degrees in AP.4 Degree Application, Conferral and Graduation (p. 83). PDFs of all previous catalogs may be found online (http://registrar.gmu.edu/catalog-archives). Additionally, the Special Collections and Archives section of the Fenwick Library has copies of all previous catalogs. They may not be checked out, but may be photocopied. Any student in doubt about an academic matter should consult a faculty advisor or dean.

Students are subject to the university’s stated policies regarding patents and copyrights. These policies are available online (http://osp.gmu.edu).

Catalog Requirements for Degrees

Catalog year refers to the setting of course and non-course requirements within academic programs as stated in the school and college section of a specific catalog. Catalog year does not set academic policies other than program requirements in place; however, all programs and degree components are available in all catalogs. For any one degree, all requirements must be met as stated in a single catalog. The only exception is that Bachelor’s degree students may select a minor from another catalog year for which they are eligible, as noted below.

Bachelor’s degree candidates may choose to graduate under the terms of any catalog in effect during their enrollment in degree status. Students who have been inactive for two or more years or who have attended another institution without prior approval from their academic dean or director must graduate under a catalog in effect at or after their re-admission and during their enrollment in degree status.

Master’s and doctoral degree candidates who have been continuously enrolled may choose to graduate under the terms of any catalog in effect during their enrollment in degree status. Students who have been inactive more than one year, however, may be required by their program to graduate under a catalog in effect after they have been granted permission to re-enroll. In no case may a student choose the requirements of a future catalog year that take effect after the student’s degree is anticipated.

Mason ID Card

Fairfax Campus: Student Union I, 1203
Phone: 703-993-1004

Science and Technology Campus: Colgan Hall, 202
Phone: 703-993-9779

Arlington Campus: Founders Hall, 220
Phone: 703-993-9153

Loudoun Campus: 21335 Signal Hill Plaza, Suite 130
Phone: 703-993-4350

Distance Learners: please contact the Mason Card Office at masonid@gmu.edu to make arrangements
Web: masonid.gmu.edu/mason-id (http://masonid.gmu.edu/mason-id)
Email: masonid@gmu.edu

After registering, each student should obtain a Mason ID card. It must be presented to use library services and is required for admission to
that unit's appeal process on file in the dean or director's office. Students have the right to appeal decisions regarding requests for appeals of academic procedures. Appeals of Academic Procedures and Social Security number changes require official documentation and Addresses should be updated over the Internet using Patriot Web. Name and Social Security number changes require official documentation and must be processed in person at the Office of the University Registrar or with the original copy of a notarized request. Changes of Status, Address Each student is required to provide Mason with current contact and identifying information, including permanent and local addresses, telephone numbers, and legal name. Each student must also maintain the university e-mail account assigned at the time of admission. Students are responsible for official communications directed to Mason e-mail accounts. For more information, check the website (http://masonlive.gmu.edu). Addresses should be updated over the Internet using Patriot Web. Name and Social Security number changes require official documentation and must be processed in person at the Office of the University Registrar or with the original copy of a notarized request. Appeals of Academic Procedures Students have the right to appeal decisions regarding requests for academic actions. The appeals process begins in the academic unit. Each college, school, and institute at Mason has a written statement of that unit's appeal process on file in the dean or director's office. Students who feel the appeals process was conducted unfairly by a college or school may appeal to the Provost's Office. All appeals must be in writing, and they must demonstrate that the student has exhausted all options within the academic unit. Undergraduate students initiate appeals of unit decisions with the Associate Provost for Undergraduate Education. Graduate students initiate appeals of unit decisions with the Associate Provost for Graduate Education. The Provost's Office does not consider grade appeals or appeals of Honor Committee decisions. Undergraduate Appeals The Provost's Office may refer cases to the University Academic Appeals Committee. The committee consists of five faculty members, including at least one member of the Faculty Senate and the provost (or designee), who serves ex officio, in a nonvoting capacity. The committee hears only those cases where procedural irregularities or a questionable application of university policies is demonstrable, or when the provost or the committee deems the case relevant to the application of university-wide policies. The burden of proof rests with the student, who must provide clear and convincing documentation to support the contention that the decision was unfair based on the criteria stated above. The committee's decision is final. The University Academic Appeals Committee is not charged to hear grade appeals or appeals of Honor Committee decisions. Graduate Appeals Students who believe they were not afforded due process by the Associate Provost for Graduate Education may appeal to the Graduate Academic Appeals Committee. The committee is a subcommittee of Graduate Council and consists of five members of the graduate faculty. The committee hears only those cases it judges demonstrate procedural irregularities or a questionable application of university policies, or when the provost or the committee deems the case relevant to the application of university-wide policies. The burden of proof rests with the student, who must provide clear and convincing documentation to support the contention that the decision was unfair based on the criteria stated above. The committee's decision is final. The Graduate Academic Appeals Committee is not charged to hear grade appeals or appeals of Honor Committee decisions. Specific appeal procedures can be found on the Office of the Provost and Executive Vice President's website under Graduate Education. The Provost's Office is responsible for maintaining appeals records, determining whether students have just cause, and ensuring that complete documentation is available for all committee members. The committee communicates its decision to the student, the relevant unit, and the provost. Student Requests for Academic Actions All requests for academic actions, such as special permissions or exceptions to published academic regulations, must be submitted to the head of the unit in which the student's program is housed, for example, the department chair, institute director, or school or college dean. Forms and instructions on how to initiate an academic action are available in the academic unit and on the unit's web site. For students who have not yet declared a major, the academic actions process is executed in the Office of Student Academic Affairs, Advising & Retention, SUB I, Room 3500. Students will be informed of the average wait time for decisions on academic actions undertaken within their units. Those who need assistance with the academic actions process may consult their academic advisor, or they may be directed to the university ombudsman.
Office of the Ombudsman
Phone: 703-993-1000
Web: diversity.gmu.edu (https://diversity.gmu.edu)

The Office of the Ombudsman is a resource to help all Mason students navigate the University. The Ombudsman can listen to university-related concerns raised by undergraduate and graduate students in confidence and off-the-record, and help them identify appropriate resources to address their concerns and understand their options in any University-related situation. The Ombudsman operates independently of all formal processes at the university. The Ombudsman has no authority to make exceptions or to grant requests, but can help expedite informal resolution to students’ concerns. When appropriate, the Ombudsman may recommend changes in processes and policies at the university. Meetings with the Ombudsman are confidential, except when there is imminent risk of serious physical harm to anyone. The Office of the Ombudsman does not serve as an office of notice or record for the University. If a student wishes to put the University on notice about anything, the Ombudsman can help identify the appropriate channel. The Office of the Ombudsman offers a safe place to discuss and explore options, so students can better understand the University and make informed decisions about their concerns. The Office of the Ombudsman does not replace or substitute any formal processes made available by the University.

Academic Assessment
All academic programs at Mason, including the Mason Core program, have student learning outcomes that are assessed periodically. Student work in various courses may be used for such an assessment. Student anonymity is assured and grades will not be affected.

Students may be called on from time to time to participate in focus groups, complete questionnaires, or contribute in some other way to the ongoing assessment process. Assessment is vital to the continuous improvement of the university, and student voices are an essential part of the process.

At any time, students may contact the Office of Institutional Research and Assessment at assessment@gmu.edu with questions or concerns about assessment activities.

To learn more about the learning outcomes and assessment activities of a specific program, visit the website (http://assessment.gmu.edu).

Student Work, Intellectual Property
University Policies 4002 (https://universitypolicy.gmu.edu/policies/copyright-in-university-works) and 4003 (http://universitypolicy.gmu.edu/policies/patenting-university-inventions) control ownership of copyrightable works and patentable inventions made at Mason. Generally, Mason does not assert ownership of copyrightable works and patentable inventions made by students who are not also Mason employees to fulfill the requirements of a particular course. Mason generally owns copyrightable works and patentable inventions made by students who are not employees if they are made in the course of sponsored research or with substantial use of significant university resources. If a student (undergraduate or graduate) is also an employee (such as a research or teaching assistant), Mason generally owns copyrightable works and patentable inventions made as part of that student’s employment responsibilities. Students with questions are encouraged to consult the policies and to contact the Office of Technology Transfer, ott@gmu.edu or 703.993.8933.

Conduct within the University Community
Office of Student Conduct
Student Union I, Room 4100
Phone: 703-993-6209
Fax: 703-993-2893
Web: studentconduct.gmu.edu (http://studentconduct.gmu.edu)

Students enrolling in the university assume an obligation to conduct themselves in a manner compatible with the university’s function as an educational institution. The Code of Virginia (Section 23.2-3) confers on the university the responsibility for maintaining order within the university and the right to adjudicate those who are disruptive.

Students are governed by the Code of Conduct (http://studentconduct.gmu.edu/university-policies/code-of-student-conduct).

The Office of Student Conduct holds responsibility for addressing the conduct of Mason students and their guests. Questions regarding student conduct should be directed to the Office of Student Conduct, SUB I, Room 4100, 703-993-6209; or their website (http://studentconduct.gmu.edu).

Privacy of Student Records
Office of the University Registrar
Student Union I, Room 2101
Phone: 703-993-2441
Email: registrar@gmu.edu
Web: registrar.gmu.edu/ferpa (http://registrar.gmu.edu/ferpa)

Each year, Mason informs students of the Family Educational Rights and Privacy Act (FERPA) of 1974. The university intends to comply fully with this act, which protects the privacy of education records, establishes the right of students to inspect and review their education records, and provides guidelines for amending inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Policy Compliance Office (U.S. Department of Education) concerning alleged failures by Mason to comply with the act.

The Notification of Rights under FERPA and the Public Notice Designating Directory Information detail students’ rights and the procedures implemented by the university to comply with FERPA.

FERPA is a federal law that affords students certain rights with respect to their education records. Specifically, it affords students the right to:

1. inspect and review their education record;
2. request the amendment of inaccurate or misleading records;
3. consent to disclosure of personally identifiable information contained in their education record; and
4. file a complaint with the Family Policy Compliance Office of the U.S. Department of Education concerning alleged failures of the university to comply with the act.

George Mason University strives to fully comply with this law by protecting the privacy of student records and judiciously evaluating requests for release of information from those records. FERPA authorizes the release of “directory information” without the student’s prior consent under certain conditions, which are set forth in the act. George Mason University has defined its “directory information” in accordance with the
Honor Code and System

LaShonda Anthony, Director
cumulative GPA of 2.66, be in good academic standing, and successfully complete the training and orientation program. Graduate members must meet all of the requirements above with the exception of maintaining a cumulative GPA of 3.00. Faculty and Administrative Faculty members must hold at least a master’s degree. Information on how to apply can be found here. (http://oai.gmu.edu/support-the-patriot-team-join-the-honor-committee)

The committee is advised by the staff of the Office of Academic Integrity. The Office provides administrative oversight for the Honor Committee and the integrity process at Mason.

Student Responsibilities

Students are responsible for ensuring the work they are submitting is their own work. This includes checking to make sure that any information that was not their own creation is properly attributed to the original source, as well as working within the guidelines provided by the professor of the class regarding submitted work. Facilitating misconduct in the form of providing unauthorized resources, tests, or solutions for others is a violation of the honor code and will be dealt with as such. Additionally, students should request an explanation of any aspect of the professor’s policies regarding the Honor Code that they do not fully understand. Students have an obligation to encourage respect among their fellow students for the provisions of the code. This includes an obligation to report violations by other students to the Honor Committee.

Faculty Responsibilities

At the beginning of each semester, faculty members have the responsibility of explaining to their classes their policy regarding the Honor code. They must also explain the extent to which aid, if any, is permitted in academic work. Faculty members are also responsible for including in their syllabus an academic integrity statement as outlined by the Provost’s office at the start of each academic semester. Additional language should include what constitutes acceptable behavior for the course they are teaching.

Procedures for Reporting Violations and Record Keeping

All suspected violations must be reported to the Office of Academic Integrity in a timely manner. Instructions on how to submit a referral can be found on the office’s website (http://oai.gmu.edu). The student will be notified in writing that an accusation has been made and meet with a staff member in the office to review the case materials and decide the next course of action. Findings of responsibility in Honor Code cases are maintained by the Office of Academic Integrity in accordance with the Library of Virginia Records Management schedule.
STUDENT SERVICES

• Academic Advising
• Green Leaf Programs and Courses
• Learning Solutions
• Living Learning Communities
• Military Services
• Office of the Ombudsman
• Reserve Officer’s Training Corps (ROTC)
• Student Health Services
• University Libraries
• University Scholars Program

Academic Advising
Student Union Building I
Room 3600, MS 2C4
Phone: 703-993-2470
Fax: 703-993-2478
Email: advisor@gmu.edu
Website: advising.gmu.edu

Administration
• Jeannie Brown Leonard, Dean

Undergraduate Academic Advising
Vision
Academic advising at George Mason University is an integral part of the educational process that enhances student learning and development by supporting, teaching, and connecting students to curricular and co-curricular experiences relevant to becoming an exemplary Mason Graduate: an engaged, reflective citizen and well-rounded scholar who is prepared to act.

Mission
The academic advising community at George Mason University commits to creating on-going, personal and purposeful educational partnerships with students and colleagues. Advisors contribute to student success by providing resources and by teaching students to develop the skills required to become life-long learners capable of effective self-advocacy. Dedicated to putting students first and to being responsive, academic advisors:

• Support students in setting and reaching educational goals.
• Teach students to engage in a process of self-reflection and self-discovery, guiding them to find degree pathways that match their interests, skills, and abilities.
• Connect students to campus resources and co-curricular opportunities to integrate learning and experience.

Students should meet regularly with an academic advisor to discuss academic programs, educational goals, and career plans. Individual departments establish their own advising processes; students should check with their departments for the appropriate procedures. For example, some departments require that students meet with an advisor prior to registration each semester. With their advisors, students plan academic programs to meet the general university degree requirements and specific requirements within their major fields. It is the student’s responsibility to read the catalog and know and fulfill the requirements of a specific baccalaureate degree. To assist in the advising process, Mason provides a computerized degree evaluation. Students should access their individualized reports through Patriot Web. It remains the student’s responsibility to seek approval for any program change so that the computerized degree plan may be kept current.

An advisor locator is available online (https://advising.gmu.edu/current-students/advisor-locator). During their freshman and sophomore years, students in the Honors College plan their schedules with honors advisors. Every department coordinates advising of its honors students through the Honors College.

Every student should meet with an advisor to plan a program of study. This meeting should cover the following:

• Review of requirements for the degree and major the student has chosen
• Review of the student’s record including any deficiencies which must be corrected
• Discuss career or graduate study options open to the student enrolled in such a program
• Assess the student’s suitability to major in the chosen discipline.

Students changing majors are encouraged to meet with an advisor in the new major. They may change majors by filing a Change/Declaration of Academic Program Form available from the Office of the University Registrar. These are minimal advising procedures to be followed in all undergraduate segments of the university; individual units may require additional advising sessions.

Student Academic Affairs – Advising, Retention, and Transitions (StAAART)
Web: saa.gmu.edu (http://saa.gmu.edu)

Student Academic Affairs – Advising, Retention, and Transitions, is the umbrella unit for the Center for Academic Advising, Retention, and Transitions (CAART). This unit rules on all academic actions submitted by undergraduate undeclared and nondegree students.

StAAART supports students to thrive in transitions. The unit provides students with the tools and guidance to help them achieve their academic and personal goals. StAAART contributes to student success and degree completion by teaching, supporting, and connecting students to curricular and co-curricular experiences relevant to becoming an exemplary Mason Graduate: an engaged, reflective citizen and well-rounded scholar who is prepared to act. StAAART also serves the university community as a centralized source of information on current academic policies, procedures, and student success initiatives.

We value each student as a distinct individual. Our interactions are guided by an understanding of college student development, campus resources, and are designed to support student learning. We focus on students’ academic engagement and performance, well-being, and
interpersonal connections. Our collaborations are characterized by a comprehensive commitment to student success.

StAART collaborates widely with campus colleagues to promote successful student transitions. Through our work we provide effective academic and transition advising, offer transition courses, develop student leaders, design and implement retention initiatives, identify and solve problems, improve communication, and influence policies related to academic success and degree completion.


Center for Academic Advising, Retention, and Transitions (CAART)

Academic Advising
CAART staff members assist students making the transition to Mason, including those who have not yet declared a major or are considering a change of major as well as those terminated from their academic program. Students are encouraged to make an appointment for information about Mason Core requirements, programs, policies, procedures, and other academic concerns. The Center also provides information and guidance for students who are interested in pre-professional programs in the health fields. Advising is available by appointment; consult the website (https://advising.gmu.edu) for hours of operation.

Health Professions Advising
Web: prehealth.gmu.edu (http://prehealth.gmu.edu)

Health Professions Advising is committed to providing degree-seeking students with the tools that will help them to achieve success. It provides the primary contact for undergraduate students and alumni interested in pursuing postgraduate work in a medical field (allopathic and osteopathic medicine, dentistry, optometry, physician assistant, pharmacy, physical therapy, occupational therapy, speech therapy and veterinary medicine) and comprehensive developmental advising.

Retention and Student Success
Web: retention.gmu.edu (http://retention.gmu.edu)

Retention and Student Success provides leadership on planning and implementing campus-wide retention and degree-completion efforts in collaboration with academic colleges, the Division of University Life, and other campus stakeholders. Together with academic advisors, faculty, and staff, we aim to identify challenges to students’ success and provide resources and support to ensure a more seamless path to degree completion. Specifically, the Retention and Student Success team manages key retention and advising technologies and supports academic units in leveraging these systems to support retention and degree-completion goals. Retention and Student Success also engages in research, direct outreach to students at risk for leaving the university, assessment of student success initiatives, and provides support in assessing academic advising and professional development among academic advisors campus-wide.

Transitions - UNIV Courses and Programs
Web: transitions.gmu.edu (http://transitions.gmu.edu)

The Transitions functions within CAART include academic UNIV courses, student leadership development, and Project Peak (an outdoor extended orientation program for new students). UNIV Courses and Programs’ mission is to assist and mobilize students to craft a successful college experience and prepare for their future. Our courses serve all undergraduate students as they transition into college, determine their major/solidify their career path, become strong scholars and student leaders, and prepare for life after college. The curriculum in the first year is supported by Peer Advisors who co-teach UNIV 100 Introduction to Mason and facilitate learning experiences through Project Peak.

Green Leaf Programs and Courses
Website: sustainabilitystudies.gmu.edu

Green Leaf Programs and Courses

A “Green Leaf” course or academic program focuses on learning about sustainability, i.e., meeting our present needs without compromising the ability of future generations to meet their own needs. See the Sustainability Studies website (http://sustainabilitystudies.gmu.edu/greenleaf) for more information.

Programs

Green Leaf academic programs focus on sustainability, usually including a required set of Green Leaf courses in order to cover the social, economic and environmental dimensions of sustainability. Each is a vital contributor to Mason’s sustainability across the curriculum.

Undergraduate Degrees
• Civil and Infrastructure Engineering, BS (p. 1091)
• Earth Science, BS (p. 604)
• Environmental and Sustainability Studies, BA (CHSS) (p. 566)
• Environmental Science, BS (p. 674)
• Geology, BA (p. 611)
• Global Affairs, BA (p. 509)
• Health, Fitness, and Recreation Resources, BS: Concentration in Parks and Outdoor Recreation (p. 219)
• Tourism and Events Management, BS (p. 222)
• Integrative Studies, BS: Concentration in Applied Global Conservation (AGCN) (p. 582)

Undergraduate Minors and Certificates
• Atmospheric Science Minor (p. 599)
• Conservation Studies Minor (CHSS) (p. 565)
• Earth Science Minor (p. 603)
• Environmental Policy Minor (p. 663)¹
• Geology Minor (p. 610)
• Global Affairs Minor (p. 509)¹
• Paleontology Minor (p. 616)
• Sustainable Enterprise Minor (p. 686)
• Sustainability Studies Minor (p. 685)

Bachelor’s/Accelerated Master’s Program
• Bachelor’s Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS (p. 671)
• Bachelor’s Degree (any)/Interdisciplinary Studies, Accelerated MAIS (Energy and Sustainability Concentration) (p. 544)
• Bachelor’s Degree (any)/Global Affairs, Accelerated MA (p. 524)

Graduate Degrees
• Climate Dynamics, PhD (p. 602)
• Environmental Science and Policy, MS (p. 664)
• Environmental Science and Public Policy, PhD (p. 672)
• Global Affairs, MA (p. 521)
• Interdisciplinary Studies, MA: Concentration in Energy and Sustainability (p. 534)

1 Meets Green Leaf criteria when options are selected to ensure coverage of "people, planet and prosperity" across the program's curriculum.
2 Meets the Green Leaf criteria when the Master's degree is paired with a Green Leaf Bachelor's degree.

Courses
The Green Leaf designation recognizes offerings that contribute significantly to students' understanding and practice of sustainability. These offerings extend beyond environmental management, natural resources protection and conservation studies alone as Mason's Green Leaf curricula comprise both sustainability-focused and sustainability-related courses.

Sustainability- Focused Courses
Sustainability-focused courses provide valuable grounding in the concepts and principles of sustainability. These courses educate students about how different dimensions of sustainability relate to and support each other in theory and practice. In addition, these courses help equip students with the skills to weave together disparate components of sustainability in addressing complex issues.

ANTH 370 Environment and Culture 3
AVT 385 EcoArt (Mason Core) (p. 135) 3
BIOL 379 RS: Ecological Sustainability (Mason Core) (p. 135) 4
CEIE 401 Sustainable Land Development 3
CEIE 501 Sustainable Development 3
CEIE 540 Water Supply and Distribution 3
CEIE 892 Special Topics in Environmental and Water Resource Systems Engineering 3
COMM 660 Climate Change and Sustainability Communication Campaigns 3
CONF 702 Peace Studies 3
CONS 410 Human Dimensions in Conservation (Mason Core) (p. 135) 3
CONS 665 Conservation Conflict Resolution 3
ECON 105 Environmental Economics for the Citizen (Mason Core) (p. 135) 3
ECON 335 Environmental Economics 3
EVPP 322 Business and Sustainability 3
EVPP 338 Economics of Environmental Policy 3
EVPP 355 Ecological Engineering and Ecosystem Restoration 4
EVPP 361 Introduction to Environmental Policy 3
EVPP 362 Intermediate Environmental Policy 3
EVPP 378 RS: Ecological Sustainability (Mason Core) (p. 135) 4
EVPP 421 Marine Conservation 3
EVPP 432 Energy Policy 3
EVPP 475 Global Biodiversity Governance 3
EVPP 480 Sustainability in Action (Mason Core) (p. 135) 4
EVPP 521 Marine Conservation 3
EVPP 525 Economics of Human/Environment Interactions 3
EVPP 533 Energy Policy 3
EVPP 575 Global Biodiversity Governance 3
EVPP 608 Introduction to Environmental Social Science 3
EVPP 620 Development of U.S. Environmental Policies 3
EVPP 622 Management of Wild Living Resources 3
EVPP 626 Environment and Development in Asia 3
EVPP 627 Environmental Policy in Latin America 3
EVPP 628 Environment and Development in Africa 3
EVPP 635 Environment and Society 3
EVPP 642 Environmental Policy 3
GEOL 321 Geology of Energy Resources 3
GEOL 405 Advanced Seminar in Earth Resources 3
GEOL 420 Earth Science and Policy (Mason Core) (p. 135) 3
GGS 307 Sustainable Development 3
GGS 525 Economics of Human/Environment Interactions 3
GOVT 361 Introduction to Environmental Policy 3
INTS 210 Sustainable World 4
INTS 292 Leadership for Sustainability 1
INTS 318 Exploring Virginia's Watersheds 4
INTS 334 Environmental Justice 4
INTS 370 Sustainable Food Systems 6
INTS 402 Plants and People - Sustenance, Ceremony, and Sustainability 6
ITRM 760 International Environmental Politics 3
PRLS 250 Wilderness Travel and Sustainability 2
PRLS 300 People with Nature 3
PRLS 402 Human Behavior in Natural Environments 3
PRLS 531 Natural Resources Recreation Planning 3
PUAD 642 Environmental Policy 3
SOCI 320 Social Structure and Globalization (Mason Core) (p. 135) 3
TOUR 340 Sustainable Tourism 3
TOUR 420 Tourism Planning/Policy 3
TOUR 540 Sustainable Tourism Management 3

Sustainability- Related Courses
Sustainability-related courses help build knowledge about a component of sustainability or introduce students to sustainability concepts during part of the course. They may complement sustainability-focused courses.
by providing students with in-depth knowledge of a particular aspect or dimension of sustainability (such as the natural environment) or by providing a focus area (such as renewable energy) for a student's sustainability studies, or they may broaden students' understanding of sustainability from within different disciplines.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 580</td>
<td>Environmental Anthropology</td>
<td>3</td>
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<tr>
<td>BIOL 140</td>
<td>Plants and People (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core)</td>
<td>3</td>
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<tr>
<td>CEIE 100</td>
<td>Environmental Engineering around the World (Mason Core)</td>
<td>3</td>
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<tr>
<td>CEIE 355</td>
<td>Environmental Engineering and Science</td>
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<tr>
<td>CEIE 450</td>
<td>Environmental Engineering Systems</td>
<td>3</td>
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<tr>
<td>CEIE 690</td>
<td>Topics in Civil Engineering</td>
<td>3</td>
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<tr>
<td>CHEM 155</td>
<td>Introduction to Environmental Chemistry I (Mason Core)</td>
<td>4</td>
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<tr>
<td>CHEM 156</td>
<td>Introduction to Environmental Chemistry II (Mason Core)</td>
<td>4</td>
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<tr>
<td>CHEM 458</td>
<td>Chemical Oceanography</td>
<td>3</td>
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<tr>
<td>CLIM 101</td>
<td>Global Warming: Weather, Climate, and Society (Mason Core)</td>
<td>3</td>
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<tr>
<td>CLIM 102</td>
<td>Introduction to Global Climate Change Science (Mason Core)</td>
<td>4</td>
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<tr>
<td>CLIM 111</td>
<td>Introduction to the Fundamentals of Atmospheric Science (Mason Core)</td>
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<tr>
<td>CLIM 112</td>
<td>Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core)</td>
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<td>CLIM 314</td>
<td>Severe and Extreme Weather</td>
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<td>CLIM 319</td>
<td>Air Pollution</td>
<td>3</td>
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<tr>
<td>CLIM 412</td>
<td>Physical Oceanography</td>
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<tr>
<td>COMM 399</td>
<td>Special Topics in Communication</td>
<td>1-3</td>
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<td>COMM 670</td>
<td>Social Marketing</td>
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<tr>
<td>COMM 690</td>
<td>Special Topics in Communication</td>
<td>3</td>
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<tr>
<td>CONF 651</td>
<td>Collaborative Community Action</td>
<td>3</td>
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<tr>
<td>CONF 682</td>
<td>Principles of Environmental Conflict Resolution</td>
<td>3</td>
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<tr>
<td>CONF 683</td>
<td>Environmental Conflict Resolution: Situation Assessment, Process Design and Best Practices</td>
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<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td>3</td>
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<td>CONS 402</td>
<td>Applied Conservation</td>
<td>4</td>
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<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
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<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td>4</td>
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<tr>
<td>CONS 411</td>
<td>Science Communication for Conservation</td>
<td>3</td>
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<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core)</td>
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<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning (Mason Core)</td>
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<tr>
<td>EDCI 573</td>
<td>Teaching Science in the Secondary School</td>
<td>3</td>
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<tr>
<td>EVPP 110</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core)</td>
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<tr>
<td>EVPP 111</td>
<td>The Ecosphere: An Introduction to Environmental Science II (Mason Core)</td>
<td>4</td>
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<tr>
<td>EVPP 201</td>
<td>Environment and You: Issues for the Twenty-First Century (Mason Core)</td>
<td>3</td>
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<tr>
<td>EVPP 336</td>
<td>Human Dimensions of the Environment</td>
<td>3</td>
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<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
<td>3</td>
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<tr>
<td>GCH 560</td>
<td>Environmental Health</td>
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<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
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<tr>
<td>GEOL 102</td>
<td>Introductory Geology II (Mason Core)</td>
<td>4</td>
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<tr>
<td>GEOL 134</td>
<td>Evolution and Extinction (Mason Core)</td>
<td>3</td>
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<tr>
<td>GEOL 303</td>
<td>Field Mapping Techniques</td>
<td>3</td>
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<tr>
<td>GEOL 305</td>
<td>Environmental Geology</td>
<td>3</td>
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<tr>
<td>GEOL 306</td>
<td>Soil Science</td>
<td>3</td>
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<tr>
<td>GEOL 313</td>
<td>Hydrogeology</td>
<td>3</td>
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<tr>
<td>GEOL 320</td>
<td>Geology of Earth Resources</td>
<td>3</td>
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<tr>
<td>GEOL 332</td>
<td>Paleoclimatology</td>
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<td>GEOL 363</td>
<td>Coastal Morphology and Processes</td>
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<td>GEOL 458</td>
<td>Chemical Oceanography</td>
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<td>GGS 102</td>
<td>Physical Geography (Mason Core)</td>
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<td>GGS 103</td>
<td>Human Geography (Mason Core)</td>
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<td>GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core)</td>
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<td>GGS 122</td>
<td>Dynamic Geosphere and Ecosphere</td>
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<td>GGS 302</td>
<td>Global Environmental Hazards</td>
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<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core)</td>
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<td>GGS 304</td>
<td>Population Geography (Mason Core)</td>
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<td>GGS 312</td>
<td>Physical Climatology</td>
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<td>GGS 314</td>
<td>Severe and Extreme Weather</td>
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<td>Air Pollution</td>
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<td>GGS 322</td>
<td>Issues in Global Change</td>
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<td>GGS 455</td>
<td>Environmental Impact Assessment</td>
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<td>HIST 615</td>
<td>Problems in American History</td>
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<td>HNRT 228</td>
<td>Scientific Thought and Processes II (Mason Core)</td>
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<tr>
<td>INTS 102</td>
<td>Global Networks and Communities</td>
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<td>INTS 103</td>
<td>Human Creativity: Science and Art</td>
<td>6</td>
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<td>INTS 211</td>
<td>Introduction to Conservation Studies</td>
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<td>INTS 311</td>
<td>The Mysteries of Migration: Consequences for Conservation</td>
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<td>INTS 338</td>
<td>Animal Rights and Humane Education</td>
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<td>INTS 371</td>
<td>Food Systems and Policy</td>
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<td>INTS 401</td>
<td>Conservation Biology</td>
<td>6</td>
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coursework, groups of students in LLCs interact with each other and their faculty or staff coordinators through numerous out-of-class programs and activities. LLC options exist for both first-year and upper-division undergraduate students who choose to live on campus. For more information, please visit the website. (http://llc.gmu.edu)

**Military Services**

Jennifer Connors, Director  
245 Johnson Center  
Fairfax Campus  
Phone: 703-993-1316  
Fax: 703-993-2392  
Website: military.gmu.edu

**Office of Military Services**

The mission of the Office of Military Services at Mason is to assist veterans, active duty service members, guardsmen, reservists, and dependents in making a successful transition into the Mason community. Our goal is to help these students in a number of capacities including counseling and advising on benefits, academic and admissions advising, and career transition. Few schools have a dedicated staff to help transition from a military environment to college life and we are proud to be able to assist our students in any way.

Located within the Office of Admissions, the Office of Military Services understands personally that the transition to student life can be challenging, yet rewarding. Along with the entire university community, we are grateful to you and your family members for your service to our country. We are dedicated to providing the services you need to successfully navigate this transition.

To schedule a time to meet with a Transition Coordinator, email military@gmu.edu or call 703-993-1316.

**Office of the Ombudsman**

The Office of the Ombudsman is a resource to help all GMU students navigate the University. The Ombudsman can listen to university-related concerns raised by undergraduate and graduate students in confidence and off-the-record, and help them identify appropriate resources to address their concerns and understand their options in any University-related situation. The Ombudsman operates independently of all formal processes at the university. The Ombudsman has no authority to make exceptions or to grant requests, but can help expedite informal resolution to students’ concerns. When appropriate, the Ombudsman may recommend changes in processes and policies at the university. Meetings with the Ombudsman are confidential, except when there is imminent risk of serious physical harm to anyone. The Office of the Ombudsman does not serve as an office of notice or record for the University. If a student wishes to put the University on notice about anything, the Ombudsman can help identify the appropriate channel. The Office of the Ombudsman offers a safe place to discuss and explore options, so students can better understand the University and make informed decisions about their concerns. The Office of the Ombudsman does not replace or substitute any formal processes made available by the University.

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**Learning Solutions**

Brad Dawson, Executive Director  
448 Arlington Founders Hall  
3351 Fairfax Drive  
MS 2G2, Arlington, VA 22201  
Phone: (703) 993-2109  
Email: lscont@gmu.edu  
Website: ls.gmu.edu

Learning Solutions serves as Mason’s initial point of contact and referral for the business and professional community, and responds to all professional development and continuing education inquiries, requests, and needs. Supported program activities include contracted academic credit programs, noncredit public programs and seminars, online courses, professional certificate programs, continuing education units (CEUs), on-site contract training programs, special professional development events and programs, special workforce development programs, and training center facilities.

Learning Solutions is strategically located at the Arlington Campus in Founders Hall and the Science and Technology Campus in Manassas. Current program information, offerings, and capabilities can be reviewed at their website (http://ls.gmu.edu).

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**Living Learning Communities**

Hanover Hall  
Fairfax Campus  
Phone: 703-993-6674  
Email: LLC@gmu.edu  
Website: http://llc.gmu.edu/

Living Learning Communities (LLCs) are collaborative partnerships between academic departments, individual Mason faculty, housing and residence life staff, and the division of University Life. Students who enroll in an LLC take one or more classes together and live on campus as a group in the same residence hall. In addition to their common
Reserve Officer's Training Corps (ROTC)

Army ROTC

2121 Recreation & Athletic Complex
Phone: 703-993-2706
Fax: 703-993-2708
Web: arotc.gmu.edu (http://arotc.gmu.edu)

Administration
Lieutenant Colonel Justin Chezem, U.S. Army
Professor of Military Science

The Army Reserve Officers' Training Corps (ROTC) is an elective program offering qualified students the opportunity to earn a commission as an officer in the U.S. Army, Army National Guard, or U.S. Army Reserve while pursuing a baccalaureate or graduate degree as a full-time student. The program emphasizes student learning and participation in applied leadership, leadership theory, decision making, management skills, time management, ethics and military law, logistics, military roles and national objectives, strategic and tactical planning and principles, and basic military knowledge and skills. The George Mason Army ROTC Patriot Battalion began in 1982, achieved independent status in 2000, and frequently conducts training with colleges and universities throughout Maryland, Virginia, and the District of Columbia.

Enrollment

Enrollment in Military Science (MLSC) courses is open to all students at the Basic Course Level. Freshmen (MLSC 100 Introduction to Army/ROTC and MLSC 102 Leadership Skills II), sophomore (MLSC 200 Self/Team Development and MLSC 202 Leadership Skills IV), and junior (MLSC 300 Applied Leadership I and MLSC 302 Applied Leadership II) classes are awarded 1 credit each. Senior classes (MLSC 400 Leadership and Management and MLSC 402 Leadership and Ethics) earn 3 credits each. No military service obligation is incurred by enrolling in the freshman and sophomore level Army ROTC courses. Courses can be dropped or added, as with any elective course at Mason.

The four-year program is organized into two successive phases: the Basic Course and the Advanced Course. For students seeking the opportunity to earn a commission as an officer, several entry methods and participation strategies can be used. A minimum of four semesters must remain in the student's academic curriculum to complete commissioning requirements; these semesters may be part of either a full-time undergraduate or graduate degree. Course descriptions appear under Military Science (MLSC) in the Courses section of this catalog. Cadets must meet established academic standards. A student must maintain an overall GPA of at least 2.00 to earn commissioning credit for ROTC.

Contracted and scholarship cadets of any level are required to pass the Army Physical Fitness Test (APFT) once each semester. Physical training (PT) is conducted three times each week (Monday/Wednesday/Friday from 6:30 to 8 a.m.). All contracted and scholarship cadets are required to attend physical training.

Basic Course Curriculum

The Basic Course curriculum is a four-course series (MLSC 100 Introduction to Army/ROTC, MLSC 102 Leadership Skills II, MLSC 200 Self/Team Development, and MLSC 202 Leadership Skills IV), usually taken in the freshman and sophomore years. Each class awards 1 academic credit. The Basic Course trains students map reading, land navigation, first aid, physical fitness, leadership, ethics, and communication skills. Each lecture class meets once a week for 75 minutes. Course materials and access to required publications are provided free of charge to all enrolled students. Uniforms and equipment are also issued to students at no cost, but students must return them when withdrawing from or completing the program. In addition students not participating in summer training are required to store their uniforms and equipment with ROTC Supply over the summer break.

Mason's Army ROTC program has numerous experiential aspects. The MLSC Leadership Laboratory section encompasses several different activities. Students enrolling in any ROTC lecture class must enroll in the required lab section. Only the Professor of Military Science can waive Laboratory enrollment in certain circumstances, such as scheduling conflicts.

All Laboratory sections meet as a combined unit on Thursdays from 1:30 to 4:15 p.m. During this time, Cadets train in a variety of hands-on, practical leadership skills and military tasks, ranging from drills and ceremonies to squad and platoon tactics.

Army ROTC also organizes numerous optional events, including field training exercises (FTXs), rappelling, orienteering, formal social events and military related field trips. The unit has an organized color guard, drill team and an intercollegiate Ranger Challenge competition team. Students also have the opportunity to attend official Army training courses such as basic airborne training and the air assault course. Enrolled students typically become progressively more involved to enhance their training, develop esprit de corps, and take part in social aspects of the program.

Advanced Course Curriculum

The Advanced Course consists of a four-course series (MLSC 300 Applied Leadership I, MLSC 302 Applied Leadership II, MLSC 400 Leadership and Management, and MLSC 402 Leadership and Ethics) taken during the junior and senior years. MLSC 300 Applied Leadership I and MLSC 302 Applied Leadership II earn 1 credit each, while MLSC 400 Leadership and Management and MLSC 402 Leadership and Ethics earn 3 credits each. Enrollment in the ROTC advanced course requires that students enter into a contract to serve as a commissioned officer in the active or reserve component of the U.S. Army upon graduation. Many graduates elect to apply for service on active duty although ROTC also offers the opportunity of service in either the Army Reserve or Army National Guard.

The 300-level courses emphasize squad and platoon leadership, tactics, and preparation for the Cadet Leader Course (CLC). CLC is a four-week training and evaluation event conducted during the summer at Fort Lewis, Washington. Successful completion is a prerequisite for commissioning. Cadets typically attend CLC in the summer between their junior and senior years; however, they may attend after their senior year if necessary. Salary, travel expenses, and room and board are all provided during the course.

Satisfactory completion of an approved military history course is also required. The department of History and Art History offers a number of 300-level survey courses on the American military experience that satisfy this requirement. Permission of the Professor of Military Science is required prior to substituting any other course.

Upper division ROTC students are also expected to participate in peer mentoring as part of their leadership development. The ROTC peer mentorship program helps students assimilate into the program and
helps students prioritize their time to ensure they remain in good academic standing.

The 400-level courses are considered to be the transition phase to becoming an officer in the U.S. Army. These courses focus on leadership, staff operations, logistics, military law, and ethics. Seniors are expected to organize and attend an additional one-hour staff and training meeting per week as part of their leadership experience and duties. Planning and implementation of training becomes the primary focus for seniors in required laboratories.

Enrollment in the advanced course ROTC classes requires that certain prerequisites be met. For more information, see the Courses section of this catalog.

**Earning a Commission**

There are several methods by which students may enter Army ROTC to earn a commission as a second lieutenant on graduation:

- Traditional students may complete the four-year program.
- Sophomores may dual-enroll in both years of MLSC freshman and sophomore level instruction to satisfy the lower-level division requirement in a single academic year. A member of the ROTC cadre must sign a time conflict approval form in order for students to enroll in both freshmen and sophomore lecture sections, as well as the leadership laboratory.
- Veterans with prior college credits may enter directly into the upper-division sequence (if academically aligned as a junior).
- Sophomores may apply to attend a four-week Cadet Initial Entry Training (CIET) - between the sophomore and junior years to gain experience equivalent to the basic course. Medical, physical and academic standards must be met prior to attending CIET. Students should contact the Recruiting Operations Office in the ROTC department to determine eligibility.
- Graduate students entering a two year program are also eligible to attend CIET prior to start of their graduate studies. Students should contact the Recruiting Operations Officer in the ROTC department to register for the appropriate courses through the Consortium Office located in SUB I, Room 2101. Attendance at courses, located at the University of Maryland, is mandatory. Carpenter among Mason cadets are usually available.

**Scholarship Programs**

Two-, three-, and four-year ROTC scholarships are available to freshmen, sophomores, and juniors in all majors on a competitive basis as well as to graduating seniors who wish to pursue a two-year master's degree. Students must have a minimum cumulative GPA of 2.50 to apply and be under age 31 when commissioned. Scholarships pay 100 percent of tuition, an annual book allowance of $1,200, and a stipend of at least $300 per month during the school year, all tax free.

A two or three year Guaranteed Reserve Forces Duty scholarship is available that guarantees reserve duty upon graduation and commissioning. Students should contact the Recruiting Operations Officer in the ROTC department to determine eligibility.

High school students interested in four-year scholarships should apply online (http://www.goarmy.com/rotc) no later than December 15 of their senior year for a scholarship that would start in the fall semester of their freshman year at Mason. Contact the Recruiting Operations Officer for details.

Many students participate in ROTC as non-scholarship cadets. A non-scholarship cadet cannot enter into a contract to receive a commission until the sophomore year (to include completing MLSC 100 Introduction to Army/ROTC and MLSC 102 Leadership Skills II or equivalent credit.) For the sophomore, junior, and senior years, non-scholarship contracted students receive a monthly stipend.

**Air Force ROTC**

AFROTC Detachment 330
2125 Cole Student Activities Building
University of Maryland
College Park, MD 20742-1021
Phone: 301-314-3242

**Enrollment**

The Air Force Reserve Officers’ Training Corps (AFROTC) provides two programs for college men and women to earn a commission as a second lieutenant in the U.S. Air Force while completing their university degree requirements. To enter the AFROTC program, students should contact 301-314-3242 or go online (http://www.afrotc.umd.edu). Mason students register for the appropriate courses through the Consortium Office located in SUB I, Room 2101. Attendance at courses, located at the University of Maryland, is mandatory. Carpools among Mason cadets are usually available.

**Four-Year Program**

This program is comprised of a General Military Course (GMC) and a Professional Officer Course (POC). The first two years (GMC), normally for freshmen and sophomores, give a general introduction to the Air Force and its various career fields. Students enrolled in the GMC program incur no obligation and may elect to discontinue the program at any time. The final two years, the POC concentrate on the development of leadership skills and the study of U.S. defense policy. Students must compete for acceptance into the POC. Students enrolled in the last two years of the program regardless of scholarship status will receive a monthly stipend. Juniors receive $450 a month and seniors receive $500 a month.

**Three-Year Program**

This program is normally offered to prospective sophomores but may be taken by seniors and graduate students. The academic requirements for this program are identical to the four-year program, and students receive the same benefits in their POC years. Student will take both the freshmen and sophomore class to make up the missed first year. Students must start the fall semester of their sophomore year to be eligible for the three-year program. Graduate students should contact the detachment 301-314-3242 for graduate student entrance requirements.

**Scholarships**

Scholarships are available in many fields and are based on merit. Those selected receive tuition, lab expenses, incidental fees, and a book allowance, plus a nontaxable monthly allowance. For the most up to date information about scholarships available contact the detachment or visit their website (http://afrotc.com/scholarships).

**AFROTC Awards**

AFROTC cadets are eligible for numerous local, regional, and national awards. Many of these awards include monetary assistance for school.
Student Health Services

2300 SUB I
Fairfax Campus
703-993-2831

229 Senator Colgan Hall
Science and Technology Campus
703-993-8374

B102 Founders Hall
Arlington Campus
703-993-4863

Website: shs.gmu.edu

Student Health Services provides easily accessible and affordable health care to all enrolled students in a caring and confidential environment.

Immunization Requirements

Student Health Services is responsible for collecting and maintaining students’ immunization records. All new, incoming students are required to submit the immunization record form. Students born after December 31, 1956, must provide documented proof that they have been immunized against certain communicable diseases. Students born before December 31, 1956 are only required to complete the Tuberculosis screening section. Students must submit completed immunization records to the Immunization Office by the deadlines below.

Incoming Summer/Fall Students October 1 Deadline
Incoming Spring Students March 1 Deadline

A late fee is charged and a hold is placed on the student’s Patriot Web account for immunization records that are turned in after the deadline or that are incomplete after the deadline.

Immunization requirements are mandated by the Commonwealth of Virginia and George Mason University policy #6004 (http://universitypolicy.gmu.edu/policies/immunization-policy).

Required Immunizations

Tuberculosis: Tuberculosis (TB) screening is required for all students. If TB testing is needed it must be completed within the past 6 months.

TD/Tdap: Tetanus and diphtheria or Tetanus/diphtheria/Acellular Pertussis vaccination within the past 10 years.

MMR: Two doses each of measles, mumps, rubella, after 1967 OR the combination MMR (after 1971), OR a laboratory report of a titer documenting positive immunity to each of the diseases.

Hepatitis B: Students are required to submit proof of vaccination against Hepatitis B disease OR they must sign a waiver stating that they have reviewed information on Hepatitis B disease and the availability and effectiveness of the vaccine but have chosen not to be vaccinated. Student Health Services highly recommends this vaccination series.

Meningococcal: Students must receive the Meningococcal Conjugate vaccine between the ages of 16-21 OR submit a signed waiver that they have reviewed information on Meningococcal disease and the availability and effectiveness of the vaccine but have chosen not to be vaccinated. If the student received the vaccine before age 16, a booster dose is required. Student Health highly recommends students living on campus or participating in sports receive this vaccine.

The immunization record form can be found on the Student Health Services website (http://shs.gmu.edu/immunizations) or obtained at the Immunization Office. Students must have their healthcare provider fill out the immunization record form and sign it or students must fill out the form and provide accepted proof of immunization. Immunization records should be in English.

Immunization Submission

Submit records to the Immunization Office by fax, mail, in-person, or email. Submission details are on the immunization record form.

Office location:
SUB 1, Room 2349

Mailing Address:
George Mason University Student Health Services
4400 University Drive, MS 2D3
Fairfax, Virginia 22030

Fax:
703-993-4053

Email:
imunize@gmu.edu (imunize@gmu.edu) (pdf attachment only)

Students are responsible for ensuring immunization records are submitted and complete by the deadline. Students are notified about incomplete or missing immunization requirements through their Mason email account.

Contact the Immunization Office (http://shs.gmu.edu/immunizations) for questions about immunization requirements, submission, or vaccine prices. Call (703-993-2135) or walk-in to the Immunization Office to schedule an appointment for immunizations at Student Health Services.

Minor Consent

A parent/legal representative signature is required for a minor (a student under age 18 at the time classes begin). A minor consent must be on file at Student Health Services to receive most health services. This minor consent is on the immunization record form. If a minor student chooses to sign the hepatitis B or meningococcal waiver on the immunization record form, a parent/legal representative signature is also required.

Student Health Services

Student Health is staffed by dedicated doctors, nurse practitioners, and nurses who provide diagnosis and treatment of illness and minor injuries and health and wellness counseling for all enrolled students. Clinics on the Fairfax, Arlington, and Science and Technology campuses offer a wide variety of services (http://shs.gmu.edu/services) to keep the Mason community healthy.

There is no charge to be seen by a healthcare provider. There are fees for supplies, immunizations, lab testing, medications and procedures. Call to schedule an appointment for routine or non-urgent services. If Student Health Services is closed, call 703-993-2831 to speak with the free nurse advice service.

Student Health Insurance Plan

Aetna Student Health administers the student health insurance plan which is available to eligible undergraduate and graduate students who would like to purchase health insurance. F-1 and J-1
Visa students are required under University Policy #6002 (https://universitypolicy.gmu.edu/policies/health-insurance-requirement-for-international-F-1-and-J-1-visa-students) to have health insurance. Details about the plan are online (http://shs.gmu.edu/insurance).

University Libraries

Office of the Dean of Libraries and University Librarian

4300 Fenwick Library
Fairfax Campus
MSN: 2FL
Phone: 703-993-2491
Website: library.gmu.edu

Administration

- John G. Zenelis, Dean of Libraries and University Librarian
- Clyde W. Grotorphorst, Associate University Librarian for Digital Programs and Systems
- Diane H. Smith, Associate University Librarian for Research and Educational Services
- John C. Walsh, Associate University Librarian for Resources and Collection Management Services

Research Services and Instruction

Library faculty work with instructional and research faculty and students in specific academic programs and departments to promote new resources, consult with faculty about acquiring specific scholarly resources, assist graduate students with thesis or dissertation research, and conduct instructional and training sessions for all levels of library users—students, faculty and staff.

Instructional Services

The University Libraries provide a variety of instructional services tailored to the curricular and academic programs of the university’s schools and colleges. Library instruction offered ranges from workshops to classes, and is aligned with and embedded in the university’s undergraduate and graduate curricula. Technology-rich instructional venues are available in all of the libraries.

Research & Consultation Services

Academic, special collections, and other functional staff provide research and consultative assistance to students, faculty and staff. Research projects can range from class assignments to lengthier research assignments, to capstone course and graduate degree requirements (i.e., thesis or dissertation), to research and scholarship leading to publication and related scholarly communications. For help in a specific discipline, consult the website (http://library.gmu.edu/ask/request).

Scholarly Resources

Library research materials in various formats are housed on the Fairfax Campus at the Charles Rogers Fenwick Library and the Gateway Library in the Johnson Center; on the Arlington Campus at the Arlington Campus Library; and on the Science and Technology Campus at the Mercer Library. The Antonin Scalia Law School Library, on the Arlington Campus, is administered separately, but maintains close programmatic and service coordination with all of Mason’s libraries. Combined holdings, including the law library, total more than 1.4 million print books and bound journal volumes; 1.6 million e-books; 170,000 online journals and proceedings; 158,000 online audiovisual items; 56,000 multimedia materials; 2.7 million microform units; 309,000 print government documents (U.S., Virginia, and European Union); 214,000 maps; 792 electronic databases; and significant holdings of manuscripts, special collections, and archives.

Mason’s integrated library information system and its discovery layer interface access an online catalog, circulation records and print course-reserves information. The information system can be used in any of the libraries from campus locations on the network or via the web. Electronic course reserves are provided through Blackboard (Bb), the university’s learning management system. The Libraries’ website (http://library.gmu.edu), offers access to a variety of networked digital resources and electronically mediated services, including a virtual reference service.

Current affiliations include the following:

- The Virtual Library of Virginia (VIVA) Program, a Virginia funded electronic and resource-sharing program for public higher-education institutions;
- The Washington Research Library Consortium (WRLC), whose membership includes American, Catholic, Gallaudet, Georgetown, George Washington, Howard, Marymount, and District of Columbia universities, provide resource sharing services;
- The Association of Southeastern Research Libraries, which includes the 36 largest university libraries in a 10-state region;
- The Center for Research Libraries - Global Resources Network, a Chicago-based research library for research, along with its affiliate Linda Hall Library of Engineering and Technology (Kansas City, MO), whose multimillion volume holdings comprise specialized and uniquely held materials in North America and;
- The international Online Computer Library Center (OCLC), whose extensive computerized system and network facilitate national and international library resource-sharing activities and shared cataloging of scholarly material worldwide.

An intercampus delivery service is available for students and faculty requesting materials held at any Mason campus library. Materials not held by Mason can be obtained by direct borrowing from WRLC institution libraries via the Consortium Loan Service, and other research libraries via interlibrary loan, or, when required, commercial delivery services.

Expanded academic support services also include the following:

Digital Scholarship Center

Web: dsc.gmu.edu (http://dsc.gmu.edu)

The Digital Scholarship Center (DiSC) is the library’s most sophisticated response to the interdisciplinary research, teaching and learning needs of our digital researchers. Our focus is supporting scholarly or academic activities that are conducted or enhanced through the use of data and digital technologies. DiSC staff and affiliates deliver a cluster of digital research services and the center itself offers a technology-rich location where discovery, exploration, collaboration and ultimately learning occur.

Data Services & GIS

An integrated service supporting faculty and students engaged in data-centric research (e.g., social science data sets, polling, census, geospatial data, and data archives). This includes consultation services, training and assistance with finding and using data, conducting data collection
and analysis, utilizing statistical and qualitative software packages, and geographic information systems (GIS). Other help offered includes advice on creating funder-mandated data management plans, research data repository services and access to government information and maps.

**Digital Projects Lab**

One of two labs in the Digital Scholarship Center, the Digital Projects Lab is designed, configured and equipped to support and encourage collaborative work on digital projects.

**iMasonLibraries Service**

Web: library.gmu.edu/ask (http://library.gmu.edu/ask)

This service provides a virtual, real-time, reference service which allows staff to provide reference service to students, faculty and staff remotely.

**Mason Publishing**

Phone: 703-993-3636

Web: library.gmu.edu/masonpublishing (http://library.gmu.edu/masonpublishing)

The Mason Publishing Group provides support and resources to the George Mason University community for creating, curating, and disseminating scholarly, creative, and educational works. Mason Publishing includes a cluster of publishing-related activities such as the George Mason University Press, scholarly communication and copyright, University Dissertation & Thesis Services, Mason's institutional repository (MARS), electronic journal hosting and publishing, and data publication.

**George Mason University Press**

Phone: 703-993-3636

Web: press.gmu.edu (http://press.gmu.edu)

A component of Mason Publishing, the George Mason University Press publishes in a variety of disciplines ranging from literature to public policy. The Press seeks to promote access to scholarly works that concern the university, other area institutions, and the history, politics and culture of the local area.

**Mason Archival Repository Service**

Phone: 703-993-3742

Web: mars.gmu.edu (http://mars.gmu.edu)

As part of Mason Publishing, the Mason Archival Repository Service (MARS) serves as an institutional repository and provides a stable digital archive for scholarly and research materials of lasting value held notably by Special Collections Research Center or produced by Mason faculty, students, and staff. The institutional repository librarian provides expert advice on archiving these materials, file formats, copyright issues, long-term management of archived materials, and issues pertaining to scholarly communication.

**Scholarly Communications and Copyright Resources**

Phone: 703-993-2544 or 2427

Web: copyright.gmu.edu (http://copyright.gmu.edu)

Integrated within Mason Publishing, this functional service provides guidance, assistance, and education on copyright, open access, and scholarly communications issues. More specifically, this office provides assistance with the application of fair use of proprietary content used in classroom teaching, electronic course reserves, online education; student assignments; open access and university publishing and support; and promoting faculty scholarship and collaborations. Workshops and class instruction on these topics and other are available year-round, upon request.

**University Dissertation and Thesis Services**

Phone: 703-993-2222


A component of Mason Publishing, the University Dissertation and Thesis Service (UDTS) assists students and academic units in the dissertation, thesis, and graduate-level project process by helping students meet all university requirements and deadlines for submission of work. The UDTS web site provides useful tools such as the university's Thesis, Dissertation, or Project Guide, containing downloadable templates of necessary elements, forms required for the submission process, and links to related web sites. UDTS also assists graduate students through individual consultation and informational workshops.

**Special Collections Research Center**

Web: sca.gmu.edu (http://sca.gmu.edu)

Housed in the recently expanded Fenwick Library in a new state-of-the-art space, this unit acquires, documents, preserves, and provides access to primary research collections and documents. SCRC's services, collections and programs support the teaching and research activities of George Mason University and also serve the community at large. With unique print and digitized collections that offer outstanding opportunities for research with original sources, its holdings focus on Mason's academic areas of strength, as well as document the development of the Washington-Northern Virginia metro area. The collections – in large part, rare and exceptional materials – are categorized by broad areas such as: humanities and social sciences; Northern Virginia and regional history; oral histories; politics and government; prints and photographs; Reston, Virginia; science and technology; theater and performing arts; transportation and planning; university archives and history. SCRC houses the university's records management program; and, through its oral history program, undertakes the creation of audiovisual documentary resources.

**University Records Management**

Phone: 703-993-2201

A part of the Special Collections Research Center, this services assists university academic and administrative departments with the retention and disposition of institutional records, both print/physical and digital, and in accordance with Virginia state laws, policies, and guidelines. University Records Management offers a variety of online guidance, as well as in-person workshops, instruction sessions, and records evaluations to assist faculty and staff. University Records Management maintains an on-site records center where inactive paper records may be stored and university records are properly disposed.

**Faculty**

**Library Faculty**

**Professional Faculty**

Beckman, Bell, Bowdoin, Bushallow, Butler, Byrd, Calcagno, Carter, Clark, Coniglio, Cowan, Eaton, Edwards, English, Euliano, Evans, Fairclough, Ferrance, Gerber, Griesinger, Grimm, Henson, Hoffman, Holland, Kelly,
Administrative Faculty
Kehoe, Osterman, Stockwell

Libraries

Library Locations
Fenwick Library
Phone: 703-993-2240

Designed to LEED silver standards, the newly renovated Fenwick Library, George Mason University's main research library, has greatly expanded services, learning spaces, and digital technology and resources for the Mason Community. The modern, bright facility, with furniture that can accommodate individual study as well as group collaboration, includes many new and expanded features. The majority of the University Libraries’ 1.4 million volumes are located in Fenwick Library. General circulating materials are available on floors three through five, with periodicals and government documents on the first floor. Compact shelving on the first, third, and fourth floors allow for increased capacity of the Libraries’ print collection, freeing up space for students to do research and to study. Fenwick Library houses the state-of-the-art Special Collections Research Center on the second floor.

Located on the first floor, the Information Desk is a unified full-service assistance desk, providing a single point of contact for research questions and access to collections in Fenwick Library. It is located in the Atrium as you enter the library. An express checkout station allows the Mason community to scan their own items to borrow. Laptops are available for checkout from a dispenser. The addition provides 30 new group study rooms, each equipped with white boards and monitors. A handful of MediaScape collaboration study rooms allow up to 4 students to share their laptop screens simultaneously. Also, two presentation practice rooms are designed to allow students a space to practice and revise oral presentations.

Fenwick Library has expanded the number of instructional spaces and created new seminar spaces. The first floor rooms can be combined to accommodate up to 80 students, and the fourth floor instruction space is a sandbox for exploring innovative classroom technology. Two exhibition and gallery spaces showcase student and faculty art, as well as items from the Special Collections Research Center.

The second floor houses the Research Commons, a space designed to bring together much of the research activity in the Libraries in a collaborative and multi-disciplinary environment. The Research Commons includes a large open area for group study and collaboration, the Special Collections Research Center, the Digital Scholarship Center, the Music Library, University Dissertation and Thesis Services, tutoring space for the Writing Center, and the offices of most of the University Libraries' subject specialist librarians. In addition, the modern Main Reading Room, with seating for 75, provides a space for quiet reflection and study on the second floor.

The fifth floor is the graduate study zone which includes Graduate Study Carrels and the Dissertations Writers' Room, quiet spaces designed to give graduate students a place to pursue their research and writing, and a faculty collaborative room which provides a place for Mason faculty to work on projects.

Assistive technologies are available onsite for individuals with disabilities.

Gateway Library
Phone: 703-993-9060

The Gateway Library is part of the George W. Johnson Center integrated learning environment and provides large open study areas and schedulable group study rooms that offer an invigorating alternative study environment. Access to all electronic scholarly information held by the University Libraries is available, in addition to media collections and a circulating book collection that supports the university's undergraduate curriculum. While the library provides reference services, its focus is on instructional services that are designed to improve and enhance undergraduate education fluency and competency with library research skills. The Gateway Library is the center for media collections and services for the university library system, and provides course support through reserve materials (electronic, print, and media) for students and faculty on the Fairfax Campus, as well as management of the electronic reserves service for the entire library system. Assistive technologies available onsite include screen-reading software, text-enlargement software, and special hardware for individuals with disabilities.

Arlington Campus Library
Phone: 703-993-8188

This library is a full-service research facility supporting the teaching and research needs of Mason faculty, students, and staff on the Arlington Campus. Consistent with this campus’ distinct areas of academic specialization at the graduate level, the library’s collection emphasizes public policy, international commerce, economics, management of nonprofit organizations, conflict resolution and arts management. The library has significant research materials holding and is a depository of European Union documents. Intercampus delivery of circulating materials from other library sites is available. Library staff can provide research assistance and instruction for students, faculty, and staff in identifying and using research resources, which continue to grow in breadth and depth. Assistive technologies are available for people with disabilities.

Mercer Library (Science and Technology Campus)
Phone: 703-993-8340

This library supports Mason faculty, students, and staff in the programs and courses offered on the Science and Technology Campus, including applied information technology; biotechnology, bioinformatics, and biodefense; education; environmental sciences and policy; Governor's School @ Innovation Park; health, fitness and recreation resources; molecular and microbiology; tourism; and visual and performing arts. This library also supports faculty and students in the Smithsonian Mason School of Conservation on the Front Royal Campus.

The library provides access to university-wide electronic resources, with an emphasis on instruction and assistance with information resources and research. The library fosters partnerships to provide information services to the rapidly expanding corporate and technology presence in Prince William County. Assistive technologies for people with disabilities are available.
Antonin Scalia Law School Library (Hazel Hall, Arlington Campus)

Phone: 703-993-8120 (circulation desk)

Administration
Deborah M. Keene, Associate Dean, Library and Technology

The law library supports the Antonin Scalia Law School and has a collection of over 476,000 print and microfiche volumes with an emphasis on law and economics, intellectual property, corporate and securities law, regulatory law, and Virginia law. The library also provides access to electronic law resources including LexisNexis, Westlaw, HeinOnline, Index to Legal Periodicals, Bloomberg Law and BNA Premier and is a selective depository for U.S. Government documents. The law library is open to all members of the university community. Most of the collection does not circulate, but many of the books in the treatise collection are available for checkout by all faculty, students, and staff.

University Scholars Program

Honors College
Mason Hall, Room D205

Phone: 703-993-1110
Website: honorscollege.gmu.edu/admissions/university-scholars

The University Scholars are selected from among the most outstanding students invited to the Honors College. This award is the highest academic distinction that Mason offers to undergraduate students and is given annually to top high school seniors admitted to the university. Each year the University Scholars Program enrolls approximately 20 new first-year students, each of whom receives a scholarship covering the full cost of tuition over four years. Students receiving this award have exemplary records of academic achievement, and they have demonstrated intellectual vision and creativity, the potential to solve problems and overcome obstacles, and a commitment to meaningfully contributing to their communities. Applications must be submitted by November 1 to receive priority consideration for the scholarship.

The University Scholars reside in a common residence hall their first year and share the Dr. Noreen McGuire Prettyman University Scholars Lounge. Students enrolled in the University Scholars Program participate in a dynamic learning community that provides opportunities for intellectual, cultural, and social engagements.
RESEARCH

- Krasnow Institute for Advanced Study
- Office of Research and Economic Development
- Students as Scholars
- Research and Scholarship Intensive Courses

Krasnow Institute for Advanced Study

Kenneth De Jong, Interim Director
Ernest Barreto, Associate Director

Phone: 703-993-4333
Website: krasnow.gmu.edu

Administration

- Kenneth De Jong, Interim Director
- Ernest Barreto, Associate Director

College Code: KR

The Krasnow Institute for Advanced Study seeks to expand the understanding of mind, brain, and intelligence by conducting research at the intersection of the separate fields of cognitive psychology, neurobiology, and the computer-driven study of artificial intelligence and complex adaptive systems, including social systems. These separate disciplines increasingly overlap and promise progressively deeper insight into human thought processes. The institute also examines how new insights from cognitive science research can be applied for human benefit in the areas of mental health, neurological disease, education, computer design, and social system analysis.

The Krasnow Institute for Advanced Study was chartered in 1990 as a private nonprofit Virginia corporation and merged with Mason in 2002, becoming a chartered institute under the Office of the Provost. The Center for Social Complexity joined the Krasnow Institute in 2005. The institute operates on an annual budget of $7.8 million. Cognitive research at the institute spans from molecules to the mind to social systems. Krasnow scientists have published extensively in the most prestigious scholarly journals and collectively have brought in more than $59 million in sponsored research from federal agencies such as the National Institutes of Health and private sources such as the Sir John Templeton Foundation.

Faculty

Institute Faculty


Office of Research

5205 Merten Hall

Fairfax Campus
Phone: 703-993-2268
Fax: 703-993-8871
Email: research@gmu.edu
Website: research.gmu.edu

Administration

- Deborah Crawford, Vice President for Research

The Office of Research has overall responsibility for the university’s research enterprise. Working in an atmosphere characterized by its commitment to generate new knowledge through research and scholarship and to seed and support entrepreneurship and innovation to benefit society, Mason’s researchers and scholars conduct their work in an array of disciplines and subject areas. The Office works to promote and optimize the success and impact of these endeavors and to create an environment that sustains the highest standards of ethical research and scholarship.

The Office establishes, with the advice of Mason’s Research Council, and administers the policies governing research and scholarship at the university. It also oversees the management of Mason’s research programs, assists investigators seeking external funding, promotes interdisciplinary research, and ensures compliance with federal, state, and institutional regulations. Additional information about the units comprising the Office, and the resources and policies supporting researchers and scholars throughout the university, is available at the website (http://research.gmu.edu).

Students as Scholars

Bethany M. Usher, Director
246 Johnson Center
Fairfax Campus
Phone: 703-993-3794
Email: oscar@gmu.edu
Website: oscar.gmu.edu

Office of Student Scholarship, Creative Activities, & Research (OSCAR)

Students as Scholars, through the Office of Student Scholarship, Creative Activities, and Research (OSCAR), is Mason’s award-winning undergraduate research and creative activities initiative. We connect undergraduate students and faculty through both course-based and independent scholarly projects.

OSCAR offers several programs that make scholarship central to the undergraduate experience at Mason, by:

- Helping undergraduates students find faculty mentors
- Funding undergraduate research and creative projects through the Undergraduate Research Scholars Program
• Providing funding for travel to conferences through the Undergraduate Student Travel Fund
• Supporting Research and Scholarship Intensive Courses
• Coordinating curriculum redesign through Scholarship Development Grants
• Hosting the annual Celebration of Student Scholarship
• Offering OSCAR Federal Work Study Research Assistantships

Please visit our website (http://oscar.gmu.edu) for more information.

### Research and Scholarship Intensive Courses

**Office of Student Scholarship, Creative Activities, & Research (OSCAR)**

246 Johnson Center
Fairfax Campus
Phone: 703-993-3794
Email: oscar@gmu.edu
Website: oscar.gmu.edu

These courses give students an authentic research or creative experience. In RS courses, students and faculty have a unique opportunity to partner as they merge teaching with the creation of new knowledge. By participating in one of these classes, students are actively involved in a project that is the central focus of the class. Students help define the project, take responsibility for carrying it out, and present the results to a broader audience. These classes are identified on student transcripts with an RS designation. Currently offered RS courses can be found at the OSCAR website (http://oscar.gmu.edu/students/Students-as-Scholars-Classes.cfm).

### RS Courses

The following courses have been designated Research and Scholarship intensive (RS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 440</td>
<td>RS: Advanced Studies in Renaissance and Baroque Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 460</td>
<td>RS: Advanced Studies in 20th-Century European Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 472</td>
<td>RS: Advanced Studies in 20th-Century Latin American Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 495</td>
<td>RS: Objects and Archives in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ASTR 402</td>
<td>RS: Methods of Observational Astronomy (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>AVT 483</td>
<td>RS: Art and Artactivity</td>
<td>3</td>
</tr>
<tr>
<td>BENG 395</td>
<td>RS: Mentored Research in Bioengineering</td>
<td>1-3</td>
</tr>
<tr>
<td>BENG 493</td>
<td>RS: Senior Advanced Design Project II (Mason Core)</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 379</td>
<td>RS: Ecological Sustainability (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 499</td>
<td>RS: Research in Biology</td>
<td>6-9</td>
</tr>
<tr>
<td>BIS 490</td>
<td>RS: Senior Project (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 439</td>
<td>RS: Atmospheric Chemistry II: Air Analysis Techniques</td>
<td>3</td>
</tr>
<tr>
<td>COMM 491</td>
<td>RS: Honors Research Project in Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 498</td>
<td>RS: Research Projects in Communication</td>
<td>3</td>
</tr>
<tr>
<td>CONF 490</td>
<td>RS: Integration (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>COS 401</td>
<td>RS: Discipline Based Education Research</td>
<td>2-3</td>
</tr>
<tr>
<td>CRIM 492</td>
<td>RS: Honors Seminar II</td>
<td>3</td>
</tr>
<tr>
<td>DANC 362</td>
<td>RS: Directed Choreography</td>
<td>1</td>
</tr>
<tr>
<td>ECE 493</td>
<td>RS: Senior Advanced Design Project II (Mason Core)</td>
<td>2</td>
</tr>
<tr>
<td>ECON 495</td>
<td>RS: Honors Thesis in Economics</td>
<td>3-6</td>
</tr>
<tr>
<td>ENGH 401</td>
<td>RS: Honors Thesis Writing Seminar (Mason Core)</td>
<td>3</td>
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<tr>
<td>ENGH 417</td>
<td>RS: Topics in Folklore Research (Mason Core)</td>
<td>3</td>
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<tr>
<td>ENGH 458</td>
<td>RS: Topics in Literary Research (Mason Core)</td>
<td>3</td>
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<tr>
<td>ENGH 470</td>
<td>RS: Topics in Film/Media History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 484</td>
<td>RS: Writing Ethnography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 486</td>
<td>RS: Writing Nonfiction for Publication (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 378</td>
<td>RS: Ecological Sustainability (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GAME 332</td>
<td>RS: Story Design for Computer Games</td>
<td>3</td>
</tr>
<tr>
<td>HHS 492</td>
<td>RS: Internship in Clinical Research</td>
<td>3</td>
</tr>
<tr>
<td>HIST 499</td>
<td>RS: Senior Seminar in History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HNRS 312</td>
<td>RS: Research in the Public Sphere</td>
<td>3</td>
</tr>
<tr>
<td>HNRS 411</td>
<td>RS: Honors College Thesis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 406</td>
<td>RS: Honors Thesis in Mathematics II</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 481</td>
<td>RS: Marketing in the Nonprofit Sector</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 490</td>
<td>RS: Musical Communication in Context (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 405</td>
<td>RS: Laboratory Methods in Behavioral Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 492</td>
<td>RS: Psychology Honors III</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 490</td>
<td>RS: Clinical Research Internship</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 481</td>
<td>RS: Honors Seminar in Sociology II</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 485</td>
<td>RS: Sociological Analysis and Practice (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 472</td>
<td>RS: Integrative Methods in Social Action and Social Change (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>UNIV 491</td>
<td>RS: Students as Scholars Individualized Scholarly Experience</td>
<td>9</td>
</tr>
<tr>
<td>UNIV 495</td>
<td>RS: Undergraduate Research Scholars Program Seminar</td>
<td>3</td>
</tr>
<tr>
<td>UNIV 496</td>
<td>RS: Undergraduate Research Scholars Program Continuation</td>
<td>0</td>
</tr>
<tr>
<td>WMST 411</td>
<td>RS: Feminist Research Practice</td>
<td>3</td>
</tr>
</tbody>
</table>
TUITION & FEES

Office of Student Accounts

4400 University Drive, MS 2E2
Fairfax, VA 22030
Phone: 703-993-2484
Fax: 703-993-2490
Website: studentaccounts.gmu.edu

General Guidelines

• Students are responsible for maintaining a current mailing address in their student record on Patriot Web (https://patriotweb.gmu.edu), and for activating and checking their George Mason University e-mail accounts to receive official university communications.

• By registering for classes, students accept responsibility for the semester charges. Students are responsible for withdrawing from all classes that they do not intend to complete by the deadlines listed in the Semester Calendar. Students must confirm withdrawals and class drops, and full or partial liability may apply. George Mason University does not cancel classes for nonpayment or nonattendance.

• Refer to the Payment Schedule and the Semester Calendar on the Student Accounts Office website for payment due dates and tuition penalties for dropping classes after the start of the semester. Classes that do not meet for the full semester have non-standard liability deadlines, which can be found on the part-of-term chart of the Semester Calendar.

• Payments are due in the Cashier's Office, Student Union Building I, Room 1501, on or before 4:30 p.m. on due dates, regardless of postmark if mailed. Check and credit card payments made through the Bill and Payment System must be completed by 10:30 p.m., to be considered in that day's business. Bills are provided electronically only, approximately thirty (30) days prior to the semester start to students and authorized payers. Bills are not provided for individual class registration and schedule adjustments. Students must check Patriot Web for balance due, verify registration, and pay through the Bill and Payment System or at the Cashier's Office by the due date. Failure to receive a reminder bill confirming charges does not waive the requirement for payment when due.

• Students who have not completed the financial aid process must be prepared to pay for their courses by the tuition due date or a late payment fee will be charged. The amount of financial aid accepted and processed will be reflected in your account balance. If the amount of aid awarded is less than the charges, the difference must be paid by the tuition due date. Federal work-study awards cannot be deducted from your balance. Financial aid recipients must also notify their financial aid counselor if they drop courses below the minimum required credits for their financial aid award. Class registrations or schedule adjustments after financial aid has disbursed may result in a balance due. Students are responsible for checking their balance after all schedule adjustments.

• The Family Educational Rights and Privacy Act of 1974 (FERPA) limits the release of student information to parents or other third parties without the student’s written consent. Students may set up authorized users in the Bill and Payment System to meet this requirement. Authorized users will receive electronic bill notifications and financial activity access only.

• Out-of-state students with pending domicile requests are responsible for payment at the out-of-state rate. Students who are later determined to be in-state can request reimbursement for the difference in tuition rates.

• Non-returning students are responsible for withdrawing from their courses for the semester and ensuring they do not have an outstanding balance on their account. Any documentation or intent made to university departments that you are not returning does not withdraw you from the registered courses.

• Some Mason degree programs include academic credits that students must earn at other academic institutions. Students enrolling for such credits assume all financial responsibility with the other institutions.

Semester Tuition Charges and Related Fees

Approved tuition rates and fees are available June 1. For more information, call the Student Accounts Office at 703-993-2484 or go online (https://studentaccounts.gmu.edu). Students are charged tuition rates for registered courses according to their academic level and program; graduate rates vary by academic program.

Please Note: Many courses require additional course fees and/or lab fees. Refer to the Student Accounts Office website (https://studentaccounts.gmu.edu/tuition) for up-to-date course fee information.

New Student Fees

All new degree seeking students pay a New Student Fee. The fee is a mandatory, nonrefundable, one-time charge that is assessed when a new student registers for classes, regardless of orientation attendance or future enrollment status. The current fee amount is listed on the Student Accounts Office website (https://studentaccounts.gmu.edu).

Educational Resource Fee

All students are charged a mandatory per-semester fee, $100 for seven credits or more, and $60 for less than seven credits, which allows Mason to maintain essential support services for both full and part-time students.

Payment Information

Payment Deadline

Payment is due the first day of the semester. Payments received at the Cashier’s Office by 4:30 p.m. Monday to Friday will be considered in that day’s business. Check and credit card payments made through the Bill and Payment System must be completed by 10:30 p.m. to be considered in that day’s business. To confirm receipt of payment and balance due on account, go to Patriot Web (https://patriotweb.gmu.edu).

Methods of Payment

Cash

In person at Cashier’s window only, Cashier’s Office, SUB I, Room 1501

Check

Online, in person, mail or drop box. Make check payable to George Mason University, with student ID number written on front. Third-party checks
are not accepted. Checks must be payable in U.S. dollars. A $50 return check fee will be charged for checks returned unpaid by the bank for any reason.

**Credit Card**  
Online only. Visa, MasterCard, American Express or Discover Card. There is a 2.75 percent convenience fee for credit card payments, which is nonrefundable.

**Delivery Methods**  
**Online**  
Bill and Payment system, on-line checks or credit cards

**Window**  
Cashier’s Office, SUB I, Room 1501, Monday through Friday 9 a.m. to 4:30 p.m.

**Drop Box (no cash payments)**  
Adjacent to Cashier’s Office, SUB I, hallway outside Room 1501

**U.S. Mail**  
George Mason University, Cashier’s Office, 4400 University Drive, MS 2E1, Fairfax, VA 22030. Allow 10 business days for delivery by the due date, and postmarks are not considered a receipt of payment.

**Semester Payment Plan**  
Mason payment plans are available on-line only. The preferred payment method for payment plans is the on-line/electronic check option, which does not charge a convenience fee. The following plans are available for students who need to budget their accounts.

The Summer term offers a two payment plan only. The plan begins with a down payment of 50% and the $25 contract fee, and defers the second payment until mid-June.

Deferred tuition options in Fall and Spring are available through two, three and four payment plans. Important deadlines must be followed to take advantage of the four payment plan, which allows charges to be paid in four installments - beginning in July for Fall and December for Spring. The two and three payment plan options begin any time prior to the due date for the semester. All plans require a down payment, which is the first payment plus the $25 contract fee. For more information, call the Student Accounts Office at 703-993-2484 or go online (https://studentaccounts.gmu.edu).

Failure to pay the deferred balance by the due date will result in a financial hold, a late fee of 10% (up to $125), collection activity, and may prevent future eligibility of the payment plan.

**Third-Party Billing Authorizations**  
Students using a third-party billing authorization will be charged a $25 processing fee. Students may receive an individual billing statement. Students must provide the third-party authorization or government training voucher to the Student Accounts Office, or fax it to 703-993-2460 before the student’s individual due date, which is based on their registration date. Check “Important Dates” on the web site for the deadline to submit third party payment authorizations. Students are responsible for any payment default by the sponsoring agency. Call 703-993-2484 for a copy of third-party billing requirements, or check online (http://studentaccounts.gmu.edu/third-party-billing-office).

**Penalties**  
A late registration fee of $125 is automatically assessed to students who add their first class on the first day of the semester or after. It does not apply to students already enrolled prior to the start of the semester who make schedule adjustments. Wait-listed classes are not considered class registration. Late registration fees are nonrefundable and will not be removed, regardless of enrollment status.

Any class registration after the deadline to add classes, if approved by the academic department, is subject to a late registration fee of up to $125. Late class registrations require an account in good standing and prepayment of all charges.

Past due balances are subject to a late payment fee that is 10 percent of the balance due, up to $125.

Registrations will not be canceled for nonpayment or nonattendance. Students must withdraw from all classes that they do not plan to complete by the payment due date to avoid the late payment fee on those classes.

**Returned Checks**  
Per Commonwealth of Virginia statute, the return check fee is $50. Repeat return checks may result in the restriction of this payment option for future semesters. Checks used to pay past due balances and/or to release holds for registration that are later returned unpaid by a financial institution may result in the immediate suspension of academic services.

Returned checks that create a balance will be sent a written or electronic notice, and a financial hold will be placed on the account until the balance is paid in full. Certified fund payments such as cash or cashier’s check are required for immediate hold release. Waiting periods will apply for other payment methods.

**Financial Good Standing; No Holds on Record**  
Financial good standing and a university record clear of holds are required for students to receive academic services. Services, including but not limited to transcript issuance, diploma release, and class registration (add, drop, withdrawal, etc.) will not be provided to students with a financial balance due or a hold of any kind on their record. Holds are based on outstanding obligations and may be financial. Examples include unpaid Student Health charges, fines owed to the Mason or Washington Research Library Consortium libraries, parking and other administrative holds.

Students in noncompliance with payment deadlines as of the end of the semester will be required to submit a financial guarantee or prepayment prior to future registration. The return of the prepayment by a financial institution will result in the immediate suspension of academic services.

**Collections**  
Failure to meet financial obligations to the university will result in other collection procedures, which include account referral to credit reporting bureaus, private collection agencies, the Commonwealth of Virginia Department of Taxation, and the Office of the Attorney General. Past due accounts are subject to garnishments, liens, and judgments and the withholding of money from tax refunds. In addition to late fees and interest, delinquent accounts will be assessed additional collection costs equal to thirty percent of the past due balance, reasonable attorney fees, and other administrative costs.
Course Withdrawals
Students are required to pay full or partial tuition for courses they withdraw from after the last day to drop with full tuition refund, including withdrawals to change from one section of a course to another section. For more information, see the tuition liability dates in the Semester Calendar.

Refund Policies
Direct Deposit Refunds
Students must sign up for direct deposit for expedited refunds by completing the form located on the Student Accounts Office website. Direct deposit refunds are sent electronically to the student’s bank account. Direct deposit refunds are not available for Parent PLUS loans.

Refund for Credit Balances
In cases where tuition charges are less than the payments on the student’s account, a refund of the overpayment may be requested. To initiate the refund process, a Refund Request form is completed and submitted to the Student Accounts Office. Refunds will be processed according to the last method of payment received:

- Cash payments are sent via direct deposit or check.
- Payments made by check require a seven day waiting period. The waiting period may be waived if proof of check clearance is presented, such as a canceled check copy or bank statement showing that the check cleared the account.
- Credit card payments are credited back to the credit card that was most recently used for payment.

Note: Check refunds are processed on an exception basis only and may take up to four weeks for processing and mail delivery. Refund checks are made payable to the student and are mailed to the address listed in the student record. In person check pick up is not available.

Financial Aid Refunds
Credit balances from financial aid awards will automatically generate a refund, which will be sent via direct deposit if authorized by the student. A refund request form is not needed for financial aid disbursement refunds except in cases of schedule adjustments after aid has been posted. Students who do not opt for direct deposit will receive check refunds mailed to the address on file in their student record. In person check pick up is not available.

Special Registration
Students not enrolled in a credit-bearing course, but whose academic department certifies that they are pursuing an activity related to Mason matriculation, can retain active status by having the Office of the University Registrar process a registration for the Special Registration course (ZREG 200). A $45 fee is charged for this course, and students must pay this fee before the University Registrar's office will process the registration. Written approval of the student's academic department chair is required. This special registration allows students to retain their library and computer privileges, receive a student ID, and buy a parking decal. Students must have active status to apply for or receive a degree, take an exam, or participate in cooperative education. Students pursuing a master’s or doctoral degree must maintain continuous enrollment. For more information, see AP.6 Graduate Policies (p. 87).

International Student Health Insurance
Health insurance is required for all F-1 and J-1 visa holders, and nonpayment may result in class cancellation. The health insurance fee is deducted from all payments received by the university before funds are applied to tuition or other charges. For more information, refer to the Admission of International Students section.

Music Instruction
Private music instruction is arranged through the School of Music on a fee-paying basis. Refer to the Student Accounts Office web site for up to date fee information. This fee is non-refundable.

In-State Tuition
To be eligible for in-state tuition, a student must have been domiciled in Virginia for at least one full year before the semester for which in-state tuition is sought, or qualify through statutory exception. A person establishes domicile by demonstrating physical presence and the intention to remain indefinitely in accordance with the Code of Virginia and the domicile guidelines. Copies of the guidelines and other applicable state laws are available from the Office of the University Registrar (https://registrar.gmu.edu/students/domicile).

Domicile Change
Domicile classification is determined at the time of a student's admission. To be considered for in-state status when applying to the university, students must file an application for in-state rates.

New and currently enrolled students classified as out-of-state who believe they qualify for in-state tuition after being admitted must file a domicile appeal form with the Office of the University Registrar no later than the first day of classes for the semester in which in-state rates are sought. Appeal forms are available from the Office of the University Registrar (https://registrar.gmu.edu/students/domicile).

Students whose appeals are denied have the right to seek further review of their status by the Office of the University Registrar or the Domicile and Tuition Classification Appeals Committee. These requests must be filed in the manner articulated in denial letters. Forms are available from the Office of the University Registrar and the web site. In addition, students should be aware that university procedures for appealing domicile decisions have been established pursuant to state law and are subject to change. Out-of-state students with an appeal pending at the time of tuition billing are responsible for payment of tuition at that rate. Students subsequently determined to be in-state may request reimbursement of overpayment from the Office of Student Accounts. Also, any student who fraudulently or knowingly provides false information in an attempt to evade payment of out-of-state tuition will be charged out-of-state tuition for each term or semester attended and may be subject to dismissal from the institution.

For more information regarding in-state eligibility, contact the Domicile Appeals Administration in the Office of the University Registrar in Student Union Building I, Suite 2101; phone: 703-993-2464; e-mail: domicile@gmu.edu.

Tuition Surcharge: 125 Percent of Degree
Undergraduate students who have established Virginia domicile and eligibility for in-state tuition will be subject to a surcharge if they exceed
125 percent of the credits required to complete a degree. The surcharge will be determined by the State Council for Higher Education in Virginia.

The following courses and credit hours shall be excluded in calculating the 125 percent credit threshold: remedial courses; transfer credits from another college or university that do not meet degree requirements for Mason Core courses or the student's chosen program of study; advanced placement or international baccalaureate credits that were obtained while in high school or another secondary school program; and dual enrollment, college-level credits obtained by the student prior to receiving a high school diploma.

**Expenses**

**Housing**

Housing and Residence Life

Ground floor of Potomac Heights

Phone: 703-993-2720

Web: housing.gmu.edu (http://housing.gmu.edu)

The university offers a variety of housing options to meet the diverse needs of students living on campus. Upper-class students may choose from suites, suites with kitchens, and townhouses. Most freshmen live in traditional-style residence hall rooms that accommodate two, three, and four students. Room rates are subject to approval on an annual basis by the Board of Visitors. Rates for the 2017–18 academic year should be available on or before May 1, 2017. Please refer to the Housing and Residence Life web site for rate information. All students in housing must provide a prepayment, which is credited back to the student in the fall. Housing assignments, including single rooms, are made on a priority and space-available basis. The web site provides extensive information about housing programs and services and includes floor plans for most student rooms.

Students living on campus are required to sign an academic year agreement. Releases from the agreement are generally granted only in cases of hardship and involve a financial penalty. For more information, contact Housing and Residence Life.

Living Learning Communities (LLCs) are collaborative partnerships between academic departments, individual Mason faculty, housing and residence life staff, and the division of University Life. For more information, please visit the housing website (https://housing.gmu.edu/lhc).

**Mason Dining**

Mason Dining

Southside Dining Hall, First Floor

Phone: 703-993-3300

Web: dining.gmu.edu (http://dining.gmu.edu)

Mason Dining is proud to serve the Mason community with over 36 restaurants, kiosks and carts among the Arlington, Fairfax, and Science and Technology campuses. Southside and Ike’s, located on the Fairfax campus, offers extensive menus with the highest quality ingredients and seasonal produce. Mason Dining is committed to nutrition, wellness, and sustainability.

**Meal Plans and Mason Money**

Meal Plan & Mason Money Office

Student Union I, Room 1203

Phone: 703-993-2870

Web: mealplans.gmu.edu (http://mealplans.gmu.edu) or masonmoney.gmu.edu (http://masonmoney.gmu.edu)

Both resident meal plans and optional patriot meal plans are available for students to purchase. These plans allow for tax-exempt dining and are billed to the student account. Most students living on campus are required to participate in the resident meal plan program. Meal plan policies and prices are available on the website (http://mealplans.gmu.edu).

Mason Money can be accessed with the Mason ID. It’s accepted at various venues on campus and also with participating merchants off campus. Funds can be deposited online (http://masonmoneyonline.gmu.edu), at any of the 9 Mason Money Stations located among three campuses, or the Mason Office.

**Parking Services**

Fairfax Campus, Sandy Creek Parking Office

Phone: 703-993-2710

Arlington Campus, 219 Founders Hall

Phone: 703-993-8146

Science and Technology Campus, 112 Occoquan Building Office

Phone: 703-993-4808

Web: parking.gmu.edu (http://parking.gmu.edu)

Students who park their vehicles on university property must register them with Parking Services and pay a fee for a parking permit. Permits are available on an annual, semester, or summer basis. For permit sales, fine payments, special requests, or problems, go to any Parking Services Office. Most services are available on-line (http://parking.gmu.edu). The Fairfax Campus Sandy Creek Parking Office hours are 8:30 a.m. to 7 p.m. Monday through Thursday and 8:30 a.m. to 5 p.m. on Friday. See the website (http://parking.gmu.edu) for current information and rates.

**Financial Aid**

Office of Student Financial Aid

Student Union Building (SUB) I, First Floor

Phone: 703-993-2353

Fax: 703-993-2350

Email: finaid@gmu.edu

Website: financialaid.gmu.edu

The Office of Student Financial Aid provides a variety of services to help students finance their education; including, financial aid advising, exploring funding resources, and financial assistance. Student financial aid awards may consist of grants, scholarships, work-study, and loans. Awards are based primarily on financial need, although there are some alternative financial aid sources available for those who may not qualify for need-based financial assistance.

The Office has a comprehensive listing of various scholarship opportunities for students to research on the Office of Student Financial Aid’s website. Students are encouraged to review the scholarship information often due to the listings being updated continuously and apply early in order to meet deadlines.
The Office is open 9:00 a.m. to 5:00 p.m., Monday through Friday. Financial Aid Counselors are assigned to students alphabetically based on students’ last names and are available daily by phone, e-mail or personal appointment. Students can view the list of Counselors on the Office’s website.

Each year, to apply for financial aid, both new and currently enrolled students must complete a Free Application for Federal Student Aid (FAFSA). George Mason University’s Federal Title IV school code for the FAFSA is 003749. Priority consideration for all sources of financial aid is given to those students whose financial aid applications are on file with the Office of Student Financial Aid by March 1. To meet this priority filing date, students should file the FAFSA as soon as possible after October 1st of the previous year (e.g. October 2017 for the 18-19 academic year). The FAFSA is filed online (http://www.fafsa.gov).

Financial aid for summer is generally limited to students who have remaining Federal Pell Grant or Federal Loan eligibility for the year. Summer is considered a "trailer" term at the university. Contact the Office of Student Financial Aid for specifics regarding eligibility.

Financial Aid Programs
The University administers the following federal, state, and other aid programs:

Federal programs
These include the Federal Pell Grant, Federal Supplemental Educational Opportunity Grant (FSEOG), Federal Work-Study (FWS), Federal Subsidized Direct Loans, Federal Unsubsidized Direct Loans, Federal PLUS Loans for parents of dependent students (DPLUS) and Federal Grad PLUS Loans for graduate students (DGPLUS). For more information, go to the Office of Student Financial Aid home page (http://financialaid.gmu.edu).

State financial aid programs for undergraduate Virginia residents
Eligibility for all state programs is determined based on the student’s FAFSA and financial need. State grant funds are limited, so adherence to the March 1 priority filing date is critical.

Virginia Commonwealth Award
This program is open to undergraduate students who have demonstrated financial need, are enrolled at least half-time, and are domiciliary residents of Virginia.

Virginia Guaranteed Assistance Program (VGAP)
This program is a component of the Virginia Commonwealth Award Program that is open to dependent students only who demonstrated academic achievement in high school and have graduated from a Virginia high school. VGAP awards are renewable for up to four years.

Graduate student assistance
Assistantships, fellowships, and scholarships exclusive of the federal financial aid programs identified earlier are administered by the individual graduate programs. Students interested in pursuing graduate assistantships, fellowships, or scholarships should contact their graduate program directly.

All students receiving financial aid must be enrolled in an eligible degree or certificate program; maintain satisfactory academic progress (SAP) as defined by the Office of Student Financial Aid in accordance with federal guidelines (see below); be a U.S. citizen or eligible non-citizen as defined by the U.S. Department of Education and all male students must be registered with Selective Service.

Satisfactory Academic Progress (SAP) Standards
Federal legislation governing the administration of federal programs requires colleges and universities to define and enforce standards of academic progress for students receiving or applying for financial aid. To comply with this legislation, the Office of Student Financial Aid has established a formal satisfactory academic progress policy. For detailed information, go to the Office of Student Financial Aid home page (http://financialaid.gmu.edu) or contact the Office of Student Financial Aid directly.

Return of Title IV Funds
The Office of Student Financial Aid is required by federal law to re-calculate federal financial aid eligibility for students who completely withdraw from all classes, drop out, are dismissed, or take a leave of absence prior to completing 60% of a payment period or term. According to the regulations, the amount of Federal Title IV awarded to a student must be re-calculated in these situations and any portion of the financial aid received that is considered to be “unearned” must be returned to the Title IV Program(s) from which it was received. Any student considering dropping or withdrawing from all courses, should contact their assigned Financial Aid Counselor immediately regarding possible adjustments to their financial aid.

Emergency Loan Programs
George Mason University has established an emergency loan account funded by the Gerson Trust.

This emergency loan is designed for enrolled students that encounter unexpected emergencies and is not meant to pay for tuition and fees. This is a short-term, interest free loan and students may borrow up to $1000. Repayment is due in 90 days. Applications may be obtained from the Office of Student Financial Aid.

Certificate Programs that Qualify for Financial Aid (Gainful Employment)
For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit the University’s disclosure information website (https://irr2.gmu.edu/gedt).

The qualifying certificate programs include:

- Accounting Undergraduate Certificate (p. 849)
- Advanced Biomedical Sciences Graduate Certificate (p. 597)
- College Teaching Graduate Certificate (p. 525)
- Early Childhood Education PK-3 (Licensure) Graduate Certificate (p. 179)
- Early Childhood Special Education (Licensure) Graduate Certificate (p. 180)
- Forensics Graduate Certificate (p. 742)
• Geospatial Intelligence Graduate Certificate (p. 705)
• Higher Education Administration Graduate Certificate (p. 525)
• Nutrition Graduate Certificate (p. 263)
• Secondary Education Licensure Graduate Certificate (p. 202)
• Students with Disabilities who Access the Adapted Curriculum Graduate Certificate (p. 209)
• Students with Disabilities who Access the General Curriculum Graduate Certificate (p. 210)
• Teaching English as a Second Language Graduate Certificate (p. 379)
Distance Education
Distance or online education provides students with the opportunity to take the same classes offered on campus through different delivery methods. Any currently enrolled Mason student can take an online course. There is no separate application process. Registration and financial aid work in the same way for online and face-to-face courses.

Many distance education courses may be completed at home, while stationed abroad, or when traveling. For students who work, intern, commute, or even live on campus, online courses offer an active and collaborative learning environment while allowing for greater scheduling flexibility.

Online Courses
Hundreds of undergraduate and graduate courses are offered online each semester, including summer. Classes are delivered as fully (100%) online or hybrid online (51-99% of scheduled class time is online). Course interactions can take place synchronously (same time, different locations) or asynchronously (different times, different locations).

Mason Core: For undergraduate students, Mason offers online course options for most Mason Core requirements [excluding ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) and Synthesis/Capstone]. Offerings vary by semester. Contact your advisor each semester to plan your course schedule.

For a full list of online courses, see the website (http://masononline.gmu.edu/programs-courses/courses).

Online Programs
Mason currently offers over 50 fully online or hybrid programs, including bachelor’s degrees, master’s degrees, graduate certificates, and undergraduate certificates and minors.

For a full list of online programs, visit the website. (http://masononline.gmu.edu/programs-courses/all-programs)
INTERNATIONAL PROGRAMS AND RESOURCES

Global Education Office

Johnson Center, Room 235  
Phone: 703-993-2154  
Fax: 703-993-2153  
Web: masonabroad.gmu.edu (http://masonabroad.gmu.edu)  
E-mail: GoAbroad@gmu.edu

Administration  
Brian Gibson, Director

The Global Education Office offers students the opportunity to develop critical and creative skills and challenge their assumptions about themselves and other cultures in an educational environment by offering study abroad programs of varying lengths, academic emphases, and locations. Through study abroad, students discover new cultures, sharpen language skills, and travel while earning credit. Study options include faculty-led, short-term courses and intensive language programs; semester and year-long Mason-sponsored programs; and international internship programs. Most programs are open to Mason undergraduate and graduate students and short-term programs are also open to faculty, staff, and the general public.

The Global Education Office also offers a wealth of resources to help students create a personalized international educational experience, including general advising sessions about study abroad and internship options; one-on-one student advising; transfer of approved international program credits; a resource library of travel books; international and diplomatic community programming, and advising to international students from partner schools.

Center for Global Studies

5067 Metropolitan Building/3434 Washington Blvd., Arlington  
Phone: 703-993-9433  
Web: cgs.gmu.edu (http://cgs.gmu.edu)

Administration  
Desmond Dinan, Director and Professor, Schar School of Policy and Government

Dedicated to the promotion of multidisciplinary research on globalization, the Center for Global Studies coordinates outreach efforts in global affairs, facilitating access for external communities to the university’s full range of global expertise. Ongoing activities include hosting guest speakers and visiting scholars, an annual conference, electronic publications, and an annual cycle of small grants to support faculty research. The center also manages multi-academic unit research projects and a number of regional and thematic working groups.

George Mason University Korea

119 Songdo Munhwa-ro  
Yeonsu-gu, Incheon  
Korea 406-840  
Phone: +82 32-626-1802  
Fax: +82 32-626-5000  
Web: masonkorea.gmu.edu (http://masonkorea.gmu.edu)  
Email: songdo@gmu.edu

Administration

Dr. Steven K. Lee, President

To enhance Mason’s global presence and increase accessibility to its academic programs, the university offers opportunities in Songdo, South Korea on the Incheon Global Campus.

George Mason University Korea (Mason Korea), which opened in March 2014, offers bachelor degree programs in economics, global affairs, management, finance and accounting. Additional programs are being planned for the future. Academic program requirements and standards are identical with those on the US campuses. Students based Mason Korea travel to the Fairfax campus for their 6th and 7th semesters. Opportunities for US-based students to study at Mason Korea are in place.

Office of International Programs and Services

Student Union I, Suite 4300  
Phone: 703-993-2970  
Fax: 703-993-2966  
Web: oips.gmu.edu (http://oips.gmu.edu)

Administration  
Judith A. vanBever-Green, MEd, Executive Director

The Office of International Programs and Services (OIPS) provides services on both regulatory and cultural topics. Staff members provide regulatory information related to non-immigrant status and have been designated by the university to issue and sign immigration documents and paperwork on behalf of the institution. OIPS advisors are available at scheduled walk-in times and by appointment to discuss any concern and to provide practical assistance to students and scholars as they adjust to U.S. culture. OIPS conducts a comprehensive orientation program for new international students and offers social and cultural programming throughout the fall and spring semesters. Most notably, the staff and student volunteers work to internationalize campus life for all members of the Mason community through programs and outreach designed to connect people from different global cultures with one another for meaningful dialogue and cultural learning.

INTO George Mason University and the Mason Global Center

Mason Global Center  
Phone: 703-993-4501  
Fax: 703-993-4502  
E-mail: INTOMason@gmu.edu (INTO@gmu.edu)

Building on a thirty-two year tradition of excellence in English language and language-supported education at Mason, the INTO George Mason University joint venture was established in 2014. This venture marks the fifth INTO University Partnership in the United States.

Located in the new Mason Global Center, Mason offers academic International Year One English language development programs administered by the Academic Division of the INTO Mason joint venture. Personalized support tailored to international students’ educational, social and cultural needs prepares them to progress with confidence as degree-seeking students. INTO Mason provides international
students with learning experiences and services that promote academic, professional and personal success. International Year One programs are available to students interested in studying in a wide range of degree programs at both the graduate and undergraduate levels. An Academic English program is available to students looking to develop their language proficiency on a short term basis or as they complete the application process for a pathway or direct admission. All of the innovative International Year One and English language programs offered at INTO Mason are delivered by highly qualified university faculty.

INTO Mason
Phone: 703-993-4501
Fax: 703-993-4502
Email: INTOmason@gmu.edu
Website: www.intostudy.com/mason

Administration
• Todd Rose, Executive Director
• Nicole Sealey, Academic Director

INTO George Mason University and the Mason Global Center

Our Mission
As an integral member of the George Mason University Community, INTO Mason creates vibrant experiences for international students through transformational learning opportunities tailored to meet specific linguistic, academic and cultural needs.

Overview
Located in the Mason Global Center, INTO Mason supports the outstanding academic programs offered by the university with

• a welcoming, interconnected community of students from across the U.S. and the world;
• strong student support programs; and
• state-of-the-art facilities with technology-assisted learning.

The innovative International Year One and Academic English language programs offered at the Center are delivered by highly qualified Mason teaching faculty. INTO Mason also provides a breadth of academic preparation and support services designed specifically to meet the unique needs of its international students.

Academic Programs, Services & Administration
George Mason University offers academic International Year One programs at the Fairfax, Arlington, and Songdo campuses as well as English Language programs based in Fairfax. All programs are administered through the Academic Division of INTO Mason, which functions as the academic department for English Language studies and services university-wide—reporting directly to the University Provost.

Academic Programs

There are three standing academic programs administered through the Academic Division of the INTO Mason joint venture:

• Undergraduate International Year One Program (p. 124)
• Graduate International Year One Program (p. 129)
• Academic English Program (p. 131)

Each program has a specific curriculum and guidelines as indicated in the special sections for each program in the catalog.

Academic Advising and Services
Personalized support tailored to international students’ educational, social, and cultural needs prepares them to progress with confidence as degree-seeking students. Programs operating through INTO Mason at the US-based campuses, also provide international students with learning experiences and services that promote academic, professional, and personal success.

Academic Administration
• Nicole J. Sealey, Academic Director
• Karyn E. Kessler, Ph.D., Associate Director, Curriculum and Instruction
• James Jones, Assistant Director, Advising & Academic Services
• Benjamin Elwood, Program Manager, Academic English
• Christina Brady, Program Manager, Undergraduate International Year One
• Steven Harris-Scott, Ph.D., Program Manager, Graduate International Year One
• Esther Kim, Special Programs Coordinator
• Kathy Rossell, Learning Resource Center Coordinator

Faculty
Highly qualified full-time faculty teach in its International Year One and English Language Programs.

English Language Faculty

Term Assistant Professors: Cheng, Richard; Kessler, Karyn; Kim, Julie; Moore, PJ and Sanchez, Deborah

Term Instructors: Bobal, Christine; Brady, Christina; Camus, Adele; Copley, Steven; Driscoll, David; Dunaway, Sean; Elwood, Benjamin; Espino, Maggie; Harries, Emma; Hoyle, Stephen; Kim, Esther; Kirsch, Jane; Kohn, Ellen; Koizumilki, Thomas; Lilley, Timmy; McCamish, Troy; Miller, Laura; Musfeldt, Scott; Namubiru, Esther; Paez, Bonny; Richardson, Mary; Rottenberg, Lori; Simmons, Noelle; Skipper, Katherine; Smith, Michael and Steadman, Sarah.

Humanities Faculty

Term Assistant Professors: Gifford, Daniel; Harris-Scott, Steven; Lewis, Amy; Rose, Todd and Weinstein, Aimee.

Term Instructors: Graham, Robert; Jones, James; McLagan, Kirsten and Sealey, Nicole.

Affiliated Faculty: Baker, Sarah (English); Biddle, Jessica; Boyle, Simon (Business); Coleson, Michael (Mathematics); Cutrufello, Emma; Doestch-Kidder, Sharon (English); Habib, Anna (English); Mack, Melissa (English); Mills, Mallory; Pfaff, Julia; Pierce, Robert (Business); Rogers, Darshana and Savage, James (English).

Center Facilities & Administration

Facilities
All Undergraduate International Year One students and many Academic English students may live in the Mason Global Center for their first year. The Mason Global Center opened in August 2014 and is the primary home for INTO George Mason University. This community connects domestic and international students for academic, language, cultural, and social exchange. The building includes residential accommodations for up to 270 international and domestic students; 17 classrooms; 100+ computers; wireless Internet throughout the center; a learning resource center with study materials, books, DVDs, and periodicals; a dining facility; lounge areas for meetings and study groups; and open spaces for socializing.

Administration

• Todd Rose, Ph.D., Executive Director
• Gerard Maguire, Finance Manager
• Julia Pfaff, Operations Manager
• Jessica Biddle, Student Experience Director
• Ilona Castro, Marketing & Recruitment Manager
• Darshana Rogers, Enrollment Manager
• Nathan Dougan, Systems Integration Manager
• Tabitha Wells, Human Resource Manager

Student Services & Orientation

Student Services

The INTO Mason Student Services provide a range of co-curricular programs and services promoting social and personal well-being. Upon arrival at Mason, the team helps students settle in to life in Fairfax and provides social opportunities and a variety of resources tailored to the specific needs of international students.

International Student Orientation

Orientation involves a variety of important events that prepare students to be successful at Mason, including information about maintaining visa status, registering for Mason classes, health requirements, and insurance coverage. All students must attend the INTO Mason Student Orientation in order to enroll in classes.

Undergraduate

Undergraduate International Year One Program

The Undergraduate International Year One (IYO) Program combines academic coursework, English language support, and academic skills development in a carefully constructed program designed to prepare students for rigorous Mason degree programs. For most students, participation in IYO will not add more time to the completion of their bachelor’s degree.

Three types of Undergraduate International Year One programs are available:

• One Term Program (Accelerated): This program is a single term of study. Upon completion of all progression requirements, students will move on to their degree-seeking program as second-semester freshmen (up to 16 credits).
• Two Term Program (Standard): This program is designed to lead students through their first year of study. Upon completion of all progression requirements, students will move on to their degree-seeking program as second-year, freshman (up to 29 credits) or as sophomore students (30 or more credits).
• Three Term Program (Comprehensive): This program is designed especially for International students who want to start earning credits toward their bachelor’s degree at a US university while improving their English skills. Upon completion of all progression requirements, students will move on to their degree-seeking program as second-year, freshman (up to 29 credits) or as sophomore students (30 or more credits).

The Undergraduate International Year One Program is designed for students who:

• Desire to study for an undergraduate degree in the U.S.
• Need to improve their English language skills
• May have slightly lower GPAs than required of direct-entry students
• Desire additional academic, language, and cultural support in order to succeed during their first year at a U.S. university
• Any or all of the above

Administered through INTO Mason (p. 123) in partnership with the academic units across the university, the courses in the various Undergraduate International Year One programs are taught by highly qualified Mason instructional faculty members and supported by International Year One academic advisors.

Students enrolled in any Undergraduate International Year One program should review the program’s student guidebook for specific details related to program requirements and expectations.

Admission

Admission to the Undergraduate International Year One (IYO) Program is offered to international and multilingual students by two methods:

• Students may apply directly through the INTO Mason admissions process OR
• By referral from the University Admissions Office due to not having met the grade point average, English language proficiency, or other requirements for direct admission.

The Undergraduate International Year One Program entry requirements are as follows:

• High school diploma
• 2.5 minimum high school GPA equivalent based on the applicant’s country/institutional scale
• Documentation demonstrating the minimum English language proficiency levels:
  • One Term (Accelerated) International Year One Program:
    • TOEFL iBT 80 (17 minimum subscores in reading and writing)
    • IELTS 6.5 (6.0 minimum subscores in reading and writing)
    • PTE Academic 53
    • Successful completion of or waiver from Academic English Level 5
  • Two Term (Standard) International Year One Program:
    • TOEFL iBT 60 (13 minimum subscores in reading and listening)
    • IELTS 5.5 (5.5 minimum subscores in reading and listening)
    • PTE Academic 45
• Successful completion of or waiver from Academic English Level 4

• Three Term (Comprehensive) International Year One Program:
  • TOEFL iBT 50 (10 subscores)
  • IELTS 5.0 (4.5 subscores)
  • PTE Academic 41
  • Successful completion of or waiver from Academic English Level 3

Students should review the specific requirements by International Year One Program online (http://www.intostudy.com/mason) for details.

Available Year One Programs & Majors
There are five Undergraduate International Year One programs available:

• Business, leading to 5 undergraduate majors in the School of Business
• Engineering and Computing, leading to 10 undergraduate majors in the Volgenau School of Engineering
• Humanities and Social Sciences, leading to 21 undergraduate majors in the College of Humanities and Social Sciences and the College of Visual and Performing Art’s School of Music
• Human and Social Development, leading to 7 undergraduate majors in the College Health and Human Services, the College of Education and Human Development’s School of Recreation and Tourism, and the School of Conflict Analysis and Resolution
• Science, leading to 13 undergraduate majors in the College of Science

Each program allows students to progress to preapproved undergraduate degree programs. For a full listing of specific academic programs associated with a specific International Year One Program, students should refer to the website (http://www.intostudy.com/mason) for specific requirements.

One Term Program Curriculum (Accelerated)
Business Required Courses (One Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 100</td>
<td>Composition for Multilingual Writers (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>UNIV 100</td>
<td>Introduction to Mason</td>
<td>1</td>
</tr>
<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EAP 108</td>
<td>Language Support for Business in American Society</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 15

Humanities and Social Sciences Required Courses (One Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 100</td>
<td>Composition for Multilingual Writers (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>PROV 105</td>
<td>American Cultures (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
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</tr>
</tbody>
</table>

Total Credits 15

Two Term Program Curriculum (Standard)

Business Required Courses (Two Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 121</td>
<td>Enhanced Composition For Multilingual Writers of English I</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 122</td>
<td>Enhanced Composition For Multilingual Writers of English II</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>UNIV 100</td>
<td>Introduction to Mason</td>
<td>1</td>
</tr>
</tbody>
</table>

General Education Course 3

Music majors must take the following: 0-1

MUSI 221 | Applied Music I |

Total Credits 15

1 Depending on intended major and math placement, students may take a more advanced math class.

2 Course to be selected with advisor approval.

Human and Social Development Required Courses (One Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGH 100</td>
<td>Composition for Multilingual Writers (Mason Core) (p. 135)</td>
<td>4</td>
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<tr>
<td>PROV 105</td>
<td>American Cultures (Mason Core) (p. 135)</td>
<td>3</td>
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<td>EAP 102</td>
<td>Language Support for American Cultures</td>
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<tr>
<td>UNIV 100</td>
<td>Introduction to Mason</td>
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</table>

Select one of the following courses: 3

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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 101</td>
<td>Conflict and Our World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HEAL 230</td>
<td>Introduction to Health Behavior (Mason Core) (p. 135)</td>
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<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>or STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
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Total Credits 15

Programs in the areas of community health, health administration, health, fitness and recreation resources and tourism and events management require STAT 250.

Science Required Courses (One Term)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ENGH 100</td>
<td>Composition for Multilingual Writers (Mason Core) (p. 135)</td>
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<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
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<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
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<tr>
<td>PROV 105</td>
<td>American Cultures (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
<td>1</td>
</tr>
<tr>
<td>EAP 114</td>
<td>Language Support for General Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>UNIV 100</td>
<td>Introduction to Mason</td>
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</table>

Total Credits 18

Two Term Program Curriculum (Standard)

Business Required Courses (Two Term)

<table>
<thead>
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<td>Enhanced Composition For Multilingual Writers of English I</td>
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<tr>
<td>ENGH 122</td>
<td>Enhanced Composition For Multilingual Writers of English II</td>
<td>3</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
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<td>---------</td>
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<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>PROV 105</td>
<td>American Cultures (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135)</td>
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<tr>
<td>BUS 210</td>
<td>Business Analytics I</td>
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<tr>
<td>UNIV 140</td>
<td>INTO Mason Pathway Transition</td>
<td>1</td>
</tr>
<tr>
<td>UNIV 141</td>
<td>INTO Mason Pathway Extended Transition</td>
<td>1</td>
</tr>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
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<tr>
<td>EAP 102</td>
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<td>1</td>
</tr>
<tr>
<td>EAP 108</td>
<td>Language Support for Business in American Society</td>
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<tr>
<td>EAP 103</td>
<td>Language Support for Public Speaking</td>
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</tr>
<tr>
<td>EAP 120</td>
<td>Linguistics Capstone</td>
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<td>Total Credits</td>
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**Engineering, Computer Science and Statistics, Required and Major Courses (Two Term)**

**Required Courses for All Majors**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
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<td>UNIV 141</td>
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<td>1</td>
</tr>
<tr>
<td>EAP 103</td>
<td>Language Support for Public Speaking</td>
<td>1</td>
</tr>
<tr>
<td>EAP 120</td>
<td>Linguistics Capstone</td>
<td>0</td>
</tr>
<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
<td>1</td>
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Select one of the following: 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>3</td>
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</table>

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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>IT 102</td>
<td>Discrete Structures</td>
<td>3</td>
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</table>

**Major Specific Courses** 6-7

**Engineering Majors**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
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<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
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<tr>
<td>EAP 113</td>
<td>Language Support for University Physics</td>
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</tr>
<tr>
<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core) (p. 135)</td>
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**Information Technology Majors**

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<th>Course Title</th>
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<tbody>
<tr>
<td>IT 105</td>
<td>IT Architecture Fundamentals</td>
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**Computer Science and Statistics Majors**

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
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<tr>
<td>EAP 112</td>
<td>Language Support for Introduction to Computer Programming</td>
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</tr>
<tr>
<td>CS 105</td>
<td>Computer Ethics and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 28-31

1 Students pursuing IT degrees should take MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135) for 3 credits instead of MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135).

**Humanities and Social Sciences Required Courses (Two Term)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGH 121</td>
<td>Enhanced Composition For Multilingual Writers of English I</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 122</td>
<td>Enhanced Composition For Multilingual Writers of English II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PROV 105</td>
<td>American Cultures (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>UNIV 140</td>
<td>INTO Mason Pathway Transition</td>
<td>1</td>
</tr>
<tr>
<td>UNIV 141</td>
<td>INTO Mason Pathway Extended Transition</td>
<td>1</td>
</tr>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 125</td>
<td>Introduction to World History (Mason Core) (p. 135)</td>
<td>3</td>
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</table>

**General Education Course** 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
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<tr>
<td>EAP 103</td>
<td>Language Support for Public Speaking</td>
<td>1</td>
</tr>
<tr>
<td>EAP 104</td>
<td>Language Support World History</td>
<td>1</td>
</tr>
<tr>
<td>EAP 120</td>
<td>Linguistics Capstone</td>
<td>0</td>
</tr>
</tbody>
</table>

Music majors must take the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 221</td>
<td>Applied Music I</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits** 27

1 Depending on intended major and math placement, students may take a more advanced math class.

2 These course options are offered to students beginning in the Fall term only.

**Science Required and Major Courses (Two Term)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 121</td>
<td>Enhanced Composition For Multilingual Writers of English I</td>
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<td>ENGH 122</td>
<td>Enhanced Composition For Multilingual Writers of English II</td>
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<td>MATH 111</td>
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<tr>
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<td>Introduction to World History (Mason Core) (p. 135)</td>
<td>3</td>
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**General Education Course** 2

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
<td>1</td>
</tr>
<tr>
<td>EAP 103</td>
<td>Language Support for Public Speaking</td>
<td>1</td>
</tr>
<tr>
<td>EAP 104</td>
<td>Language Support World History</td>
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</tr>
<tr>
<td>EAP 120</td>
<td>Linguistics Capstone</td>
<td>0</td>
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</tbody>
</table>

Music majors must take the following: 1

<table>
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<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>MUSI 221</td>
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</tbody>
</table>

**Total Credits** 27

1 Depending on intended major and math placement, students may take a more advanced math class.
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<thead>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
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<tr>
<td>EAP 102</td>
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<tr>
<td>EAP 113</td>
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<td>EAP 114</td>
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<td>EAP 120</td>
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</tr>
<tr>
<td>UNIV 141</td>
<td>INTO Mason Pathway Extended Transition</td>
<td>1</td>
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</table>

Select the following to replace Physics courses if majoring in Geology or Earth Science:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core) (p. 135)</td>
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<tr>
<td>EAP 115</td>
<td>Language Support for Introductory Geology</td>
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</table>

Select the following to replace Chemistry courses if majoring in Environmental and Sustainability Studies:

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EVPP 110</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135)</td>
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Total Credits 34

### Three Term Program Curriculum (Comprehensive)

#### Business Required Courses (Three Term)

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<td>AE 041</td>
<td>Level 4 Oral Comm Skills</td>
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<td>EAP 108</td>
<td>Language Support for Business in American Society</td>
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<tr>
<td>EAP 120</td>
<td>Linguistics Capstone</td>
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Total Credits 29

### Engineering, Computer Science and Statistics, Required and Major Courses (Three Term)

#### Required Courses for All Majors

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tbody>
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</tr>
<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
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Select one of the following: 3-4

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one of the following: 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td></td>
</tr>
<tr>
<td>IT 102</td>
<td>Discrete Structures</td>
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</tr>
</tbody>
</table>

#### Major Specific Courses

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>EAP 113</td>
<td>Language Support for University Physics</td>
<td></td>
</tr>
<tr>
<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core) (p. 135)</td>
<td></td>
</tr>
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#### Information Technology Majors

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 105</td>
<td>IT Architecture Fundamentals</td>
<td></td>
</tr>
<tr>
<td>EAP 111</td>
<td>Language Support for Introduction to Information Technology</td>
<td></td>
</tr>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

#### Computer Science and Statistics Majors

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>EAP 112</td>
<td>Language Support for Introduction to Computer Programming</td>
<td></td>
</tr>
<tr>
<td>CS 105</td>
<td>Computer Ethics and Society (Mason Core) (p. 135)</td>
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</table>

Total Credits 28-31

### Humanities Required Courses (Three Term)

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE 041</td>
<td>Level 4 Oral Comm Skills</td>
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Total Credits 1
### Human and Social Development Required Courses (Three Term)

<table>
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<th>Course Name</th>
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</thead>
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<tr>
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<td>Level 4 Core</td>
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<tr>
<td>ENGH 121</td>
<td>Enhanced Composition For Multilingual Writers of English I</td>
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<tr>
<td>ENGH 122</td>
<td>Enhanced Composition For Multilingual Writers of English II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PROV 105</td>
<td>American Cultures (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>UNIV 140</td>
<td>INTO Mason Pathway Transition</td>
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<tr>
<td>UNIV 141</td>
<td>INTO Mason Pathway Extended Transition</td>
<td>1</td>
</tr>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 125</td>
<td>Introduction to World History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
<td>1</td>
</tr>
<tr>
<td>EAP 103</td>
<td>Language Support for Public Speaking</td>
<td>1</td>
</tr>
<tr>
<td>EAP 104</td>
<td>Language Support World History</td>
<td>1</td>
</tr>
<tr>
<td>EAP 120</td>
<td>Linguistics Capstone</td>
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</tr>
<tr>
<td>MUSI 221</td>
<td>Applied Music I</td>
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</tr>
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<td>27</td>
</tr>
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</table>

### Science Required Courses (Three Term)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AE 040</td>
<td>Level 4 Core</td>
<td></td>
</tr>
<tr>
<td>AE 041</td>
<td>Level 4 Oral Comm Skills</td>
<td></td>
</tr>
<tr>
<td>ENGH 121</td>
<td>Enhanced Composition For Multilingual Writers of English I</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 122</td>
<td>Enhanced Composition For Multilingual Writers of English II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>PROV 105</td>
<td>American Cultures (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>EAP 102</td>
<td>Language Support for American Cultures</td>
<td>1</td>
</tr>
<tr>
<td>EAP 103</td>
<td>Language Support for Public Speaking</td>
<td>1</td>
</tr>
<tr>
<td>EAP 113</td>
<td>Language Support for University Physics</td>
<td>1</td>
</tr>
<tr>
<td>EAP 114</td>
<td>Language Support for General Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>EAP 120</td>
<td>Linguistics Capstone</td>
<td>0</td>
</tr>
<tr>
<td>UNIV 140</td>
<td>INTO Mason Pathway Transition</td>
<td>1</td>
</tr>
<tr>
<td>UNIV 141</td>
<td>INTO Mason Pathway Extended Transition</td>
<td>1</td>
</tr>
<tr>
<td>EAP 115</td>
<td>Language Support for Introductory Geology I</td>
<td></td>
</tr>
<tr>
<td>EVPP 110</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

### Progression into Degree Status

Each International Year One (IYO) program has specific progression requirements for completion. These typically include a minimum grade point average and minimum individual course grades (no grades of W, NC, or I are permitted). Students should refer to the website (http://www.intostudy.com/en-gb/universities/george-mason-university) for specific IYO program requirements. Students admitted to the university...
through an Undergraduate IYO program are required to complete all program requirements in order to maintain continuous enrollment.

**Dismissal/Termination Appeals Process for INTO Mason Students**

Students who do not meet all requirements for matriculation to their desired degree program at the end of their final term will be reviewed for termination from their Undergraduate International Year One program. Terminated students may initiate one of the following an academic action requests in writing:

1. request an exception to the program policy,
2. request to change to an alternate International Year One program, and/or
3. request an extension to continue studying as an Undergraduate International Year One Extender student for one additional term.

All terminated student academic action requests must be submitted in writing to the academic advising staff located in the Mason Global Center within 14 days of notification. Requests should provide an explanation and supplementary documentation. Students who earn two unsatisfactory grades of C or lower will be ineligible to continue as an Extender. Students who fail to meet the program requirements after an extension will be reviewed for dismissal from the university.

Decisions on these requests are reviewed and approved at the discretion of the Academic Director. In some cases, additional reviews by the Associate Provost for Undergraduate Education or Academic Initiatives and Services may be required.

**Reenrollment and Readmission**

Due to the nature of the Undergraduate International Year One Program as both English language development and academic coursework, students are subject to a limited reenrollment policy. Students who do not enroll after the first term or withdraw for reasons other than poor academic performance may request to reenroll in an International Year One program the following term (e.g., spring) to continue making progress toward meeting program requirements, with advance permission from the Academic Director. Students who do not enroll for two consecutive terms (e.g., spring and fall) must apply for readmission to the program and be re-assessed for language proficiency. Summer terms are counted for students whose initial enrollment begins in Spring semester.

Decisions on these requests are reviewed and approved at the discretion of the Academic Director. In some cases, additional reviews by the Associate Provost for Undergraduate Education or Academic Initiatives and Services may be required.

**Graduate International Year One Program**

The Graduate International Year One Program is a pre-master's program that provides international students a path to various graduate degrees at George Mason University. The program gives students the academic foundation, essential language skills, and GRE test preparation (if required) to successfully move on to the master's degree. For most students, entering the Graduate International Year One Program will add one additional semester to their overall master's degree program.

The following are the available Graduate International Year One programs at INTO Mason:

- **One Term Program (Accelerated):** These programs lead students through their first semester. Upon completion of all matriculation requirements, students will move on to their degree-seeking program often with several graduate credits completed as determined by the graduate program.
- **Two Term Program (Standard):** These programs lead students through their first year. Upon completion of all matriculation requirements, students will move on to their degree-seeking program often with several graduate credits completed as determined by the graduate program.
- **Three Term Program (Comprehensive):** This program is currently only available to students majoring in Accounting and is designed to start students a semester earlier than the standard 2-term program. In their first semester, students take Academic English classes along with one Accounting pre-requisite class and a language support class. Their second and third semesters then follow the standard 2-term program.
- **Bridge Program:** These programs provide foundational coursework designed to substitute for an additional year of undergraduate academic coursework, to render students with three-year baccalaureate degrees eligible to move on to their degree-seeking graduate program. Students will often move on to those degree-seeking programs with several graduate credits completed as determined by the graduate program.

Graduate International Year One programs are designed for international students who:

- Need further English language development. Students who require a moderate amount of English language support can enter all available International Year One programs to strengthen their language proficiency and ensure their long-term academic success.
- Require a fourth year of undergraduate study. Students who hold three-year baccalaureate degrees that are not formally evaluated as equivalent to a four-year U.S. bachelor's degree may enter select International Year One programs. For these students, their Graduate International Year One program acts as a "bridge" enhancing their international educational background with academic coursework to meet the eligibility for admission.
- Fall short of meeting the minimum GPA or admission test score requirements.
- Need to improve study skills for success in their chosen field of study.
- Any or all of the above.

Administered through INTO Mason (p. 123) in partnership with the academic units across the university, the courses in the various Graduate International Year One programs are taught by highly qualified Mason instructional faculty members and supported by International Year One academic advisors.

Students enrolled in any Graduate International Year One program should review the program's student guidebook for specific details related to program requirements and expectations.

**Admission**

Admission to Graduate International Year One programs are offered to international and multilingual students by two methods:

- Students may apply directly through the INTO Mason admissions process OR
- By referral from the appropriate graduate admissions office due to not having met the grade point average, English language proficiency, or other requirements for direct admission (cascade).
The minimum documentation required for admission include: application, mark sheets/transcripts (in English and the original language), degree certificates (in English and the original language) and other required items as stated in the program catalog supplement.

The typical Graduate International Year One program entry requirements are as follows:

- An undergraduate degree equivalent to a U.S. bachelor’s degree in a relevant field as specified by the particular International Year One program;
- 2.75 minimum high school GPA equivalent based on the applicant’s country/institutional scale; and
- Documentation demonstrating the minimum English proficiency levels as specified by the particular International Year One program.

The general minimum scores are as follows:

- One Term (Accelerated) and Bridge International Year One programs:
  - TOEFL iBT 80 – 85 (17 - 20 minimum subscores in reading and writing)
  - IELTS 6.5 (6.0 – 6.5 minimum subscores in reading and writing)
  - PTE Academic 53 – 58
  - Successful completion of or waiver from Academic English Level 6

- Two Term (Standard) International Year One Program:
  - TOEFL iBT 70 - 75 (13 - 17 minimum subscores in reading and listening or writing)
  - IELTS 6.0 - 6.5 (5.5 - 6.0 minimum subscores in reading and listening or writing)
  - PTE Academic 47 - 52
  - Successful completion of or waiver from Academic English Level 5

- Three Term (Comprehensive) International Year One Program:
  - TOEFL iBT 60 (13 minimum subscores)
  - IELTS 5.5 (5.5 minimum subscores)
  - PTE Academic 45
  - Successful completion of or waiver from Academic English Level 4

Students who hold three year baccalaureate degrees may be eligible for select Graduate International Year One Bridge programs. Students should review the specific requirements by pathway at the website (http://www.intostudy.com/en-gb/universities/george-mason-university).

Graduate International Year One programs & Associated Majors

There are currently 48 International Year One programs available to graduate students, and some offer concentrations. Each allows students to progress to pre-approved graduate degree programs. For a full listing of specific academic programs associated with specific International Year One graduate programs, visit the website (http://www.intostudy.com/en-gb/universities/george-mason-university).

- College of Science (9 degree options)
- College of Visual and Performing Arts (3 degree options)
- School of Business (4 degree options)
- School for Conflict Analysis and Resolution (1 degree option)
- School of Policy, Government and International Affairs (2 degree options)
- Volgenau School of Engineering (16 degree options)

Curriculum

Prescribed courses for the Graduate International Year One Programs include approximately 21 - 24 credits. The intent of these courses is to prepare students for the demands of the Mason graduate curriculum. Further, the prescribed courses may include up to 10 credits of coursework toward the student’s graduate degree during their International Year One term(s).

One Term (Accelerated) programs include the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROV 504</td>
<td>Accelerated Introduction to Graduate Study for International Students</td>
<td>3</td>
</tr>
<tr>
<td>EAP 508</td>
<td>Graduate Communication in the Disciplines III</td>
<td>4</td>
</tr>
</tbody>
</table>

In addition to the core coursework listed above, students will also take:

- Appropriate coursework toward graduate program 3-6

Students whose graduate degree program requires the GRE prior to completing the International Year One program will also be required to take:

Preparation for the Graduate Record Examination (specified by International Year One program)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROV 095</td>
<td>Quantitative Preparation for the Graduate Record Examination</td>
<td>0</td>
</tr>
<tr>
<td>PROV 096</td>
<td>Verbal and Quantitative Preparation for the Graduate Record Examination</td>
<td>0</td>
</tr>
<tr>
<td>PROV 097</td>
<td>Verbal, Quantitative, and Academic Writing Preparation for the Graduate Record Examination</td>
<td>0</td>
</tr>
<tr>
<td>EAP 097</td>
<td>Verbal Preparation for the Graduate Record Examination</td>
<td>0</td>
</tr>
</tbody>
</table>

Two Term (Standard) programs include the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROV 501</td>
<td>Introduction to Graduate Study for International Students I</td>
<td>2</td>
</tr>
<tr>
<td>PROV 502</td>
<td>Introduction to Graduate Study for International Students II</td>
<td>2</td>
</tr>
<tr>
<td>EAP 503</td>
<td>Interpersonal Communication for International Students: Practicum and Theory</td>
<td>2</td>
</tr>
<tr>
<td>or EAP 504</td>
<td>Advanced English for Academic Purposes Reading and Writing</td>
<td>2</td>
</tr>
<tr>
<td>EAP 506</td>
<td>Graduate Communication in the Disciplines I</td>
<td>3-4</td>
</tr>
<tr>
<td>EAP 507</td>
<td>Graduate Communication in the Disciplines II</td>
<td>4</td>
</tr>
<tr>
<td>EAP 510</td>
<td>Linguistic Capstone</td>
<td>0</td>
</tr>
</tbody>
</table>
In addition to the core coursework listed above, students will also take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAP 095</td>
<td>Quantitative Preparation for the Graduate Record Examination</td>
<td>0</td>
</tr>
<tr>
<td>PROV 096</td>
<td>Verbal and Quantitative Preparation for the Graduate Record Examination</td>
<td>0</td>
</tr>
<tr>
<td>PROV 097</td>
<td>Verbal, Quantitative, and Academic Writing Preparation for the Graduate Record Examination</td>
<td>0</td>
</tr>
<tr>
<td>EAP 097</td>
<td>Verbal Preparation for the Graduate Record Examination</td>
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</table>

**Three Term (Comprehensive) programs include the following courses:**

Initial term of study:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>Level 5 Core</td>
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<tr>
<td>AE 051</td>
<td>Level 5 Oral Comm Skills</td>
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</tr>
<tr>
<td>ACCT 330</td>
<td>Financial Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>EAP 100</td>
<td>Special Topics</td>
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</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Upon successful completion of the first term, students will follow the Two Term (Standard) program curriculum during their second and third terms of study.

**Progression into Degree Status**

Each International Year One program has specific progression requirements for completion. These typically include a minimum grade point average and minimum individual course grades (no grades of W, NC, or I are permitted). Students should refer to the website (http://www.intostudy.com/en-gb/universities/george-mason-university) for specific program requirements. Students admitted to the university through a Graduate International Year One program are required to complete all program requirements in order to maintain continuous enrollment.

**Dismissal/Termination Appeals Process for INTO Mason Students**

Students who do not meet all requirements for matriculation to their desired degree program at the end of their final term will be reviewed for termination from their Graduate International Year One program. Terminated students may initiate one of the following an academic action requests in writing:

1. request an exception to the program policy,
2. request to change to an alternate International Year One program, and/or
3. request an extension to continue studying as a Graduate International Year One Extender student for one additional term.

All terminated student academic action requests must be submitted in writing to the academic advising staff located in the Mason Global Center within 14 days of notification. Requests should provide an explanation and supplementary documentation. Students who earn two unsatisfactory grades of C or lower will be ineligible to continue as an Extender. Students who fail to meet the program requirements after an extension will be reviewed for dismissal from the university.

Decisions on these requests are reviewed and approved at the discretion of the Academic Director. In some cases, additional reviews by the Associate Provost for Graduate Education or from a College Dean may also be required.

**Reenrollment and Readmission**

Due to the nature of the Graduate International Year One Program as both English language development and academic coursework, students are subject to a limited reenrollment policy. Students who do not enroll after the first term or withdraw for reasons other than poor academic performance may request to reenroll in an International Year One program the following term (e.g., spring) to continue making progress toward meeting program requirements, with advance permission from the Academic Director. Students who do not enroll for two consecutive terms (e.g., spring and fall) must apply for readmission to the program and be re-assessed for language proficiency. Summer terms are counted for students whose initial enrollment begins in Spring semester.

**Academic English Program**

Administered by INTO George Mason University's (p. 123) English Language Programs, the Academic English (AE) Program, prepares international students for university study in the United States. The AE Program is designed to develop the English skills needed for successful communication, cultural integration, and participation in the academic environment of the university. Because AE is a non-credit program, some policies differ from degree- and non-degree seeking programs.

**Admission**

Students who apply to the AE Program must submit an application, application fee, and required documents through INTO Mason. In order to qualify for admission to the AE Program, students must demonstrate that they have earned at least a high school diploma.

Students have the option to apply for the AE or an International Year One (IYO) Program. Students who apply to an International Year One Program but do not demonstrate entry language requirements are given an individual pre-arrival study plan that provides an estimate of the number of Academic English terms to complete in order to fulfill International Year One entry requirements (AE + IYO). This pre-arrival study plan is only an estimate; an updated post-arrival study plan with a minimum of one term of AE will be provided to AE + IYO students after taking the INTO Mason Placement Test.

For more information about International Year One admission requirements, see Undergraduate International Year One Program (p. 124) or Graduate International Year One Program (p. 129).

**Program Outcomes**

After successfully completing the upper level(s) of the Academic English program, students will be able to do the following:
• Interact comfortably in the U.S. classroom with professors and fellow students
• Understand U.S. values in an academic setting
• Present their spoken and written ideas accurately and effectively in English
• Write research papers with proper use of citations and references
• Use the Internet and Mason library databases to conduct academic research
• Read, understand, and critically evaluate academic texts
• Understand and use vocabulary common to academic disciplines
• Take useful and accurate notes in academic lectures and presentations
• Develop and deliver oral presentations

Program Structure
The Academic English Program is offered three terms per year: Fall (15 weeks of instruction), Spring (15 weeks of instruction), and Summer (10 weeks of instruction). Upon arrival, all Academic English students are given a language proficiency assessment to determine their AE level placement. In order to be eligible for full-time status, students must be enrolled in a minimum of 18 hours of non-credit AE coursework per week. AE courses are offered at eight levels of proficiency regularly throughout the year.

AE faculty are highly qualified with significant teaching experience and master’s and doctoral degrees in TESOL or related fields. The program is also supported by academic advisors experienced in working with multilingual speakers of English and the Student Experience staff, who help students utilize university resources and engage in the Mason experience through opportunities to participate in campus and local community groups/programs.

Curriculum
In keeping with the current literature on second language acquisition and pedagogy, the Academic English curriculum is aligned with the Common European Framework of Reference scales (CEFR), American Council on the Teaching of Foreign Languages (ACTFL) Proficiency Guidelines 2012, and the Pearson Global Scale of English (GSE) Learning Objectives for Academic English. Curricular objectives and learning outcomes for each of the eight AE levels are geared toward an exit goal that is one level higher than the entrance level.

- AE Language Requirements for INTO Mason International Year One programs and Mason Direct Admission

<table>
<thead>
<tr>
<th>Program</th>
<th>Language Requirement 1</th>
<th>Language Requirement 2</th>
<th>Language Requirement AE Term GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>Pass / Credit in AE 030: Level 3</td>
<td>Pass / Credit in AE 031: Level 3</td>
<td>2.5</td>
</tr>
<tr>
<td>International Year One (3 Term/ Comprehensive)</td>
<td>Pass / Credit in AE 030: Level 3</td>
<td>Pass / Credit in AE 031: Level 3</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Grading System for Academic English
Throughout the semester, students are assessed on how well they have met curricular learning outcomes. Midterm and final grades for all Academic English courses are submitted to the University as letter grades.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percent Grade</th>
<th>Quality Points</th>
<th>Type</th>
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Grade point average (GPA) is an important factor in determining program-to-program progression and evaluating academic standing.

In-Program Level Progression
In Core and OCS courses, students must receive a passing final grade (A+, A, A-, B+, B, or B-) in order to advance to the next level of Core/OCS. If a student has performed exceptionally well in Core/OCS, the instructor may submit an AE Level Skip Form requesting that the student skip a Core/OCS level in the subsequent semester.

Program-to-Program Progression
In order for an AE + Year One student to progress to his/her planned Year One program, the student must earn for the most current AE semester a 2.5 or higher term GPA and a final passing grade (A+, A, A-, B+, B, or B-) of specified levels of Core and OCS. AE only students must meet the same language requirements for progression and submit other documentation as required by the prospective Year One program.

AE students applying for direct admission to George Mason University must earn a final passing grade (A+, A, A-, B+, B, or B-) of specified levels of Core and OCS to meet entry language proficiency requirements.
Students with excessive absences in a course (more than 15%) will automatically receive an NG as a final course grade:

**Situation**
A student receives a final grade of NG for excessive absences in any course.

**Outcome**
The student receives an e-mail and hand-delivered letter from INTO Mason Academic Services stating that s/he is on Attendance Probation for the next semester. Before being permitted to register for AE classes, the student must meet with an INTO Mason Academic Advisor and sign an Attendance Probation contract. Students who refuse the contract or who violate the conditions of the contract will be dismissed immediately. Students who follow the terms of the contract and complete a successful semester will be removed from Academic Probation and considered in good standing.

**Academic Progress**
Students are expected to make satisfactory progress in developing their language skills and may not attempt the same Core or OCS course more than three times. Academic progress is determined primarily through term GPA. Students whose GPAs fall below 2.5 will be given a warning, placed on probation, and/or terminated from the AE Program and George Mason University:

**Situation**
A student earns a term GPA below 2.5.

**Outcome**
INTO Mason Academic Services e-mails the student that s/he is on Academic Warning for the next semester.

**Situation**
A student on Academic Warning earns a term GPA below 2.5.

**Outcome**
The student receives an e-mail and hand-delivered letter from INTO Mason Advising & Academic Services stating that s/he is on Academic Probation for the next semester. Before being permitted to register for AE classes, the student must meet with their assigned academic advisor and sign an Academic Probation contract. Students who refuse the contract or who violate the conditions of the contract will be dismissed immediately. Students who follow the terms of the contract and complete a successful semester will be removed from Academic Probation and considered in good standing.
A student on Academic Probation earns a term GPA below 2.5. The student is terminated from the AE Program and George Mason University.

**Termination Appeals Process for INTO Mason Students**

All termination appeals must be submitted in writing to the INTO Mason Academic Services office located in the Mason Global Center within 14 days of notification. Requests should provide an explanation and supplementary documentation. Students who fail to meet the program requirements after an additional semester will be reviewed for termination from the university.

Decisions on these requests are reviewed and approved at the discretion of the Academic Director. In some cases, additional reviews by the Associate Provost for Academic Initiatives and Services may also be required.

**Reenrollment and Readmission**

Academic English students who do not enroll after the first term or withdraw for reasons other than poor academic performance (e.g., spring and fall) must apply for readmission to the program and be reassessed for language proficiency upon return.
The Mason Core at Mason
Overview
All undergraduates seeking a baccalaureate degree must complete the Mason Core requirements. Additional requirements for specific degree programs can be found in the college or school sections of this catalog. At Mason, we have created several distinctive ways to develop your liberal education: the Mason Core, and, for a small group of outstanding students, the Honors College.

George Mason University, in fall 2013, approved a new Vision Statement that articulates the characteristics important for any student graduating with a Mason degree. The Mason Graduate should be: an engaged citizen, a well-rounded scholar, and someone who is prepared to act for the world. In 2014, the Mason Core was created to reframe the university general education program to better illuminate the full range of coursework that prepares students for work in their major and to align with the Mason Graduate goals. In essence, the Mason Core is the foundational aspect of a student’s academic career.

Beginning in Fall 2016 with the entering freshman class, the Mason Core: Engagement Series (ENCORE) will provide an optional pathway for students interested in combining academic coursework with co-curricular activities towards a completion certificate in a specific area of engagement.

The Mason Core is comprised of elements important to all students pursuing a liberal arts education that map to the key characteristics of the Mason Graduate. The Core consists of two major areas: general education requirements and a writing intensive course in one’s major. These courses are designed to complement work in a student’s chosen area of study. The classes serve as a means of discovery for students, providing a foundation for learning, connecting to potential new areas of interest and building tools for success in whatever field a student pursues. Learning outcomes are guided by the qualities every student should develop as they move toward graduating with a George Mason University bachelor’s degree. Through a combination of courses and experiences, the Mason Core is designed to help student become:

Critical and Creative Scholars
Students who have a love of and capacity for learning. Their understanding of fundamental principles in a variety of disciplines, and their mastery of quantitative and communication tools, enables them to think creatively and productively. They are inquisitive, open-minded, capable, informed, and able to integrate diverse bodies of knowledge and perspectives.

Self-Reflective Learners
Students who develop the capacity to think well. They can identify and articulate individual beliefs, strengths and weaknesses, critically reflect on these beliefs and integrate this understanding into their daily living.

Ethical, Inquiry-Based Citizens
Students who are tolerant and understanding. They can conceptualize and communicate about problems of local, national and global significance, using research and evaluative perspectives to contribute to the common good.

Thinkers and Problem-Solvers
Students who are able to discover and understand natural, physical, and social phenomena: who can articulate their application to real world challenges; and who approach problem-solving from various vantage points. They can demonstrate capability for inquiry, reason, and imagination and see connections in historical, literary and artistic fields.

Synopsis of Requirements
The Mason Core is divided into three sections: foundation, core and synthesis. Each section contains courses that have specific learning outcomes for students and are assessed on a regular basis.

Foundation Requirements
- Written Communication (p. 135) 6
- Oral Communication (p. 136) 3
- Quantitative Reasoning (p. 136) 3
- Information Technology (p. 136) 3-7

Core Requirements
- Arts (p. 137) 3
- Literature (p. 140) 3
- Natural Science (p. 141) 7
- Social and Behavioral Sciences (p. 142) 3
- Western Civilization/World History (p. 143) 3

Synthesis/Capstone Requirement
- Synthesis/Capstone (p. 143) 3

Total Credits 40

1 Only well-being designated sections of the course may count to fulfill the requirement

Foundation Requirements (15-22 credits)
Foundation requirements help ensure that students master the tools and techniques necessary to succeed in college and throughout their lives and careers. These courses emphasize skills—in writing, speaking, and working with numbers and technology—that can be applied to any major field of study and career goal.

Written Communication (6 credits: 3 lower, 3 upper)
Learning Outcomes:
Students develop the ability to use written communication as a means of discovering and expressing ideas and meanings: in short, employing writing as a way of thinking. Students begin this process at the fundamental level in English 101 (100 for ESL students) and build
higher-level skills in English 302. Writing will be emphasized in many courses throughout a student's career, and at least one course in every student's major is designated "writing intensive."

**Required:**
The following courses as well as an approved writing-intensive course in the major.

**ENGH 100** Composition for Multilingual Writers (Mason Core) (p. 135) 4

**ENGH 101** Composition (Mason Core) (p. 135) 3

**ENGH 302** Advanced Composition (Mason Core) (p. 135) 3

**Oral Communication (3 credits)**

**Learning Outcomes:**
1. Students will demonstrate understanding of and proficiency in constructing and delivering multiple message types.
2. Students will understand and practice effective elements of ethical verbal and nonverbal communication.
3. Students will develop analytical skills and critical listening skills.
4. Students will understand the influence of culture in communication and will know how to cope with cultural differences when presenting information to an audience. Students develop the ability to use oral communication as a way of thinking and learning, as well as sharing ideas.

**Required:**
One approved course. Students will be expected to continue developing oral communication skills in additional Mason Core courses as appropriate.

**COMM 100** Public Speaking (Mason Core) (p. 135) 3

**COMM 101** Interpersonal and Group Interaction (Mason Core) (p. 135) 3

**Quantitative Reasoning (3 credits)**

**Learning Outcomes:**
1. Students are able to interpret quantitative information (i.e., formulas, graphs, tables, models, and schematics) and draw inferences from them.
2. Given a quantitative problem, students are able to formulate the problem quantitatively and use appropriate arithmetical, algebraic, and/or statistical methods to solve the problem.
3. Students are able to evaluate logical arguments using quantitative reasoning.
4. Students are able to communicate and present quantitative results effectively.

**Required:**
One approved course.

**HNRT 125** A Liberal Arts Approach to Calculus (Mason Core) (p. 135) 3

**MATH 106** Quantitative Reasoning (Mason Core) (p. 135) 3

**MATH 108** Introductory Calculus with Business Applications (Mason Core) (p. 135) 3

**MATH 110** Introductory Probability (Mason Core) (p. 135) 3

**MATH 111** Linear Mathematical Modeling (Mason Core) (p. 135) 3

**MATH 113** Analytic Geometry and Calculus I (Mason Core) (p. 135) 4

**MATH 115** Analytic Geometry and Calculus I (Honors) (Mason Core) (p. 135) 4

**MATH 124** Calculus with Algebra/Trigonometry, Part B (Mason Core) (p. 135) 3

**MATH 125** Discrete Mathematics I (Mason Core) (p. 135) 3

**STAT 250** Introductory Statistics I (Mason Core) (p. 135) 3

**Information Technology (minimum 3 credits)**

**Learning Outcomes:**
Almost no area of academic, professional, or personal life is untouched by the information technology revolution. Success in college and beyond requires computer and information literacies that are flexible enough to change with a changing IT environment and adaptable to new problems and tasks.

The purpose of the information technology requirement is to ensure that students achieve an essential understanding of information technology infrastructure encompassing systems and devices; learn to make the most of the Web and other network resources; protect their digital data and devices; take advantage of latest technologies; and become more sophisticated technology users and consumers.

Courses meeting the "IT only" requirement must address learning outcomes 1 and 2, and one additional outcome. Courses meeting "IT with Ethics component" must address outcomes 1, 2, 3, and 5. Courses meeting the only IT Ethics component must address outcomes 3 and 5.

1. Students will be able to use technology to locate, access, evaluate, and use information, and appropriately cite resources from digital/electronic media.
2. Students will understand the core IT concepts in a range of current and emerging technologies and learn to apply appropriate technologies to a range of tasks.
3. Students will understand many of the key ethical, legal and social issues related to information technology and how to interpret and comply with ethical principles, laws, regulations, and institutional policies.
4. Students will demonstrate the ability to communicate, create, and collaborate effectively using state-of-the-art information technologies in multiple modalities.
5. Students will understand the essential issues related to information security, how to take precautions and use techniques and tools to defend against computer crimes.

**Required:**
One approved 3-credit course that meets all IT requirements, or completion of an appropriate combination of courses, proficiency exams, and modules.

**Courses meeting all IT requirements**

**ANTH 395** Work, Technology, and Society: An IT Perspective (Mason Core) (p. 135) 3
Courses meeting all requirements except ethics

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>AVT 180</td>
<td>New Media in the Creative Arts (Mason Core)</td>
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<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
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<tr>
<td>PHYS 251</td>
<td>Introduction to Computer Techniques in Physics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 410</td>
<td>Social Surveys and Attitude and Opinion Measurements (Mason Core)</td>
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The following must be taken in sequence:

<table>
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<tr>
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<td>PSYC 301</td>
<td>Research Methods in Psychology</td>
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<td>PSYC 372</td>
<td>Physiological Psychology</td>
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Courses meeting only ethics requirements

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<td>Data Ethics in an Information Society (Mason Core)</td>
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<td>CEIE 409</td>
<td>Professional Practice and Management in Engineering (Mason Core)</td>
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<td>CS 105</td>
<td>Computer Ethics and Society (Mason Core)</td>
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<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core)</td>
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<td>IT 304</td>
<td>IT in the Global Economy (Mason Core)</td>
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<tr>
<td>PHIL 112</td>
<td>Ethics and the Cybersociety (Mason Core)</td>
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</table>

Core Requirements (22 credits)

Core requirements help ensure that students become acquainted with the broad range of intellectual domains that contribute to a liberal education. By experiencing subject matter and ways of knowing in a variety of fields, students will be better able to synthesize new knowledge, respond to fresh challenges, and meet the demands of a complex world.

The course list reflects approved courses as of press time. See the most current list (http://masoncore.gmu.edu/general-education-at-mason-2) for updates.

Note: Beginning Fall 2014, certain courses within the Mason Core can count for more than one category, if approved by the Mason Core committee. Students will be allowed to double count two courses (up to six credit hours) to fulfill their Mason Core requirements. Courses that qualify for double counting will be listed in their individually approved sections. Students may not double count credits in Oral Communication, Written Communication, or Quantitative Reasoning categories.

Arts (3 credits)

Mason courses in the film making, visual and performing arts stress generative, inquiry based learning through direct aesthetic and creative experience in the studio environment. Art history courses address the intrinsic relationship of personal and cultural creativity, and the manifestation of aesthetics, visual culture and visual narrative within historical contexts.

Learning Outcomes:

Students who successfully complete a course in the Arts category must meet the first learning outcome and a minimum of two of the remaining four learning outcomes:

1. Demonstrate an understanding of the relationship between artistic process, and a work's underlying concept, and where appropriate, contexts associated with the work.
2. Identify and analyze the formal elements of a particular art form using vocabulary and critique appropriate to that form.
3. Analyze cultural productions using standards appropriate to the form, as well as the works cultural significance and context.
4. Analyze and interpret the content of material or performance culture through its social, historical, and personal contexts.
5. Engage in generative artistic processes, including conception, creation, and ongoing critical analysis.

Required:

One approved course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ARTH 101</td>
<td>Introduction to the Visual Arts (Mason Core)</td>
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<td>ARTH 102</td>
<td>Symbols and Stories in Art (Mason Core)</td>
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<td>ARTH 103</td>
<td>Introduction to Architecture (Mason Core)</td>
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<td>ARTH 200</td>
<td>History of Western Art I (Mason Core)</td>
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<td>ARTH 201</td>
<td>History of Western Art II (Mason Core)</td>
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<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core)</td>
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<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core)</td>
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<td>ARTH 206</td>
<td>Survey of African Art (Mason Core)</td>
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<td>ARTH 321</td>
<td>Greek Art and Archaeology (Mason Core)</td>
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<td>ARTH 322</td>
<td>Roman Art and Archaeology (Mason Core)</td>
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<td>ARTH 324</td>
<td>From Alexander the Great to Cleopatra: The Hellenistic World (Mason Core)</td>
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<td>ARTH 333</td>
<td>Early Christian and Byzantine Art (Mason Core)</td>
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<td>Western Medieval Art (Mason Core)</td>
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<td>Arts of Medieval England (Mason Core)</td>
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<td>ARTH 340</td>
<td>Early Renaissance Art in Italy, 1300-1500 (Mason Core)</td>
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<td>ARTH 341</td>
<td>Northern Renaissance Art (Mason Core)</td>
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<td>ARTH 342</td>
<td>High Renaissance Art in Italy, 1480-1570 (Mason Core)</td>
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<td>Baroque Art in Italy, France, and Spain, 1600-1750 (Mason Core)</td>
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<td>Northern Baroque Art, 1600-1750 (Mason Core)</td>
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<td>Twentieth-Century European Art (Mason Core)</td>
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<td>Arts of the United States (Mason Core)</td>
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<td>Studies in 18th- and 19th-Century Art of the United States (Mason Core)</td>
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<td>Two-Dimensional Design and Color (Mason Core)</td>
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<td>Typography (Mason Core)</td>
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<td>Dance in Popular Culture: Afro-Latino Dance (Mason Core)</td>
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<td>Modern/Contemporary Dance I (Mason Core)</td>
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<td>DANC 131</td>
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<td>DANC 161</td>
<td>Beginning Tap Dance (Mason Core)</td>
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<td>DANC 225</td>
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<td>What is Dance? (Mason Core)</td>
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<td>MUSI 280</td>
<td>Athletic and Ceremonial Ensemble (Mason Core)</td>
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<td>Symphonic Band (Mason Core)</td>
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<td>Symphonic Chorus (Mason Core)</td>
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<td>Chamber Ensembles (Mason Core)</td>
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<td>PHIL 156</td>
<td>What Is Art? (Mason Core)</td>
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<td>THR 150</td>
<td>Greeks to Restoration (Mason Core)</td>
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## Global Understanding (3 credits)

The goal of the global understanding category is to help students see the world from multiple perspectives, reflect upon their positions in a global society, and be prepared for future engagement as global citizens. While it may include historical perspective, global understanding courses focus primarily on contemporary understanding of one’s place in a global society.

### Learning Outcomes:
Courses in this category must meet a minimum of three of the following learning outcomes.

1. Identify and articulate one’s own values and how those values influence their interactions and relationships with others, both locally and globally.

2. Demonstrate understanding of how the patterns and processes of globalization make visible the interconnections and differences among and within contemporary global societies.

3. Demonstrate the development of intercultural competencies.

4. Explore individual and collective responsibilities within a global society through analytical, practical, or creative responses to problems or issues, using resources appropriate to the field.

### Required:
One approved course.

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<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core)</td>
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<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core)</td>
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<td>Peoples and Cultures of the Middle East (Mason Core)</td>
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<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core)</td>
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<td>ANTH 312</td>
<td>Political Anthropology (Mason Core)</td>
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<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core)</td>
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<td>Refugees (Mason Core)</td>
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<td>Cross-Cultural Perspectives on Globalization (Mason Core)</td>
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<td>ANTH 382</td>
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<td>Art and Archaeology of the Ancient Near East (Mason Core)</td>
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<td>Art of the Islamic World (Mason Core)</td>
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<td>Arts of India (Mason Core)</td>
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<td>The Silk Road (Mason Core)</td>
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<td>Foundations of Intercultural Communication (Mason Core)</td>
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<td>RUSS 354</td>
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<td>Social Structure and Globalization (Mason Core)</td>
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<td>The Urban World (Mason Core)</td>
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<td>World Stages (Mason Core)</td>
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<td>TOUR 210</td>
<td>Global Understanding through Travel and Tourism (Mason Core)</td>
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<td>WMST 100</td>
<td>Representations of Women (Mason Core)</td>
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**Literature (3 credits)**

**Learning Outcomes:**
1. Students will be able to read for comprehension, detail, and nuance.
2. Identify the specific literary qualities of language as employed in the texts they read.
3. Analyze the ways specific literary devices contribute to the meaning of a text.
4. Identify and evaluate the contribution of the social, political, historical, and cultural contexts in which a literary text is produced.
5. Evaluate a critical argument in others’ writing as well as one’s own.

**Required:**
One approved course.

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<td>Major Arab Writers/Stories (Mason Core)</td>
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<td>CHIN 310</td>
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<td>Modern Chinese Literature in Translation (Mason Core)</td>
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<td>Asian Writers (Mason Core)</td>
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<td>Classical Mythology (Mason Core)</td>
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<td>CLAS 260</td>
<td>The Legacy of Greece and Rome (Mason Core)</td>
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<td>Greek and Roman Epic (Mason Core)</td>
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<td>Greek and Roman Tragedy (Mason Core)</td>
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<td>Greek and Roman Comedy (Mason Core)</td>
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</table>
Natural Science (7 credits total)
The Mason Core natural sciences courses engage students in scientific exploration; foster their curiosity; enhance their enthusiasm for science; and enable them to apply scientific knowledge and reasoning to personal, professional and public decision-making. Lab courses must meet all five learning outcomes. Non-lab courses must meet learning outcomes 1 through 4.

Learning Outcomes:
1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding: a) evolves based on new evidence, and b) differs from personal and cultural beliefs.
2. Recognize the scope and limits of science.
3. Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).
4. Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).
5. Participate in scientific inquiry and communicate the elements of the process, including: a) making careful and systematic observations, b) developing and testing a hypothesis, c) analyzing evidence, and d) interpreting results.

Required:
Two approved science courses. At least one course will include laboratory experience.

Non-lab (3 credits)
- ANTH 135 Introduction to Biological Anthropology (Mason Core) (p. 135) 3
- ASTR 103 Astronomy (Mason Core) (p. 135) 3
- ASTR 302 Foundations of Cosmological Thought (Mason Core) (p. 135) 3
- BIOL 140 Plants and People (Mason Core) (p. 135) 3
- CHEM 101 Introduction to Modern Chemistry (Mason Core) (p. 135) 3
- CHEM 102 Introduction to Organic, Biochemical, Pharmacological, and Fuel Chemistry (Mason Core) (p. 135) 3
- CHEM 201 Introductory Chemistry I (Mason Core) (p. 135) 3
- CHEM 202 Introductory Chemistry II (Mason Core) (p. 135) 3
- CLIM 101 Global Warming: Weather, Climate, and Society (Mason Core) (p. 135) 3
- EVPP 201 Environment and You: Issues for the Twenty-First Century (Mason Core) (p. 135) 3
- GEOL 134 Evolution and Extinction (Mason Core) (p. 135) 3
- GGS 102 Physical Geography (Mason Core) (p. 135) 3
- NUTR 295 Introduction to Nutrition (Mason Core) (p. 135) 3
- PHYS 106 The Quantum World: A Continuous Revolution in What We Know and How We Live (Mason Core) (p. 135) 3
- PROV 301 Great Ideas in Science (Mason Core) (p. 135) 3

Lab (4 credits)
- ASTR 111 Introductory Astronomy: The Solar System (Mason Core) (p. 135) 3
- ASTR 112 Introductory Astronomy Lab: The Solar System (Mason Core) (p. 135) 1
- ASTR 113 Introductory Astronomy: Stars, Galaxies, and the Universe (Mason Core) (p. 135) 3
- ASTR 114 Introductory Astronomy Lab: Stars, Galaxies, and the Universe (Mason Core) (p. 135) 1
- ASTR 115 Finding New Worlds (Mason Core) (p. 135) 4
- BIOL 103 Introductory Biology I (Mason Core) (p. 135) 4
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<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core)</td>
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<td>Scientific Thought and Processes I (Mason Core)</td>
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<td>PHYS 263</td>
<td>University Physics III Laboratory (Mason Core)</td>
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</table>

### Social and Behavioral Sciences (3 credits)

**Learning Outcomes:**

1. Explain how individuals, groups or institutions are influenced by contextual factors;
2. Demonstrate awareness of changes in social and cultural constructs;
3. Use appropriate methods and resources to apply social and behavioral science concepts, terminology, principles and theories in the analysis of significant human issues, past or present.

**Required:**

One approved course.

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<th>Course Code</th>
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<th>Credit Hours</th>
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<tr>
<td>AFAM 200</td>
<td>Introduction to African American Studies (Mason Core)</td>
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<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core)</td>
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<td>ANTH 120</td>
<td>Unearthing the Past: Prehistory, Culture and Evolution (Mason Core)</td>
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<td>ANTH 135</td>
<td>Introduction to Biological Anthropology (Mason Core)</td>
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<td>ANTH 363</td>
<td>Humans, Disease, and Death (Mason Core)</td>
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<td>ANTH 372</td>
<td>Cultures of Disaster, Risk, and Hope (Mason Core)</td>
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<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core)</td>
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<td>BUS 100</td>
<td>Business and Society (Mason Core)</td>
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<td>CONF 101</td>
<td>Conflict and Our World (Mason Core)</td>
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<td>CONS 410</td>
<td>Human Dimensions in Conservation (Mason Core) (p. 135)</td>
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<td>Introduction to Criminal Justice (Mason Core) (p. 135)</td>
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<td>Economics for the Citizen (Mason Core) (p. 135)</td>
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<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
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<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
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<td>Environmental Economics for the Citizen (Mason Core) (p. 135)</td>
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<td>Money, Markets, and Economic Policy (Mason Core) (p. 135)</td>
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<td>Disability in American Culture (Mason Core) (p. 135)</td>
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<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
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<td>Stress and Well-Being (Mason Core) (p. 135)</td>
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<td>Human Geography (Mason Core) (p. 135)</td>
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<td>Democratic Theory and Practice (Mason Core) (p. 135)</td>
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<td>Introduction to American Government (Mason Core) (p. 135)</td>
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<td>Money, Markets and Economic Policy (Mason Core) (p. 135)</td>
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<td>Introduction to Health Behavior (Mason Core) (p. 135)</td>
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<td>Formation of the American Republic (Mason Core) (p. 135)</td>
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<td>Development of Modern America (Mason Core) (p. 135)</td>
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<td>General Linguistics (Mason Core) (p. 135)</td>
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<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
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<td>Developmental Psychology (Mason Core) (p. 135)</td>
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<td>Social Psychology (Mason Core) (p. 135)</td>
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<td>Women and Tourism (Mason Core) (p. 135)</td>
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<td>WMST 200</td>
<td>Introduction to Women and Gender Studies (Mason Core) (p. 135)</td>
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</table>

Western Civilization/World History (3 credits)

Learning Outcomes:
Courses must meet at least three of the five learning outcomes.

1. Demonstrate familiarity with the major chronology of Western civilization or world history.
2. Demonstrate the ability to narrate and explain long-term changes and continuities in Western civilization or world history.
3. Identify, evaluate, and appropriately cite online and print resources.
4. Develop multiple historical literacies by analyzing primary sources of various kinds (texts, images, music) and using these sources as evidence to support interpretation of historical events.
5. Communicate effectively—through speech, writing, and use of digital media—their understanding of patterns, process, and themes in the history of Western civilization or the world.

Required:
One approved course.

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<tr>
<th>Course Code</th>
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<tr>
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<td>History of Western Civilization (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 125</td>
<td>Introduction to World History (Mason Core) (p. 135)</td>
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Transfer students may substitute one of the following for HIST 100 History of Western Civilization (Mason Core) (p. 135)

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<td>Foundations of Western Civilization</td>
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<td>HIST 102</td>
<td>Development of Western Civilization</td>
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<td>HIST 301</td>
<td>Classical Greece</td>
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<td>HIST 302</td>
<td>Classical Rome</td>
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<td>HIST 304</td>
<td>Western Europe in the Middle Ages</td>
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<td>HIST 305</td>
<td>The Renaissance</td>
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<td>HIST 306</td>
<td>The Reformation</td>
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<td>HIST 308</td>
<td>Nineteenth-Century Europe</td>
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<td>HIST 309</td>
<td>Europe in Crisis: 1914-1948</td>
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<td>HIST 312</td>
<td>Nationalism in Eastern Europe</td>
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<td>HIST 314</td>
<td>History of Germany</td>
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<td>HIST 322</td>
<td>Modern Britain</td>
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<td>HIST 388</td>
<td>Topics in European History</td>
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<td>HIST 436</td>
<td>European Society and Culture: 19th and 20th Centuries</td>
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<td>HIST 480</td>
<td>Alexander the Great</td>
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Transfer students may substitute one of the following for HIST 125 Introduction to World History (Mason Core) (p. 135)

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<td>Freshman/Sophomore Seminar in Global History</td>
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<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
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</table>

Synthesis or Capstone Experience Requirement (minimum 3 credits)

The purpose of the synthesis course is to provide students with the opportunity to synthesize the knowledge, skills and values gained from the Mason Core curriculum. Synthesis courses strive to expand students’ ability to master new content, think critically, and develop life-long learning skills across the disciplines. While it is not feasible to design courses that cover “all” areas of general education, synthesis courses should function as a careful alignment of disciplinary goals with a range of Mason Core learning outcomes.
Many departments may require a Capstone Experience instead of a Synthesis course. Please see your major advisor to confirm which requirement you must complete.

Learning Outcomes for Synthesis:
The Mason Core synthesis course must address outcomes 1 and 2, and at least one outcome under 3. Upon completing a synthesis course, students will be able to:

1. Communicate effectively in both oral and written forms, applying appropriate rhetorical standards (e.g., audience adaptation, language, argument, organization, evidence, etc.)
2. Using perspectives from two or more disciplines, connect issues in a given field to wider intellectual, community or societal concerns
3. Apply critical thinking skills to:
   a. Evaluate the quality, credibility and limitations of an argument or a solution using appropriate evidence or resources, OR,
   b. Judge the quality or value of an idea, work, or principle based on appropriate analytics and standards

Required: One approved course.
Note: The course list reflects approved courses as of press time. See the most current list (http://masoncore.gmu.edu/general-education-at-mason-2) for updates.

Synthesis Courses

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<td>Engaging the World: Anthropological Perspectives</td>
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<td>ARTH 394</td>
<td>The Museum</td>
<td>Mason Core</td>
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<td>AVT 385</td>
<td>EcoArt</td>
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<td>Senior Project</td>
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<td>RS: Senior Advanced Design Project II</td>
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<td>BINF 354</td>
<td>Foundations in Mathematical Biology</td>
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<td>Biology and Society</td>
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<td>CEIE 490</td>
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<td>COMM 326</td>
<td>Rhetoric of Social Movements and Political Controversy</td>
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<td>Argument and Public Policy</td>
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<td>Free Speech and Ethics</td>
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<td>RS: Conservation Management Planning</td>
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<td>Capstone in Criminology, Law and Society</td>
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<td>Synthesis of Ethics and Law for the Computing Professional</td>
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<td>Economic Problems and Public Policies</td>
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<td>Student Teaching in Education</td>
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<td>Ethics of Film and Video</td>
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<td>Multilingualism, Identity, and Power</td>
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<td>Geography of Resource Conservation</td>
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<td>Population Geography</td>
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<td>Technology in the Contemporary World</td>
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<td>PHIL 309</td>
<td>Bioethics</td>
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<td>Senior Design Project (Mason Core) (p. 135)</td>
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<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
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<td>Readings in Chinese Poetry and Poetics (Mason Core) (p. 135)</td>
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<td>Chinese Popular Culture (Mason Core) (p. 135)</td>
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<td>RS: Honors Thesis Writing Seminar (Mason Core) (p. 135)</td>
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<td>RS: Topics in Folklore Research (Mason Core) (p. 135)</td>
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Writing-Intensive Course Requirement

As part of the university's commitment to student writers in all undergraduate programs, at least one upper-division course in each major has been designated as fulfilling the "writing intensive" (WI) requirement. While other courses in the major may require written projects, teachers of the designated WI courses will devote class time to instruction on how to complete assignments successfully, assign and grade a minimum of 3500 words, provide constructive feedback on drafts, and allow revision of at least one graded assignment. See the description of each major for the specific course or courses that fulfill the WI requirement; select the following for a complete list:

The following courses have been approved to meet the writing-intensive requirement.

NOTE: students MUST select the course approved for their major. See specific degree program for details.

### Writing-Intensive Courses

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<td>INTS 498</td>
<td>Field-Based Work</td>
<td>1-15</td>
</tr>
</tbody>
</table>
Creating more opportunities for students to make meaning of the Mason Core educational offerings, to draw greater connections to the larger university community, and to develop additional marketable skill sets, the Mason Core Engagement Series (ENCORE) begins Fall 2016 with the entering freshmen class. This program is an optional pathway for students interested in combining academic coursework with co-curricular activities towards a completion certificate in a specific area of engagement.

**How does the Engagement Series work?**

**Academic connections**

Each ENCORE program combines courses within the Mason Core categories with co-curricular activities that enhance classroom learning. Courses are identified in the catalog and in the schedule of classes, enabling a student to select those relevant to the specific engagement series. Out of the approximately 40 credits of Mason Core requirements, at least 18 credits must be related to the relevant ENCORE program.

**Co-curricular connections**

Working in conjunction with University Life and the Patriot Experience, each Engagement Series maps to one of four pathways – career readiness, civic learning/community engagement, global/multicultural, or well-being.

**What happens once the Engagement Series is completed?**

After completing the Mason Core classes and the Patriot Experience pathway, students will earn a Mason Core completion certificate. This achievement will be recognized on the academic transcript and honored at graduation.

**What programs are currently available?**

**Mason Core: Engagement Series - Sustainability**

*Required: 19 credits*

Sustainability programs at Mason seek to guide students as they critically assess the environmental, social, economic and ethical impacts of technology and policy decisions. The Engagement Series in Sustainability identifies Green Leaf Programs and Courses designated offerings that contribute significantly to students' understanding and practice of sustainability. These offerings extend beyond environmental management, natural resources protection and conservation studies to embrace economic development and social responsibility. Both sustainability-focused and sustainability-related courses may receive the green leaf designation.

Students who complete the Engagement Series in Sustainability will be able to:

1. Characterize the meaning of sustainability (including its focus on fulfilling needs and its social, economic and ecological dimensions).
2. Distinguish sustainable from unsustainable human activities and practices.
3. Integrate concepts and principles of sustainability to analyze and address complex societal issues.
4. Present working knowledge of the University’s sustainability history, goals, initiatives and pertinent decision-making processes.
5. Demonstrate the ability to lead and apply sustainability knowledge to make a positive societal impact on campus and/or in our community.

**Requirements and approved courses**

All students pursuing the sustainability engagement series must take one credit of INTS 295 Field-Based Work with the topic, ‘Leadership for Sustainability,’ as the series’ gateway. Additional requirements include 18 credits of Mason Core courses that have the Green Leaf Programs and Courses designation. (At least 6 Mason Core categories include one or more Green Leaf course options.)
The following courses have been identified as meeting the criteria for inclusion in the Engagement Series in Sustainability curriculum. The co-curricular section of the certificate is completed through the Patriot Experience, located at http://patriotexperience.gmu.edu.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 385</td>
<td>EcoArt (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 140</td>
<td>Plants and People (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 100</td>
<td>Environmental Engineering around the World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 155</td>
<td>Introduction to Environmental Chemistry I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 156</td>
<td>Introduction to Environmental Chemistry II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CLIM 101</td>
<td>Global Warming: Weather, Climate, and Society (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 102</td>
<td>Introduction to Global Climate Change Science (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CLIM 111</td>
<td>Introduction to the Fundamentals of Atmospheric Science (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 112</td>
<td>Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CONS 410</td>
<td>Human Dimensions in Conservation (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>ECON 105</td>
<td>Environmental Economics for the Citizen (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 110</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>EVPP 111</td>
<td>The Ecosphere: An Introduction to Environmental Science II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>EVPP 201</td>
<td>Environment and You: Issues for the Twenty-First Century (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 480</td>
<td>Sustainability in Action (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 102</td>
<td>Introductory Geology II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 134</td>
<td>Evolution and Extinction (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 420</td>
<td>Earth Science and Policy (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 343</td>
<td>Topics in Environmental Philosophy (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 112</td>
<td>Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>SOCI 320</td>
<td>Social Structure and Globalization (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Mason Core: Engagement Series - Well-Being**

**Required: 18 credits**

The ability to thrive and succeed as students, employees, organizations, and in life, directly correlates to one’s sense of well-being. Mason has committed to being a "Well-Being University" focused on helping students, faculty and staff build lives with vitality, purpose, and resilience. The Engagement Series in Well-Being identifies offerings that contribute significantly to students’ understanding and practice of well-being. These offerings include both well-being-focused and well-being-related courses that are designated in the catalog and in the schedule of classes.

Students who complete the Engagement Series in Well-Being will be able to:

1. Describe and apply methods to enhance interpersonal communication and empathy. This will help the student to create sustainable, quality relationships and social support networks, at a one-on-one and small group level.
2. Demonstrate skills for communication (written, oral, and/or somatic) about well-being.
3. Demonstrate the ability to practice methods to enhance well-being, self-care, self-awareness, and awareness of others.
4. Articulate societal factors impacting community and global well-being, and/or to engage in practices which build greater sensitivity to the needs of others and the inter-dependent nature of life on the earth.
5. Describe the science of stress and its effects – both constructive and destructive – as well as the methodologies used to respond to stress, promote resilience, and enhance well-being.

The following courses have been identified as meeting the criteria for inclusion in the Engagement Series in Well-Being curriculum. To complete the certification, students must select a minimum of 18 credits across the categories offered below. Please note, in several of these courses only specific sections will count for meeting the requirement. No substitutions will be made. Information on courses that count at the section level will be included in the Schedule of Classes, found on Patriot Web. The co-curricular section of the certificate is completed through the Patriot Experience, located at http://patriotexperience.gmu.edu.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 385</td>
<td>EcoArt (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DANC 125</td>
<td>Modern/Contemporary Dance I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 145</td>
<td>Ballet I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HEAL 230</td>
<td>Introduction to Health Behavior (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 341</td>
<td>Global Perspectives on Spirituality and Healing (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Only specific sections of the following courses will fulfill the well-being requirement:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 302</td>
<td>Advanced Composition (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Interpersonal and Group Interaction (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 390</td>
<td>The Digital Past (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GLOA 101</td>
<td>Introduction to Global Affairs (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>
UNIVERSITY HONORS

Phone: 703-993-1110
Website: honorscollege.gmu.edu

Administration

• Zofia Burr, Dean

The Honors College

The Honors College focuses attention on the excellence of Mason’s student body and highlights the full spectrum of opportunities for academic achievement, professional development, and public service that Mason offers our most highly-motivated undergraduates. The Honors College provides talented students in all majors an enriched academic and social environment that enhances their college experience. Participation in challenging and innovative programs encourages student leadership and active engagement in local, national, and global communities.

Through the resources of the Honors College, the university provides students the support to excel academically and to pursue life-long goals. Included in these resources is the Honors College curriculum, which offers challenging courses that fulfill core academic requirements at Mason. Senior faculty, including Mason’s Robinson Professors, teach small classes of students taking the curriculum. A select group of entering students is invited to become part of the University Scholars, a community of learners and leaders who receive Mason’s most competitive merit-based scholarships. All Honors College students have direct access to the Postgraduate Scholarships and Fellowships Office, which provides advice and information to high-achieving Mason undergraduates and recent alumni about the application process for nationally competitive fellowships.

The benefits of being part of the Honors College include participating in a diverse living-learning community. Community programs include special lectures, events, and excursions on and off campus, as well as opportunities to take advantage of internships and cultural programs in Washington, D.C.

All students in the Honors College receive individualized academic advising, priority registration, and opportunities for close interaction with faculty for one-on-one mentoring and graduate and professional advising.

Faculty

Honors students have the opportunity to study with some of Mason’s most accomplished teachers and scholars from disciplines across the university, including Mason’s Robinson Professors.

Admissions & Policies

Admissions

Admission to the Honors College is based on a holistic review of each student’s academic performance as well as any other information included in the general application, such as rigor of coursework, standardized test scores, class rank, essay response, teacher recommendations, outstanding leadership, and commitment to community service. Space is limited in each class, and admissions criteria may vary according to the applicant pool in any given year.

Admission to the Honors College requires an application and is open to both freshmen and transfer students.

Policies

Continuation in Honors

A student whose GPA falls below 2.00 (1.80 in the first or second semester) will be placed on academic warning and may be ineligible to continue in the Honors College.

Honors students are expected to maintain high standards of academic integrity and personal conduct. Students may be asked to withdraw from the program for a violation of the University Honor Code or any other conduct that reflects adversely on the Honors College.

Students who leave the Honors College before completion of the curriculum must meet Mason Core requirements and college-level requirements for their particular degree programs. On leaving the college and before registering for Mason Core courses, students should be advised in their major program on equivalencies between the honors courses they have completed and Mason Core requirements.

Transfer of Honors Credits

Within George Mason: Because of the sequential and integrated nature of the program, honors courses may not correspond exactly to other courses used to fulfill Mason Core requirements. A list of equivalencies is available in the Honors College office and on the Honors College website.

Outside George Mason: Course work in the Honors College curriculum may meet the general education requirements of other universities. As in all transfer situations, general education requirements of one institution may not precisely match those of another.

Requirements

Honors Curriculum

The honors curriculum is designed to satisfy Mason Core requirements through a small number of courses, allowing students increased opportunities to pursue minors or other individual interests. Students may also take honors sections of selected major courses as well as upper division courses offered by the Honors College.

Students who earn a minimum GPA of 3.00 in HNRS and HNRT courses and supporting courses required for their approved honors program will receive a designation of Honors College Requirements Completed on their transcripts. Students whose GPA falls below 3.00 may complete the program to satisfy Mason Core requirements but will not receive honors recognition on their transcripts.

Honors College students are required to develop a formal Plan of Study with their Honors College advisor during their first year in the Honors College. Students who do not complete a Plan of Study in their first year may be removed from the College and the benefits that it offers until an official Plan of Study is completed and approved by the student’s Honors College advisor.
Requirement One
HNRS 108 & HNRS 109 or HNRS 110 or HNRS 302
Introduction to Research Methods I and Introduction to Research Methods II or Research Methods or Research Methods II
Technology in the Contemporary World (Topic Varies) (Mason Core) (p. 135)
Total Credits 3-6

Requirement Two
Honors Core Courses
Select three of the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNRS 122</td>
<td>Reading the Arts (Topic Varies) (Art History/Arts)</td>
</tr>
<tr>
<td>HNRS 131</td>
<td>Contemporary Society in Multiple Perspectives (Topic Varies) (Social Science with a Global Perspective)</td>
</tr>
<tr>
<td>HNRS 240</td>
<td>Reading the Past (Topic Varies) (Western or World History)</td>
</tr>
<tr>
<td>HNRS 130</td>
<td>Conceptions of Self (Topic Varies) (Philosophy/Religion)</td>
</tr>
<tr>
<td>HNRS 230</td>
<td>Cross-Cultural Perspectives (Topic Varies) (Social Science with a Non-Western Perspective)</td>
</tr>
</tbody>
</table>

Total Credits 9

Students are required to take either HNRS 230 Cross-Cultural Perspectives (Topic Varies) or HNRS 131 Contemporary Society in Multiple Perspectives (Topic Varies). Substitutions for both courses will only be allowed if a student transfers in credit for all the following Mason Core requirements:

- Non-Western Culture
- Global Understanding
- Social Science and Behavioral Science

Honors students must satisfy all Mason Core requirements. These requirements may be satisfied by HNRS 122 Reading the Arts (Topic Varies), HNRS 240 Reading the Past (Topic Varies), and HNRS 131 Contemporary Society in Multiple Perspectives (Topic Varies) or HNRS 230 Cross-Cultural Perspectives (Topic Varies), or by taking an approved Mason Core course. HNRS 130 Conceptions of Self (Topic Varies) and HNRS 230 Cross-Cultural Perspectives (Topic Varies) meet additional college requirements for the B.A. in the College of Humanities and Social Sciences and the College of Science.

Note: Students who complete Requirements One and Two also fulfill Mason Core requirements for information technology, oral communication and literature.

Requirement Three
Select any two courses of the following approved departmental honors courses: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 204</td>
<td>Honors Survey of Accounting</td>
</tr>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors (Honors section only)</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution (Honors section only)</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Biodiversity (Honors section only)</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics (Honors section only)</td>
</tr>
<tr>
<td>BINF 490</td>
<td>Independent Senior Research in Bioinformatics and Computational Biology</td>
</tr>
<tr>
<td>BIOL 314</td>
<td>Introduction to Research Design and Analysis</td>
</tr>
<tr>
<td>BIOL 493</td>
<td>Honors Research in Biology</td>
</tr>
<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>CHEM 355</td>
<td>Undergraduate Research</td>
</tr>
<tr>
<td>CS 211</td>
<td>Object-Oriented Programming (Honors section only)</td>
</tr>
<tr>
<td>CS 390</td>
<td>Research and Project Design Principles in Computing</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>HHS 492</td>
<td>RS: Internship in Clinical Research</td>
</tr>
<tr>
<td>HNRS 130</td>
<td>Conceptions of Self (Topic Varies) (Philosophy/Religion, if not taken to satisfy Requirement Two)</td>
</tr>
<tr>
<td>HNRS 230</td>
<td>Cross-Cultural Perspectives (Topic Varies) (Social Science with a Non-Western Perspective, if not taken to satisfy Requirement Two)</td>
</tr>
<tr>
<td>HNRS 312</td>
<td>RS: Research in the Public Sphere</td>
</tr>
<tr>
<td>HNRS 330</td>
<td>Research, Technology, and Online Community</td>
</tr>
<tr>
<td>HNRS 410</td>
<td>Thesis Proposal</td>
</tr>
<tr>
<td>HNRS 411</td>
<td>RS: Honors College Thesis</td>
</tr>
<tr>
<td>HNRS 430</td>
<td>Multidisciplinary Challenges in Professional Environments</td>
</tr>
<tr>
<td>MATH 116</td>
<td>Analytic Geometry and Calculus II (Honors)</td>
</tr>
<tr>
<td>MATH 215</td>
<td>Analytic Geometry and Calculus III (Honors)</td>
</tr>
<tr>
<td>MATH 216</td>
<td>Theory of Differential Equations</td>
</tr>
<tr>
<td>OM 211</td>
<td>Honors Statistical Analysis for Management</td>
</tr>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135) (Honors section only)</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135) (Honors section only)</td>
</tr>
</tbody>
</table>
Students may substitute only one course taken before attending Mason for Requirement Three.

Additional Requirements

- **Mathematics**: Each honors student must take one approved math course, depending on major. Approved math courses are MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135), MATH 123 Calculus with Algebra/Trigonometry, Part A and MATH 124 Calculus with Algebra/Trigonometry, Part B (Mason Core) (p. 135), HNRT 125 A Liberal Arts Approach to Calculus (Mason Core) (p. 135) or HNRT 225 Applied Calculus, or the honors section of MATH 111 Linear Mathematical Modeling (Mason Core) (p. 135), or MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135). School of Business and Information Sciences and Technology majors may take any of these courses, except HNRT 125 A Liberal Arts Approach to Calculus (Mason Core) (p. 135). Additional math courses are required for some majors.

- **Science**: The Honors College science requirement mirrors the science requirement of a student's college and major.

- **Foreign Language**: Students pursuing BA degrees may have a foreign language requirement.

- **Beyond the Honors College requirements, students must satisfy all requirements of their college and major.**
COLLEGES AND SCHOOLS

- Antonin Scalia Law School
- College of Education and Human Development
- College of Health and Human Services
- College of Humanities and Social Sciences
- College of Science
- College of Visual and Performing Arts
- Interdisciplinary Programs and Courses
- Schar School of Policy and Government
- School for Conflict Analysis and Resolution
- School of Business
- Volgenau School of Engineering

College of Education and Human Development
2100 Thompson Hall
Fairfax Campus
MSN: 4B3
Phone: 703-993-2010
Website: cehd.gmu.edu

Administration
- Mark Ginsberg, Dean
- Martin Ford, Senior Associate Dean
- Ellen Rodgers, Associate Dean for Student and Academic Affairs
- Iris Robinson, Assistant Dean for Student and Academic Affairs

College Code: E1

The college is committed to excellence, innovation, and collaboration in research and the preparation of professionals for the highest levels of practice and service in diverse schools, organizations, and communities.

CEHD provides leadership in transforming schools, organizations, and communities through research, teaching, and collaboration. CEHD faculty members prepare scholars and practitioners through multidisciplinary programs of study that facilitate the understanding, integration, and application of knowledge. Through research activities, faculty and students expand and refine the knowledge base for teaching and learning. In response to the richness and complexity of a pluralistic society, CEHD infuses diversity into academic programs and research. The faculty develops and supports knowledgeable, caring, and reflective professionals who facilitate excellence and equity for all learners. CEHD students and faculty demonstrate their growth and development in ways meaningful to their communication and professional organizations. Innovative programs and the integration of technology provide opportunities for students to develop, examine, evaluate, and practice professional knowledge, skills, and dispositions.

Undergraduate Degrees, Minors, and Certificates
CEHD offers six undergraduate degrees, fifteen minors, and seven undergraduate certificates. The School of Recreation, Health, and Tourism within the College of Education and Human Development collaborates with the College of Humanities and Social Sciences (p. 295), the School of Business (p. 846), the College of Science (p. 593), the Volgenau School of Engineering (p. 953), the College of Visual and Performing Arts (p. 763), and the School for Conflict Analysis and Resolution (p. 882) to offer seven minors in interdisciplinary areas of study. Students may elect to take a minor in addition to their major field of study. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

In addition, CEHD collaborates with the College of Science (p. 593) (Departments of Atmospheric, Oceanic, and Earth Sciences; Biology; Chemistry and Biochemistry; Mathematical Sciences; and Physics and Astronomy) to offer undergraduate secondary education certificates and the College of Visual and Performing Arts (p. 763) (Schools of Dance, Music and Theater) to provide programs in music education, theater education, and dance education that can lead to VA teaching licensure. CEHD also collaborates with School of Integrative Studies (p. 564) to support three interdisciplinary degree concentrations which prepare students for graduate study in education.

Graduate Degrees and Certificates
CEHD offers one doctoral degree, eight master’s degrees, and forty graduate certificates.

Requirements & Policies

Policies
In addition to the policies stated in Academic Policies (p. 74), the following policies and procedures apply to all students in the college.

Communication Policy
All correspondence from the program, school, college, and university administration is sent to the student’s official Mason e-mail account. Students must use their Mason e-mail account to communicate with their programs and other administrative units.

CEHD Academic Policies
Students are ultimately responsible for their academic progress towards their degrees and/or certificates. They are strongly advised to consult Academic Policies (p. 74) for information concerning university-wide requirements for degree and nondegree students in addition to those for this college. Students with questions regarding academic policies and college-level requirements should contact the CEHD Student and Academic Affairs Office (Thompson Hall, Suite 2300; 703-993-2080; cehdsaa@gmu.edu). Additional policy information and forms are available online. (http://cehd.gmu.edu/saa)

CEHD Grading Policy
All CEHD undergraduate and graduate students are held to the university grading policies as described in AP.3 Grading (p. 80). Those students enrolled in a CEHD licensure program have higher minimum grade requirements which are detailed in each specific program’s page.

Grade Appeals
Students may appeal grades that they believe were assigned unjustly or were based on unclear criteria in accord with Academic Policies (p. 74). Grade appeals should initially be directed to the Academic Program Coordinator for courses taken within the College of Education and
Human Development. If the student is not satisfied with the outcome of the appeal at the program level, it may be submitted to the Office of Student and Academic Affairs for review. The Associate Dean’s decision is considered final and not subject to further appeal.

Study Elsewhere

Once enrolled in degree status at Mason, undergraduate students with fewer than 60 hours of transfer coursework (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education) may take up to twelve credits of coursework in CEHD disciplines at another institution. Students with 60 or more hours of transfer coursework are not permitted to take additional coursework in CEHD disciplines at another institution. A student may seek permission for additional hours beyond these limits for summer registration if his/her permanent residence is more than fifty miles from the Fairfax campus. Students who enroll elsewhere without advance written permission will not receive transfer credit for the coursework taken at another institution unless they re-apply for admission to Mason as transfer applicants and meet all priority deadlines. Re-admission is not guaranteed and transfer credit is awarded based upon course equivalencies in effect at the time of re-admission. Courses previously attempted at Mason (including withdrawals) cannot be taken elsewhere.

Professional Teacher Licensure

CEHD is responsible for professional courses, special standards, and licensure recommendations for students completing state-approved (Virginia) licensure programs that prepare teachers, administrators, counselors, and related-instructional personnel.

Initial teacher licensure is available at the undergraduate level in biology, chemistry, dance, earth science, health and physical education, mathematics, music, physics, secondary education English, and theatre arts. Initial teacher licensure is available at the graduate level in art, early childhood, elementary, English as a second language, foreign language, secondary, and theatre arts. The Special Education Program offers initial teacher licensure exclusively through graduate certificates that include Early Childhood Special Education, Visual Impairment, Students with Disabilities who Access the General Curriculum, and Students with Disabilities who Access the Adapted Curriculum.

For more information please contact the CEHD Office of Admissions (Thompson Hall, Suite 2200; 703-993-2892; cehdgrad@gmu.edu). Additional information is available online (http://cehd.gmu.edu/admissions).

Notes on Background Checks and Licensure:

The majority of Mason CEHD programs require multiple field experiences. Our school and agency partners require Mason students to be fingerprinted and pass a criminal background check prior to field experience work. Students must assume the risk that classes may be deferred and their program delayed due to the individual severity of notations on such a check and review by individual agencies.

George Mason University will verify completion of the requirements of a Virginia Department of Education (VDOE) state-approved preparation program at the graduate or undergraduate level. Such verification does not guarantee the issuance of Virginia Collegiate Professional, Postgraduate Professional, or Pupil Personnel license from the Commonwealth of Virginia. It is solely the student’s responsibility to comply with all requirements for licensure by the Commonwealth. Under Virginia law, a social security number is required for licensure.

### Academic Units

- Graduate School of Education
- School of Recreation, Health, and Tourism

### Graduate School of Education

Phone: 703-993-2892
Website: cehd.gmu.edu

The Graduate School of Education (GSE) offers one doctoral degree, five master’s degrees, one bachelor’s degree, nine minors, six undergraduate certificates, twelve accelerated master’s programs and thirty-seven graduate certificates. Within each degree program students have the option to choose a concentration that best meets their interests or needs. Additionally, students may pursue coursework leading to initial teacher licensure. Students can pursue a Master’s degree and one graduate certificate concurrently.

### Collaborative Undergraduate Degree Licensure Programs

GSE supports undergraduate students from a variety of disciplines interested in education and teacher licensure. Nine collaborative undergraduate degree licensure programs are available including undergraduate certificates and the programs below. For more information, contact us (preteach@gmu.edu) or visit our website (http://cehd.gmu.edu/undergraduate/think-you-want-to-be-a-teacher).

#### Dance Arts Licensure (PK–12)

Upon successful completion of the requirements for a BA (p. 803) or BFA in Dance (p. 805), students may pursue course work that will allow them to attain licensure to teach dance in Virginia public school systems. For details, see School of Dance (p. 802).

#### Theatre Arts Licensure (PK–12)

Upon successful completion of the requirements for a BA in Theater (p. 840) with a concentration in Theater Education for Theatre Arts PK-12, students may pursue coursework that will allow them to attain licensure to teach Theatre Arts in Virginia public school systems. For details, see School of Theater (p. 835).

#### Concentration in Music Education (PK–12)

The BM in Music (p. 819) with a concentration in Music Education allows students to obtain certification to teach in Virginia public school systems. Students may follow an instrumental or choral/general music emphasis in the curriculum. For details, see School of Music (p. 807).

### Collaborative Graduate Degree Licensure Programs

#### Teaching Theatre Licensure (PK–12)

Upon successful completion of the requirements for a Teaching Theatre PK-12 Graduate Certificate (p. 839), students can obtain licensure to teach Theatre in Virginia public school systems. For details, see School of Theater (p. 835).
Visual Arts Licensure (PK-12)
Upon successful completion of the requirements for an Art Education Graduate Certificate (p. 787), students can obtain licensure to teach Art in Virginia public school systems. For details, see School of Art (p. 784).

Accelerated Master’s Programs
The Graduate School of Education collaborates with undergraduate programs to offer twelve accelerated Master’s programs. For more information, see the website. (http://cehd.gmu.edu/bachelors-accelerated-masters-program)

Faculty

School Faculty

Professors
Bauer, Bemak, Brigham, Brozo, Buehl, Burns, R. Chung, Clark, Dabbagh, DeMulder, Earley, Fox, Haley, Hopson, Kelly, Kidd, King-Sears, Kitsantas, Mason, Maxwell, Ndura, Norton, Reybold, Samaras, Shaklee, Sturtevant, Zenkov

Associate Professors

Assistant Professors

Instructors
D. Fulcher, Rioux-Bailey

Programs

• Advanced International Baccalaureate Studies Graduate Certificate
• Applied Behavior Analysis Graduate Certificate
• Applied Behavior Analysis Minor
• Assistive Technology Graduate Certificate
• Assistive Technology Minor
• Autism Spectrum Disorders Graduate Certificate
• Blended and Online Learning in Schools Graduate Certificate
• Counseling Licensure Post-Master’s Graduate Certificate
• Counseling and Development, MEd
• Curriculum and Instruction, MEd
• Data-Driven Decision-Making for Continuous Educational Improvement Graduate Certificate
• Designing Digital Learning in Schools Graduate Certificate
• Digital Learning and Teacher Leadership Graduate Certificate
• Dual Licensure Early Childhood Education PK-3 and Early Childhood Special Education Graduate Certificate
• E-Learning Graduate Certificate
• ESOL Education (PK-12) for Practitioners Graduate Certificate
• Early Childhood Education PK-3 (Licensure) Graduate Certificate
• Early Childhood Education for Diverse Learners Minor
• Early Childhood Special Education (Licensure) Graduate Certificate
• Education Leadership Graduate Certificate
• Education Leadership, MEd
• Education Studies Minor
• Education and Human Development, PhD (title change pending SCHEV approval)
• Educational Psychology Minor
• Educational Psychology, MS
• English as a Second Language (ESL / ESOL)/Special Education Graduate Certificate
• Foreign Language: Arabic Licensure Graduate Certificate
• Foreign Language: Chinese Licensure Graduate Certificate
• Foreign Language: French Licensure Graduate Certificate
• Foreign Language: German Licensure Graduate Certificate
• Foreign Language: Japanese Licensure Graduate Certificate
• Foreign Language: Korean Licensure Graduate Certificate
• Foreign Language: Latin Licensure Graduate Certificate
• Foreign Language: Spanish Licensure Graduate Certificate
• Geographic and Environmental Science Education (non-licensure) Graduate Certificate
• Gifted Child Education Graduate Certificate
• Human Development and Family Science Minor
• Human Development and Family Science, BA
• International ESOL Education (PK-12) Licensure Graduate Certificate
• International Elementary Education (PK-6) Licensure Graduate Certificate
• International Special Education (PK-12) Graduate Certificate
• Literacy: K-12 Reading Specialist Graduate Certificate
• Mild Disabilities Minor
• Qualitative Research Graduate Certificate
• Secondary Education Licensure Graduate Certificate
• Secondary Education – Biology (6-12) Undergraduate Certificate
• Secondary Education – Chemistry (6-12) Undergraduate Certificate
• Secondary Education – Earth Science (6-12) Undergraduate Certificate
• Secondary Education – English (6-12) Undergraduate Certificate
• Secondary Education – Mathematics (6-12) Undergraduate Certificate
• Secondary Education – Physics (6-12) Undergraduate Certificate
• Severe Disabilities Minor
• Special Education Leadership Graduate Certificate
• Special Education, MEd
• Specialized Reading Instruction for Students with Specific Learning Disabilities Graduate Certificate
• Students with Disabilities who Access the Adapted Curriculum Graduate Certificate
• Students with Disabilities who Access the General Curriculum Graduate Certificate
• Visual Impairment and Blindness Minor
Advanced International Baccalaureate Studies Graduate Certificate
Banner Code: E1-CERG-AIBS

Academic Advising
Phone: 703-993-3173
Email: astl@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/advanced-international-baccalaur

This 15-credit certificate provides advanced professional development for teachers on the philosophy, elements, and assessments of the Primary Years Programme (PYP), Middle Years Programme (MYP), and Diploma Programme (DP). The coursework focuses on the theory, pedagogy, and research undergirding the International Baccalaureate programs.

This graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Certificate Requirements
Total credits: 15

Coursework
Students must earn a B or higher in all coursework.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 621</td>
<td>Teaching and Learning in the International Baccalaureate Program</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 622</td>
<td>Curriculum Development across IB Programs</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 623</td>
<td>Models and Strategies for Teaching and Learning in IB Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 624</td>
<td>Assessment and Learning in IB Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 626</td>
<td>Inquiry into Action: IB Teachers, Learners, and Schools</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Notes
Upon completion of this graduate certificate, teachers may apply to the International Baccalaureate (IB) organization for the IB certificate in teaching and learning. Students who also complete the M.Ed. in Curriculum and Instruction with a concentration in Teaching Culturally and Linguistically Diverse and Exception Learners or the concentration in Advanced Studies in Teaching and Learning may apply to the IB for the IB advanced certificate in teaching and learning research.

Applied Behavior Analysis Graduate Certificate
Banner Code: E1-CERG-ABAC

Academic Advising
Phone: 703-993-2387
Email: speced@gmu.edu
Website: gse.gmu.edu/special-education/academics/applied-behavior-analysis-aba-graduate-certificate

This 18-credit non-licensure certificate is designed to increase the professional training of individuals responsible for designing, implementing, and monitoring behavioral treatment programs in schools, agencies (such as psychiatric hospitals), and training centers for people with severe disabilities.

This graduate certificate may be pursued on a part-time basis only, unless students complete the certificate in conjunction with the optional practicum or Master’s in Special Education (p. 207). With practicum or concurrent enrollment in the MEd, this certificate may be pursued on a full-time basis. The Behavior Analyst Certification Board (BACB) requires one of the following Master's degrees in addition to the Post-Master’s Certificate:

1. Education
2. Psychology
3. Behavior analysis

Those not holding these degrees may not be eligible to earn BCBA certification. Please contact a CEHD Special Education advisor for questions regarding eligibility to sit for the BCBA exam.

Admissions & Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Certificate Requirements
Total credits: 18

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 619</td>
<td>Applied Behavior Analysis: Principles, Procedures, and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 621</td>
<td>Applied Behavior Analysis: Empirical Bases</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 623</td>
<td>Applied Behavior Analysis: Assessments and Interventions</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 624</td>
<td>Applied Behavior Analysis: Applications</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 625</td>
<td>Applied Behavior Analysis: Verbal Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>
EDSE 664 Ethical and Professional Conduct for Behavior Analysis 3

Total Credits 18

Note
EDSE 795 Standard Applied Behavior Analysis Practicum and EDSE 799 Intensive Applied Behavior Analysis Practicum may be taken to meet the Behavior Analysis Certification Board (BACB) supervised practicum requirements.

Applied Behavior Analysis Minor
Banner Code: ABAC

Academic Advising
Phone: 703-993-2387
Email: speced@gmu.edu
Website: gse.gmu.edu/special-education/academics/undergraduate-minor-applied-behavior-analysis

This minor provides undergraduate students with the coursework and experience required by the Behavior Analyst Certification Board to sit for the Board Certified Assistant Behavior Analyst examination. Twelve credit hours are distributed across four required courses and the remaining nine across the required practicum.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements
Total credits: 21

Minor Requirements
Coursework
EDSE 460 Introduction to Applied Behavior Analysis 3
EDSE 461 Analysis and Intervention in Applied Behavior Analysis 3
EDSE 462 Applying Behavior Analysis in School and Community Settings 3
EDSE 464 Ethical and Professional Conduct in Applied Behavior Analysis 3
EDSE 495 Standard Applied Behavior Analysis Practicum 3
EDSE 499 Intensive Applied Behavior Analysis Practicum 6

Total Credits 21

Assistive Technology Graduate Certificate
Banner Code: E1-CERG-AT

Academic Advising
Phone: 703-993-2387
Email: atprog@gmu.edu
Website: gse.gmu.edu/assistive-technology/at-program-options/at-graduate-certificate

This 15-credit certificate provides supplemental training for practitioners, families, and caregivers who use assistive technology while working with people with disabilities. The certificate is appropriate for general and special educators, related service personnel, adult service providers, and families and caregivers who need to apply assistive technology solutions within their specific discipline or school, work, home, or community setting.

This certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements
Certificate Requirements
Total credits: 15

Required Courses
EDAT 510 Introduction to Assistive Technology 3
EDAT 610 Designing Adapted Environments 3

Total Credits 6

Electives
Select nine credits from the following:
EDAT 521 Augmentative Communication
EDAT 522 Assistive Technology for Individuals with Sensory Impairments
EDAT 523 Accessibility and Input Modifications
EDAT 524 Universal Design for Learning
EDAT 525 Software and Mobile Applications for Individuals with Disabilities
EDAT 527 Assistive Technology for Independent Living and Employment

Total Credits 9

Assistive Technology Minor
Banner Code: AT

Academic Advising
Phone: 703-993-2387
Email: atprog@gmu.edu
Website: gse.gmu.edu/assistive-technology/at-program-options/at-minor-program
This 15-credit minor provides undergraduate students with background knowledge in assistive technology.

### Admissions & Policies

#### Policies

At least eight of the required 15 credits must be applied only to this minor and may not be used to fulfill requirements of the student's major, concentration, an undergraduate certificate, or another minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Requirements

#### Minor Requirements

**Total credits: 15**

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAT 410 Introduction to Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 421 Augmentative Communication</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 422 Assistive Technology for Individuals with Sensory Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 423 Accessibility and Input Modifications</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 203 Disability in American Culture (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 15

---

### Autism Spectrum Disorders Graduate Certificate

**Banner Code: E1-CERG-ASD**

#### Academic Advising

Phone: 703-993-2387  
Email: speced@gmu.edu  
Website: [gse.gmu.edu/special-education/academics/autism-spectrum](http://gse.gmu.edu/special-education/academics/autism-spectrum)

This 15-credit non-licensure certificate provides training in topic areas required to implement instructional programs for individuals with autism across their lifespan. The certificate is appropriate for special educators, general educators, related service providers, parents, and others who provide instruction to students with autism in a variety of educational, community and vocational settings.

This graduate certificate is offered in an asynchronous online format and may only be pursued on a part-time basis.

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### Admissions & Policies

#### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

#### Certificate Requirements

**Total credits: 15**

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 620 Supporting the Behavior and Sensory Needs of Individuals with Autism</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 634 Characteristics of Individuals with Autism</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 635 Interventions for Individuals with Autism</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 636 Supporting Communication and Literacy for Individuals with Autism</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 637 Autism Across the Lifespan: Collaboration with Critical Partners</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 15

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### Blended and Online Learning in Schools Graduate Certificate

**Banner Code: E1-CERG-BOLS**

#### Academic Advising

Phone: 703-993-3137  
Email: jborup@gmu.edu  
Website: [https://learntech.gmu.edu/learning-technologies-schools/degree-options/blended-and-online-learning-graduate-certificate](https://learntech.gmu.edu/learning-technologies-schools/degree-options/blended-and-online-learning-graduate-certificate)

This 16-credit certificate meets the needs of K-12 educators interested in teaching in blended as well as fully online learning environments. The certificate is offered fully online.

This graduate certificate may only be pursued on a part-time basis.

---

### Admissions & Policies

#### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

#### Certificate Requirements

**Total credits: 16**

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIT 760 Online Teachers and Learners</td>
<td>2</td>
</tr>
<tr>
<td>EDIT 761 Models of Online Learning</td>
<td>2</td>
</tr>
<tr>
<td>EDIT 762 Quality K-12 Online Learning</td>
<td>1</td>
</tr>
<tr>
<td>EDIT 763 Tools for K-12 Online Learning</td>
<td>2</td>
</tr>
<tr>
<td>EDIT 764 The ART of Online Communication</td>
<td>3</td>
</tr>
<tr>
<td>EDIT 765 Facilitating K-12 Online Learning</td>
<td>2</td>
</tr>
<tr>
<td>EDIT 766 Understanding Online Presence</td>
<td>2</td>
</tr>
</tbody>
</table>
Counseling Licensure Post-Master's Graduate Certificate

Banner Code: E1-CERG-PCLC

Academic Advising
Phone: 703-993-2087
Email: counsel@gmu.edu
Website: gse.gmu.edu/counseling/counseling-licensure-post-masters-graduate-certificate

This 15-credit certificate is designed for individuals who possess a master's degree in counseling or a highly-related field and seek 15 credits of post-graduate coursework to meet licensure requirements as a Virginia School Counselor or Virginia Licensed Professional Counselor. Applicants with master’s degrees outside of counseling, who would like to meet licensure requirements as a Virginia Licensed Professional Counselor, must verify course equivalency with the Virginia Board of Counseling (see Board of Counseling content area list online (http://www.dhp.virginia.gov/counseling)).

This graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Policies

Applicants with more than seven courses to take to meet the course content requirements for licensure must apply to one of our master’s degree programs.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 87).

Requirements

Certificate Requirements

Total credits: 15

Once accepted into the post-master's graduate certificate program, students individually tailor their coursework with an advisor to meet licensure requirements and may enroll for the courses listed below or other core program courses as needed. Students must successfully complete (pass) a minimum of nine counseling and development credits with a grade of B or better prior to enrolling in practicum or internship.

Virginia School Counselor

Choose 15 credits from the following Virginia School Counseling courses listed below. Students studying for the MEd in Counseling and Development (p. 160) may also meet Virginia School Counselor licensure requirements through coursework offered under the MEd’s School Counseling PK-12 concentration.

Select 15 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 606</td>
<td>Counseling Children and Adolescents</td>
</tr>
</tbody>
</table>

Licensed Professional Counselor

Choose 15 credits from the following Licensed Professional Counselor courses listed below. Students studying for the MEd in Counseling and Development (p. 160) may also meet Virginia Licensed Professional Counselor licensure requirements through coursework offered under the MEd’s Community Agency Counseling concentration.

Select 15 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 609</td>
<td>Advanced Counseling Skills and Strategies</td>
</tr>
<tr>
<td>EDCD 652</td>
<td>Introduction to Substance Abuse Counseling</td>
</tr>
<tr>
<td>EDCD 654</td>
<td>Counseling, Ethics, and Consultation in Community Agencies</td>
</tr>
<tr>
<td>EDCD 656</td>
<td>Diagnosis and Treatment Planning for Mental Health Professionals</td>
</tr>
<tr>
<td>EDCD 658</td>
<td>Couples and Family Counseling</td>
</tr>
<tr>
<td>EDCD 755</td>
<td>Practicum in Counseling</td>
</tr>
<tr>
<td>EDCD 791</td>
<td>Internship in Counseling</td>
</tr>
<tr>
<td>EDCD 797</td>
<td>Advanced Topics in Education</td>
</tr>
</tbody>
</table>

Counseling and Development, MEd

Banner Code: E1-MED-CNDV

Academic Advising
Phone: 703-993-2087
Email: counsel@gmu.edu
Website: gse.gmu.edu/counseling/

This master's program emphasizes the integration of theory and practice and culminates with an internship in an appropriate setting. Students may choose one of two concentrations: Community Agency Counseling (52 credits) or School Counseling (45 credits).

Admissions & Policies

Policies

Grading

Students enrolled in this degree program must earn a B or higher in counseling courses and in all licensure coursework, including practicum and internship courses. Students are permitted to repeat a course only once.
## Requirements

### Degree Requirements

Total credits: 52 or 45

#### Concentration in Community Agency Counseling (CA)

**Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 609</td>
<td>Advanced Counseling Skills and Strategies</td>
<td>4</td>
</tr>
<tr>
<td>EDCD 652</td>
<td>Introduction to Substance Abuse Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 654</td>
<td>Counseling, Ethics, and Consultation in Community Agencies</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 656</td>
<td>Diagnosis and Treatment Planning for Mental Health Professionals</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 658</td>
<td>Couples and Family Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 797</td>
<td>Advanced Topics in Education (must register for 2 credits)</td>
<td>2</td>
</tr>
</tbody>
</table>

**MEd Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 525</td>
<td>Advanced Human Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 601</td>
<td>Introduction to Research in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 602</td>
<td>Foundations in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 603</td>
<td>Counseling Theories and Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 604</td>
<td>Assessment and Appraisal in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 608</td>
<td>Group Processes and Analyses</td>
<td>4</td>
</tr>
<tr>
<td>EDCD 610</td>
<td>Career and Educational Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 628</td>
<td>Counseling and Social Justice</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 660</td>
<td>Multicultural Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>

**Practicum and Internship**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 755</td>
<td>Practicum in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 791</td>
<td>Internship in Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 45

---

### Concentration in School Counseling (SC)

**Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 606</td>
<td>Counseling Children and Adolescents</td>
<td>4</td>
</tr>
<tr>
<td>EDCD 611</td>
<td>Introduction to Ethical and Legal Issues in School Counseling</td>
<td>2</td>
</tr>
<tr>
<td>EDCD 626</td>
<td>Principles and Practices of School Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 797</td>
<td>Advanced Topics in Education (must register for 2 credits)</td>
<td>2</td>
</tr>
</tbody>
</table>

**MEd Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 525</td>
<td>Advanced Human Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 601</td>
<td>Introduction to Research in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 602</td>
<td>Foundations in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 603</td>
<td>Counseling Theories and Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 604</td>
<td>Assessment and Appraisal in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 608</td>
<td>Group Processes and Analyses</td>
<td>4</td>
</tr>
<tr>
<td>EDCD 610</td>
<td>Career and Educational Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 628</td>
<td>Counseling and Social Justice</td>
<td>3</td>
</tr>
</tbody>
</table>

**Practicum and Internship**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCD 755</td>
<td>Practicum in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>EDCD 791</td>
<td>Internship in Counseling</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 52

---

### Curriculum and Instruction, MEd

Banner Code: E1-MED-CRIN

**Academic Advising**

Phone: 703-993-2080
Email: cehdsaa@gmu.edu

This master's degree is offered to students preparing for initial teacher licensure, advanced teacher education, or ancillary educational programs.

### Requirements

#### MEd with Concentration

Total credits: 30-45

Concentrations are listed within the subject areas listed below. Each concentration wholly describes the requirements for the degree and the concentration. Students should choose one concentration.

### Advanced Studies in Teaching and Learning (ASTL)

The ASTL concentrations are for practicing teachers and other educators with one or more years of teaching experience who want to continue to grow professionally. The program offers advanced study in a specific concentration area; including Virginia’s Standards of Learning content areas, cohort classes, an innovative schedule, and the use of technology. The courses, aligned with the National Board for Professional Teaching Standards, help teachers think and practice as board-certified teachers. The program develops teacher-leaders who take an inquiry stance on their educational practice and lead from the classroom as they contribute to ongoing school improvement and educational change. While developing expertise in a content area and increasing their understanding of culturally and linguistically diverse students and families, teachers in the program develop their critical reflective capacity through engagement in action research, self-study, and classroom-based inquiry.

Experienced teachers and other educators with or without a master’s degree may apply for the master’s degree program, which includes the 30- or 33-credit hour Core and areas of Concentration. The program also provides an option for teachers with master’s degrees who want to gain a Reading Specialist or Gifted Childhood Education 21-credit graduate certificate.

#### MEd Requirements Common to all ASTL Concentrations

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 606</td>
<td>Education and Culture</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 612</td>
<td>Inquiry into Practice</td>
<td>2</td>
</tr>
<tr>
<td>EDUC 613</td>
<td>How Students Learn</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 614</td>
<td>Designing and Assessing Teaching and Learning</td>
<td>2</td>
</tr>
</tbody>
</table>
Concentration in ASTL: Advanced International Baccalaureate (AIB)
This concentration provides advanced professional development for teachers on the philosophy, elements, and assessments of the Primary Years Programme (PYP), Middle Years Programme (MYP), and Diploma Programme (DP). The coursework focuses on the theory, pedagogy, and research undergirding the International Baccalaureate programs.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 621 Teaching and Learning in the International Baccalaureate Program</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 622 Curriculum Development across IB Programs</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 623 Models and Strategies for Teaching and Learning in IB Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 624 Assessment and Learning in IB Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 626 Inquiry into Action: IB Teachers, Learners, and Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 627 Contemporary Issues and Trends in IB</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

Concentration in ASTL: Designing Digital Learning in Schools (ADDL)
This concentration is offered to practicing teachers who wish to gain the necessary knowledge and skills for integrating digital learning and K–12 curricular knowledge outcomes. The concentration is framed by four learning outcomes: investigation of the theory and practice of digital learning, connection of digital learning and knowledge outcomes, use of design principles and processes to inform practice, knowledge of a range of technologies appropriate for PreK-12 learners.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIT 780 Principles of School-Based Design</td>
<td>3</td>
</tr>
<tr>
<td>EDIT 781 Designing for Information Using</td>
<td>3</td>
</tr>
<tr>
<td>EDIT 782 Designing for Literacy</td>
<td>3</td>
</tr>
<tr>
<td>EDIT 783 Designing for Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>EDIT 784 Designing for Community Participation</td>
<td>3</td>
</tr>
<tr>
<td>EDIT 785 Designing School-Based Digital Learning</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

Concentration in ASTL: Early Childhood Education (AECE)
This concentration provides advanced professional development in preschool through third grade content and includes two required courses and four electives. The concentration focuses on advancing the professional knowledge of practicing teachers who teach young children.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 601 Frameworks for Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>ECED 685 Applied and Teacher Research in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>or ECED 691 Policy Perspectives in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

Concentration in ASTL: Elementary Mathematics (AEMA)
This concentration combines the study of mathematics content appropriate for kindergarten through eighth grade with the study of mathematics education research, curriculum, leadership, and assessment.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 610 Number Systems and Number Theory for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 611 Geometry and Measurement for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 612 Probability and Statistics for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 613 Algebra and Functions for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 614 Rational Numbers and Proportional Reasoning for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>Select one from the following:</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 645 Curriculum Development in Mathematics Education</td>
<td></td>
</tr>
<tr>
<td>EDCI 646 Mathematics Education Leadership for School Change</td>
<td></td>
</tr>
<tr>
<td>EDCI 666 Research in Mathematics Teaching</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

Concentration in ASTL: Foreign Language French (AFLF)
This concentration provides advanced professional development and language study for practicing foreign language teachers. The 18 credits include a combination of modern language courses and targeted electives.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature</td>
<td></td>
</tr>
<tr>
<td>FREN 515 Topics in Medieval French Literature and Culture</td>
<td>6</td>
</tr>
<tr>
<td>FREN 517 Topics in Seventeenth-Century French Literature and Culture</td>
<td></td>
</tr>
<tr>
<td>FREN 518 Topics in Eighteenth-Century French Literature and Culture</td>
<td></td>
</tr>
<tr>
<td>FREN 519 Topics in Nineteenth-Century French Literature and Culture</td>
<td></td>
</tr>
<tr>
<td>FREN 550 Special Topics</td>
<td></td>
</tr>
<tr>
<td>Language and Linguistics</td>
<td></td>
</tr>
<tr>
<td>One advisor-approved 3 credit course in language and linguistics</td>
<td>3</td>
</tr>
<tr>
<td>FREN 575 Grammatical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
</tbody>
</table>
Select six credits from the following: ²

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRLN 510</td>
<td>Bibliography and Research in Foreign Languages and Literature</td>
<td>6</td>
</tr>
<tr>
<td>FRLN 525</td>
<td>Literary Translation</td>
<td></td>
</tr>
<tr>
<td>FRLN 550</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>FRLN 565</td>
<td>Theory of Translation</td>
<td></td>
</tr>
<tr>
<td>FRLN 572</td>
<td>Integrating Technology into Language Learning</td>
<td></td>
</tr>
<tr>
<td>FRLN 573</td>
<td>Basic Issues in Language Pedagogy</td>
<td></td>
</tr>
<tr>
<td>FRLN 590</td>
<td>Internship and Seminar in Translation</td>
<td></td>
</tr>
<tr>
<td>FRLN 620</td>
<td>Literary Theory and Criticism</td>
<td></td>
</tr>
<tr>
<td>FRLN 660</td>
<td>Approaches to the Study of Language</td>
<td></td>
</tr>
<tr>
<td>FRLN 670</td>
<td>Foreign Language Learning and Teaching</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

¹ Courses may be substituted with advisor-approved language-related electives.
² Courses may be substituted with advisor-approved literature-related electives.

**Concentration in ASTL: Foreign Language Spanish (AFLS)**

This concentration provides advanced professional development and language study for practicing foreign language teachers. The 18 credits include a combination of modern language courses and targeted electives.

**Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 502</td>
<td>Hispanic Sociolinguistics</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 505</td>
<td>Applied Spanish Stylistics</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 510</td>
<td>Methods of Literary and Cultural Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select 9 credits from the following: ¹

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRLN 510</td>
<td>Bibliography and Research in Foreign Languages and Literature</td>
<td>3</td>
</tr>
<tr>
<td>FRLN 525</td>
<td>Literary Translation</td>
<td></td>
</tr>
<tr>
<td>FRLN 550</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>FRLN 565</td>
<td>Theory of Translation</td>
<td></td>
</tr>
<tr>
<td>FRLN 572</td>
<td>Integrating Technology into Language Learning</td>
<td></td>
</tr>
<tr>
<td>FRLN 573</td>
<td>Basic Issues in Language Pedagogy</td>
<td></td>
</tr>
<tr>
<td>FRLN 590</td>
<td>Internship and Seminar in Translation</td>
<td></td>
</tr>
<tr>
<td>FRLN 620</td>
<td>Literary Theory and Criticism</td>
<td></td>
</tr>
<tr>
<td>FRLN 650</td>
<td>The Teaching of Culture in Foreign Language Programs</td>
<td></td>
</tr>
<tr>
<td>FRLN 660</td>
<td>Approaches to the Study of Language</td>
<td></td>
</tr>
<tr>
<td>FRLN 670</td>
<td>Foreign Language Learning and Teaching</td>
<td></td>
</tr>
<tr>
<td>SPAN 501</td>
<td>Applied Spanish Grammar</td>
<td></td>
</tr>
<tr>
<td>SPAN 520</td>
<td>Studies in Medieval Spanish Literature</td>
<td></td>
</tr>
<tr>
<td>SPAN 525</td>
<td>Studies in Renaissance Literature</td>
<td></td>
</tr>
<tr>
<td>SPAN 530</td>
<td>Studies in the Literature of the Golden Age</td>
<td></td>
</tr>
<tr>
<td>SPAN 540</td>
<td>Studies in 20th-Century Literature</td>
<td></td>
</tr>
<tr>
<td>SPAN 545</td>
<td>Studies in Hispanic Literature</td>
<td></td>
</tr>
<tr>
<td>SPAN 551</td>
<td>Special Topics in Spanish</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

¹ Courses may be substituted with advisor-approved literature-related electives.

**Concentration in Gifted Child Education (AGCE)**

This concentration provides advanced professional development through endorsement or master's degree for teachers of gifted students. The concentration meets NAGC/CEC graduate standards and focuses on culturally diverse, multilingual, twice exceptional, and traditionally defined gifted students and programs.

Students must earn a B- or higher in all coursework.

**Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 621</td>
<td>Introduction to Gifted and Talented Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 622</td>
<td>Curriculum Differentiation for Diverse Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 623</td>
<td>Models and Strategies for Teaching Gifted Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 624</td>
<td>Assessment, Identification, and Evaluation of Gifted Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 625</td>
<td>Contemporary Issues and Trends in Gifted Education</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 626</td>
<td>Action Research in Gifted Education</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 627</td>
<td>Advanced Practicum in Gifted Education ¹</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>21</td>
</tr>
</tbody>
</table>

¹ One year of successful full-time teaching in an accredited public or non-public school may be accepted in lieu of EDCI 627 Advanced Practicum in Gifted Education (VA Licensure Regulations for School Personnel, 1998). A 3-credit elective course must be chosen with advisor approval to meet the 21-credit requirement.

**Concentration in ASTL: History (AHIS)**

This concentration includes one geography and five history courses that are required. The concentration is designed for elementary, middle, and high school teachers who seek a foundation in the history courses that are taught within Virginia public schools.

**Coursework**

Courses below may be substituted with advisor-approved history electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 520</td>
<td>Geography for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>HIST 510</td>
<td>Approaches to Modern World History</td>
<td>3</td>
</tr>
<tr>
<td>Course Number</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>HIST 601</td>
<td>Themes in U.S. History I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 602</td>
<td>Themes in U.S. History II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 605</td>
<td>Themes in European History I</td>
<td>3</td>
</tr>
<tr>
<td>HIST 695</td>
<td>History Symposium</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

### Concentration in ASTL: Individualized (AATL)

This individualized concentration is developed in concert with a student’s advisor to provide coursework in a student’s specialized area that is not provided in other ASTL concentrations. The student works with the program director to design a program of study that provides individualized learning experiences in an area of expertise relevant to one’s professional educational setting.

Select 18 credits selected in consultation with advisor.  
**Total Credits**  

### Concentration in ASTL: Literacy PK–12 Classroom Teachers (AP12)

This concentration includes three required literacy courses and three approved electives in ESOL, special education, psychology, secondary and elementary education, early childhood, writing, and other areas. The coursework includes theory and strategies in literacy and reading for teachers in any discipline, PK–12.

**Coursework**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRD 630</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Birth through Middle Childhood</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 631</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Adolescence Through Adulthood</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 632</td>
<td>Literacy Assessments and Interventions for Groups</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select 9 credits of electives from the following:  

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 520</td>
<td>Assessment of Language Learners</td>
<td></td>
</tr>
<tr>
<td>EDRD 633</td>
<td>Literacy Assessments and Interventions for Individuals</td>
<td></td>
</tr>
<tr>
<td>EDRD 637</td>
<td>Supervised Literacy Practicum (Must register for 3 credits)</td>
<td></td>
</tr>
<tr>
<td>EDSE 662</td>
<td>Consultation and Collaboration</td>
<td></td>
</tr>
<tr>
<td>EDSE 627</td>
<td>Assessment</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**  

### Concentration in ASTL: Secondary Mathematics Education, Grades 6-12 (AMT6)

This concentration provides advanced professional development in mathematics teaching and learning for practicing middle and high school mathematics teachers. The coursework focuses on current research in mathematics education, inquiry, technology, and a community of mathematics practice.

**Coursework**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 666</td>
<td>Research in Mathematics Teaching</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 702</td>
<td>Internship in Mathematics Education</td>
<td>3</td>
</tr>
<tr>
<td>MATH 601</td>
<td>Analysis I for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 604</td>
<td>Geometry for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 614</td>
<td>Rational Numbers and Proportional Reasoning for K-8 Teachers</td>
<td></td>
</tr>
<tr>
<td>MATH 607</td>
<td>Algebraic Structure for Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 608</td>
<td>Problem Solving in Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**  

### Concentration in ASTL: Physical Education (APED)

This concentration provides coursework in research design, curriculum development, collaborative supervision, research in pedagogy, and advanced adapted content. It is designed for practicing PE teachers seeking to improve their professional knowledge and teaching performance for improving student learning.

**Coursework**

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRS 590</td>
<td>Education Research</td>
<td>3</td>
</tr>
<tr>
<td>EDRS 623</td>
<td>Research Design and Statistical Reasoning</td>
<td></td>
</tr>
<tr>
<td>PHED 670</td>
<td>Analysis of Teaching in Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>PHED 672</td>
<td>Curriculum and Assessment in Physical Education</td>
<td>3</td>
</tr>
<tr>
<td>PHED 673</td>
<td>Motor Development for Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>PHED 680</td>
<td>Mentoring and Supervising in Physical Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select one course from the following:  

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 580</td>
<td>Laban Movement Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>
Concentration in ASTL: Science K-12 (AS12)

This concentration provides advanced professional development in science teaching and learning for practicing elementary, middle, or high school science teachers.

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 663</td>
<td>Research in Science Teaching</td>
</tr>
<tr>
<td>EDCI 670</td>
<td>Advanced Methods in Science Teaching</td>
</tr>
<tr>
<td>EDCI 671</td>
<td>Innovations in Science Teaching</td>
</tr>
<tr>
<td>EDUC 547</td>
<td>Scientific Inquiry and the Nature of Science</td>
</tr>
</tbody>
</table>

Electives

Select six credits of science coursework with advisor approval.

Total Credits 18

Concentration in ASTL: Special Education (ASPE)

This concentration provides advanced expertise for educators, administrators, and other professionals providing services to individuals with special needs. Students select one of the following areas of emphasis: applied behavior analysis; assistive technology; students with disabilities who access the adapted curriculum; students with disabilities who access the general curriculum; teaching students with autism; visual impairments.

Coursework

Applied Behavior Analysis Emphasis

Select 18 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 619</td>
<td>Applied Behavior Analysis: Principles, Procedures, and Philosophy</td>
</tr>
<tr>
<td>EDSE 621</td>
<td>Applied Behavior Analysis: Empirical Bases</td>
</tr>
<tr>
<td>EDSE 623</td>
<td>Applied Behavior Analysis: Assessments and Interventions</td>
</tr>
<tr>
<td>EDSE 624</td>
<td>Applied Behavior Analysis: Applications</td>
</tr>
<tr>
<td>EDSE 625</td>
<td>Applied Behavior Analysis: Verbal Behavior</td>
</tr>
<tr>
<td>EDSE 664</td>
<td>Ethical and Professional Conduct for Behavior Analysis</td>
</tr>
</tbody>
</table>

Total Credits 18

Assistive Technology Emphasis

Select 18 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAT 521</td>
<td>Augmentative Communication</td>
</tr>
<tr>
<td>EDAT 522</td>
<td>Assistive Technology for Individuals with Sensory Impairments</td>
</tr>
</tbody>
</table>

Total Credits 18

Students with Disabilities who Access the Adapted Curriculum Emphasis

Select 18 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 501</td>
<td>Introduction to Special Education</td>
</tr>
<tr>
<td>EDSE 502</td>
<td>Classroom Management and Applied Behavior Analysis</td>
</tr>
<tr>
<td>EDSE 531</td>
<td>Transition and Community-Based Instruction</td>
</tr>
<tr>
<td>EDSE 532</td>
<td>Positive Behavior Supports</td>
</tr>
<tr>
<td>EDSE 533</td>
<td>Curriculum and Assessment in Severe Disabilities</td>
</tr>
<tr>
<td>EDSE 534</td>
<td>Communication and Severe Disabilities</td>
</tr>
<tr>
<td>EDSE 547</td>
<td>Medical and Developmental Risk Factors for Children with Disabilities</td>
</tr>
<tr>
<td>EDSE 557</td>
<td>Foundations of Language and Literacy for Diverse Learners</td>
</tr>
<tr>
<td>EDSE 661</td>
<td>Curriculum and Methods: Severe Disabilities</td>
</tr>
<tr>
<td>EDSE 662</td>
<td>Consultation and Collaboration</td>
</tr>
<tr>
<td>EDSE 669</td>
<td>Interdisciplinary Approach for Children with Sensory and Motor Disabilities</td>
</tr>
</tbody>
</table>

Total Credits 18

Students with Disabilities who Access the General Curriculum Emphasis

Select 18 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 501</td>
<td>Introduction to Special Education</td>
</tr>
<tr>
<td>EDSE 502</td>
<td>Classroom Management and Applied Behavior Analysis</td>
</tr>
<tr>
<td>EDSE 503</td>
<td>Language Development and Reading</td>
</tr>
<tr>
<td>EDSE 540</td>
<td>Characteristics of Students with Disabilities who Access the General Curriculum</td>
</tr>
<tr>
<td>EDSE 544</td>
<td>Adapted Instructional Methods and Transition for Secondary Learners</td>
</tr>
<tr>
<td>EDSE 627</td>
<td>Assessment</td>
</tr>
<tr>
<td>EDSE 628</td>
<td>Elementary Reading, Curriculum, Strategies for Students Who Access the General Education Curriculum</td>
</tr>
<tr>
<td>EDSE 629</td>
<td>Secondary Curriculum and Strategies for Students with Disabilities who Access the General Curriculum</td>
</tr>
<tr>
<td>EDSE 662</td>
<td>Consultation and Collaboration</td>
</tr>
</tbody>
</table>

Total Credits 18
### Teaching Students with Autism Emphasis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 534</td>
<td>Communication and Severe Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 620</td>
<td>Supporting the Behavior and Sensory Needs of Individuals with Autism</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 634</td>
<td>Characteristics of Individuals with Autism</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 635</td>
<td>Interventions for Individuals with Autism</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 665</td>
<td>Families of Children with Special Needs</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One elective course (3 credits) selected from other ASTL Special Education emphases</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

### Visual Impairments Emphasis

Select 18 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAT 522</td>
<td>Assistive Technology for Individuals with Sensory Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 511</td>
<td>Characteristics of Students with Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 512</td>
<td>Braille Code</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 513</td>
<td>Medical and Educational Implications of Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 514</td>
<td>Orientation and Mobility for Students with Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 518</td>
<td>Curriculum and Assessment of Students with Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 532</td>
<td>Positive Behavior Supports</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 613</td>
<td>Teaching Methods for Students with Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 616</td>
<td>Braille Reading and Writing</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 662</td>
<td>Consultation and Collaboration</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 18

### Concentration in Assistive Technology (AT)

**Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAT 510</td>
<td>Introduction to Assistive Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 521</td>
<td>Augmentative Communication</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 522</td>
<td>Assistive Technology for Individuals with Sensory Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 523</td>
<td>Accessibility and Input Modifications</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 524</td>
<td>Universal Design for Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 525</td>
<td>Software and Mobile Applications for Individuals with Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 527</td>
<td>Assistive Technology for Independent Living and Employment</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 610</td>
<td>Designing Adapted Environments</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 649</td>
<td>Assistive Technology Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 590</td>
<td>Special Education Research</td>
<td>3</td>
</tr>
<tr>
<td>or EDIT 590</td>
<td>Educational Research in Technology</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 30

### Culturally & Linguistically Diverse & Exceptional Learners

**Concentration in Teaching Culturally and Linguistically Diverse and Exceptional Learners (TCLD)**

This concentration is designed to prepare teachers to work in highly diverse K-12 classrooms to support a variety of student needs with special emphasis on language learners. Students pursuing the MEd with this concentration must also complete a secondary certificate program to support completing initial licensure or advanced coursework in Elementary Education, English as Second Language Education, Foreign Language Education, Special Education, or Advanced International Baccalaureate Studies. The master's program also prepares international teachers interested in earning initial licensure in Elementary or English as a Second Language Education (formerly FAST TRAIN).

**Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 776</td>
<td>Consultation Collaboration in Diverse K-12 Settings</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 777</td>
<td>Research to Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 515</td>
<td>Language and Literacy in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 511</td>
<td>Child and Adolescent Development in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 30

### Assistive Technology

The Assistive Technology program prepares educators and other professionals to work with individuals with disabilities, service providers,
Early Childhood and Elementary Education

Concentration in Early Childhood Education for Diverse Learners (ECDL)

This concentration leads to a master's degree for professionals who already hold an early childhood education teacher license or are interested in working in an early childhood education context outside the classroom. Students who wish to seek Early Childhood Education, PK-3 licensure are advised to consider completing the Early Childhood Education, PK-3 Licensure certificate program in conjunction with the MEd. Students may use their certificate coursework to fulfill the elective credits for the MEd program.

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 501</td>
<td>Developmental Pathways of Diverse Learners, Birth-Adolescence</td>
<td>3</td>
</tr>
<tr>
<td>ECED 503</td>
<td>Inclusive Curriculum for Young Learners: Planning Instruction and Guidance</td>
<td>3</td>
</tr>
<tr>
<td>ECED 504</td>
<td>Engaging Families of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 511</td>
<td>Assessment of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 685</td>
<td>Applied and Teacher Research in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>or ECED 691</td>
<td>Policy Perspectives in Early Childhood Education</td>
<td></td>
</tr>
</tbody>
</table>

Electives

Select 15 credits from graduate ECED courses or courses approved by an academic advisor (p. 1407)

Total Credits 30

Concentration in Elementary Education (ELED)

This concentration and initial licensure component provides professionals with the specialized knowledge, skills, and dispositions needed to meet the educational needs of students attending today's elementary schools. Specific content and endorsement courses are required; all courses are taught in cohorts only. Two cohort models (one- or two-semester internships) provide flexibility for all students. The two-semester internship cohort begins each spring and fall semester; the one-semester internship cohort begins each summer semester. Contact the Elementary Program for additional information.

All students are required to submit and successfully complete a series of performance-based assessments. These assessments include content knowledge, pedagogical skills, and dispositions.

Grading Policy

Students enrolled in this degree program must earn a B or higher in all coursework.

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 544</td>
<td>Curriculum and Methods of Teaching in Elementary Education</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 545</td>
<td>Assessment and Differentiation</td>
<td>3</td>
</tr>
<tr>
<td>Three credits of</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>EDCI 552</td>
<td>Mathematics Methods for the Elementary Classroom</td>
<td></td>
</tr>
<tr>
<td>Three credits of</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>EDCI 553</td>
<td>Science Methods for the Elementary Classroom</td>
<td></td>
</tr>
</tbody>
</table>

EDCI 554 Methods of Teaching Social Studies and Integrating Fine Arts in the Elementary Classroom 3
EDCI 555 Literacy Teaching and Learning in Elementary Classrooms I 3
Three credits of
EDCI 556 Literacy Teaching and Learning in Diverse Elementary Classrooms II 3
EDCI 557 Integrating Technology in PreK-6 3
EDCI 559 Research and Assessment in Elementary Education 3
Six credits of
EDCI 790 Internship in Education 1
EDUC 542 Foundations of Education 3
EDUC 543 Children, Family, Culture, and Schools, 4-12 Year Olds 3

Electives

Select 6 additional credits of EDCI 790 or two courses from the following:

EDCI 516 Bilingualism and Language Acquisition Research 3
EDEP 551 Principles of Learner Motivation 3
EDEP 653 Culture and Intelligence 3
EDSE 501 Introduction to Special Education 3
EDSE 540 Characteristics of Students with Disabilities who Access the General Curriculum 3
EDSE 626 The Inclusive Classroom 3
EDUC 537 Introduction to Culturally Linguistically Diverse Learners 3

Total Credits 45

1 Year-long internship: students must register for 6 credits in the fall and 6 credits in the spring. Semester-long internship and intensive cohort: students must register for 6 credits during their internship and complete 6 credits of elective coursework.

Learning Technologies

Three concentrations with an instructional technology focus provide professionals the specialized knowledge and skills needed to apply a wide range of learning technologies to achieve educational and instructional goals in schools and communities, and in corporate, government or public settings. The concentrations combine current theoretical models and research-based practice with practical, hands-on experiences to cultivate the design of innovative and engaging learning opportunities and instructional applications using state-of-the-art technologies. The concentrations serve the various needs and interests of learning organizations and instructional technology clients including instructional design, user experience design, online learning, workplace learning, and the integration of technology in schools.

The School of Business (p. 846), in collaboration with the College of Education and Human Development, offers an 18-credit Chief Learning Officer Graduate Certificate (p. 859) that prepares Chief Learning Officers and other senior level executives for success as learning and talent development leaders. Students complete 9 credits in educational technology and nine credits of business coursework.
Concentration in Designing Digital Learning in Schools (DDLS)

Coursework

EDIT 780 Principles of School-Based Design 3
EDIT 781 Designing for Information Using 3
EDIT 782 Designing for Literacy 3
EDIT 783 Designing for Problem Solving 3
EDIT 784 Designing for Community Participation 3
EDIT 785 Designing School-Based Digital Learning 3

Total Credits 18

Emphasis

Select one of the following areas of emphasis:

ASTL Emphasis
EDUC 606 Education and Culture 3
EDUC 612 Inquiry into Practice 2
EDUC 613 How Students Learn 3
EDUC 614 Designing and Assessing Teaching and Learning 2
EDUC 615 Educational Change 2

Total Credits 12

Assistive Technology Emphasis
EDAT 510 Introduction to Assistive Technology 3
EDAT 610 Designing Adapted Environments 3

Select 6 credits from the following:

EDAT 521 Augmentative Communication
EDAT 522 Assistive Technology for Individuals with Sensory Impairments
EDAT 523 Accessibility and Input Modifications
EDAT 524 Universal Design for Learning
EDAT 525 Software and Mobile Applications for Individuals with Disabilities

Total Credits 12

Digital Learning and Teacher Leadership Emphasis
EDIT 786 Design and Teacher Leadership 3
EDIT 787 Coaching Advocacy Digital Learning 3

Three credits of

EDIT 791 Project Development Practicum I

Three credits of

EDIT 792 Project Development Practicum II

Total Credits 12

Integration of Online Learning in Schools Emphasis
EDIT 760 Online Teachers and Learners 1
EDIT 761 Models of Online Learning 2
EDIT 762 Quality K-12 Online Learning 1
EDIT 763 Tools for K-12 Online Learning 2
EDIT 764 The ART of Online Communication 3
EDIT 765 Facilitating K-12 Online Learning 2
EDIT 766 Understanding Online Presence 2

Total Credits 13

Concentration in Instructional Design and Technology (INDT)

Coursework

EDIT 590 or EDRS 590 Educational Research in Technology 3
EDIT 704 Instructional Technology Foundations and Theories of Learning 3
EDIT 705 Instructional Design 3
EDIT 706 Business of Learning Design and Technologies 3
EDIT 730 Advanced Instructional Design 3
EDIT 732 Analysis and Design of Technology-Based Learning Environments 3
EDIT 752 Design and Implementation of Technology-based Learning Environments 3
EDIT 601 Instructional Design and Technology (IDT) Portfolio 1
EDIT 701 Advanced Instructional Design and Technology (IDT) Portfolio 1

Electives

Select seven credits from any EDIT courses. (p. 1437) 7

Total Credits 30

Concentration in Blended and Online Learning in Schools (BOLS)

Coursework

EDIT 760 Online Teachers and Learners 1
EDIT 761 Models of Online Learning 2
EDIT 762 Quality K-12 Online Learning 1
EDIT 763 Tools for K-12 Online Learning 2
EDIT 764 The ART of Online Communication 3
EDIT 765 Facilitating K-12 Online Learning 2
EDIT 766 Understanding Online Presence 2
EDIT 767 Designing K-12 Online Learning 3
EDIT 768 K-12 Online Design I 1
EDIT 769 K-12 Online Design II 1

Six credits of

EDIT 791 Project Development Practicum I

Six credits of

EDIT 792 Project Development Practicum II

Total Credits 30

Literacy/Reading

A master's degree and one graduate certificate (p. 200) are available to teachers in grades K-12 who are interested in gaining additional expertise in literacy/reading instruction and leadership. Courses combine current theory with practical, hands-on experience. Literacy is also available as a specialization or secondary emphasis in the PhD in Education (p. 183) degree program.
Concentration in Literacy Leadership for Diverse Schools: K-12 Reading Specialist (LLDR)

This concentration includes a 21-credit sequence of courses in literacy/reading instruction and leadership, 3 credits in research methodology, and 9 credits in courses related to diverse learners (English as a second language [ESL], special education, or an individualized program). Completion of all requirements earns students a master’s degree in curriculum and instruction plus eligibility for K-12 Reading Specialist License. (Additional licensure requirements include 3 years of teaching under contract and a passing score on state licensure exam). Some coursework in ESL and/or special education may be applied toward add-on licenses in those areas.

Grading Policy

Students must earn a B- or higher in all licensure coursework.

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRD 630</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Birth through Middle Childhood</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 631</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Adolescence Through Adulthood</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 632</td>
<td>Literacy Assessments and Interventions for Groups</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 633</td>
<td>Literacy Assessments and Interventions for Individuals</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 634</td>
<td>School-Based Leadership in Literacy</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 635</td>
<td>School-Based Inquiry in Literacy</td>
<td>3</td>
</tr>
</tbody>
</table>

Three credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRD 637</td>
<td>Supervised Literacy Practicum</td>
</tr>
<tr>
<td>EDRS 590</td>
<td>Education Research</td>
</tr>
<tr>
<td>or EDSE 590</td>
<td>Special Education Research</td>
</tr>
</tbody>
</table>

Electives

Select three courses from the following.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAT 510</td>
<td>Introduction to Assistive Technology</td>
</tr>
<tr>
<td>EDAT 524</td>
<td>Universal Design for Learning</td>
</tr>
<tr>
<td>EDCI 510</td>
<td>Linguistics for PreK-12 ESOL Teachers</td>
</tr>
<tr>
<td>EDCI 516</td>
<td>Bilingualism and Language Acquisition Research</td>
</tr>
<tr>
<td>EDCI 519</td>
<td>Methods of Teaching Culturally Linguistically Diverse Learners</td>
</tr>
<tr>
<td>EDCI 570</td>
<td>Teaching Young Adult Literacy in a Multicultural Setting</td>
</tr>
<tr>
<td>EDSE 501</td>
<td>Introduction to Special Education</td>
</tr>
<tr>
<td>EDSE 502</td>
<td>Classroom Management and Applied Behavior Analysis</td>
</tr>
<tr>
<td>EDSE 517</td>
<td>Computer Applications for Special Populations</td>
</tr>
<tr>
<td>EDSE 540</td>
<td>Characteristics of Students with Disabilities who Access the General Curriculum</td>
</tr>
<tr>
<td>EDSE 619</td>
<td>Applied Behavior Analysis: Principles, Procedures, and Philosophy</td>
</tr>
<tr>
<td>EDSE 628</td>
<td>Elementary Reading, Curriculum, Strategies for Students Who Access the General Education Curriculum</td>
</tr>
</tbody>
</table>

Secondary Education (6–12)

The secondary education concentrations with a licensure component are designed to meet the needs of individuals who wish to be licensed or need to satisfy the requirements of a provisional license to teach at the secondary level. Specific endorsement areas are biology, chemistry, earth science, English, history and social science, mathematics, and physics. Note: only six credits (in total) may be taken as non-degree or transferred (with coordinator approval) from another accredited institution.

Grading Policy

Students enrolled in this degree program must earn a B or higher in all coursework.

Field Experience

Field experiences in public schools will be required throughout the program (a maximum of 15-30 clock hours per course or 45 clock hours per term). Arrangements will be made at the beginning of each term.

Internship Options

A 6-credit 16-week daytime internship (EDCI 790 Internship in Education) is required for completion of the state-approved licensure program.

Two options are available to meet the needs of most individuals:

- Student teaching internship: A one-term daytime internship in the classroom of a mentor teacher. Teacher candidate assumes co-teaching and independent teaching responsibilities.
- On-the-job internship: Available only to students who are employed as full-time provisionally licensed teachers and teaching in their endorsement area in an accredited middle or secondary school and want to complete a master's degree. In lieu of an internship, provisionally licensed teachers may choose to use their full-time teaching to satisfy the experience requirement for a full license; however, the 35-credit master’s degree requires that 6 credits of approved coursework be substituted for the internship.

Concentration in Secondary Education Biology (SECB)

Licensure Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td>Teaching Science in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 673</td>
<td>Advanced Methods of Teaching Science in the Secondary School</td>
<td>3</td>
</tr>
</tbody>
</table>

Six credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
</tr>
<tr>
<td>EDCI 791</td>
<td>Internship Seminar in Secondary Teaching</td>
</tr>
</tbody>
</table>

Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 629</td>
<td>Secondary Curriculum and Strategies for Students with Disabilities who Access the General Curriculum</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
</tr>
<tr>
<td>EDUC 595</td>
<td>Perspectives on Exceptl Tching</td>
</tr>
</tbody>
</table>

Total Credits 33

1 Must be taken concurrently
2 Check course descriptions for prerequisites. Substitutions must be approved by your advisor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 522</td>
<td>Foundations of Secondary Education</td>
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<tr>
<td>EDUC 672</td>
<td>Human Development and Learning: Secondary Education</td>
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**MEd Requirement**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>EDUC 675</td>
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**Electives**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>EDCI 671</td>
<td>Innovations in Science Teaching</td>
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<tr>
<td>EDEP 551</td>
<td>Principles of Learner Motivation</td>
<td></td>
</tr>
<tr>
<td>EDEP 653</td>
<td>Culture and Intelligence</td>
<td></td>
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<tr>
<td>EDSE 502</td>
<td>Classroom Management and Applied Behavior Analysis</td>
<td></td>
</tr>
<tr>
<td>EDSE 626</td>
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<td></td>
</tr>
<tr>
<td>EDUC 547</td>
<td>Scientific Inquiry and the Nature of Science</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 35

¹ Other courses may be considered with advisor approval.

### Concentration in Secondary Education Earth Science (SECS)

**Licensure Requirements**

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
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<td>EDCI 673</td>
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Six credits of

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<tr>
<td>EDRD 619</td>
<td>Literacy in Content Areas</td>
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</tr>
</tbody>
</table>

**Total Credits** 35

¹ Other courses may be considered with advisor approval.

### Concentration in Secondary Education Earth Science (SECS)

**Licensure Requirements**

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</tr>
</thead>
<tbody>
<tr>
<td>EDCI 516</td>
<td>Bilingualism and Language Acquisition Research</td>
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¹ Other courses may be considered with advisor approval.

### Concentration in Secondary Education Earth Science (SECS)

**Licensure Requirements**

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<tr>
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<tbody>
<tr>
<td>EDCI 570</td>
<td>Teaching Young Adult Literacy in a Multicultural Setting</td>
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<tbody>
<tr>
<td>EDEP 551</td>
<td>Principles of Learner Motivation</td>
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<td>Culture and Intelligence</td>
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<tr>
<td>EDIT 504</td>
<td>Introduction to Educational Technology</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 630</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Birth through Middle Childhood</td>
<td>3</td>
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<tr>
<td>EDRD 631</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Adolescence Through Adulthood</td>
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<td>Introduction to Special Education</td>
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<td>The Inclusive Classroom</td>
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<td>Advanced Methods of Teaching Social Sciences in the Secondary School</td>
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<td>EDCI 791</td>
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<tr>
<td>EDCI 516</td>
<td>Bilingualism and Language Acquisition Research</td>
<td></td>
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<tr>
<td>EDCI 519</td>
<td>Methods of Teaching Culturally Linguistically Diverse Learners</td>
<td></td>
</tr>
<tr>
<td>EDEP 551</td>
<td>Principles of Learner Motivation</td>
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</tr>
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</tr>
<tr>
<td>EDIT 572</td>
<td>Digital Audio/Video Design and Applications</td>
<td></td>
</tr>
<tr>
<td>EDIT 611</td>
<td>Innovations in e-Learning</td>
<td></td>
</tr>
<tr>
<td>EDRD 630</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Birth through Middle Childhood</td>
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<tr>
<td>EDRD 631</td>
<td>Literacy Foundations and Instruction for Diverse Populations: Adolescence Through Adulthood</td>
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<td>EDCI 572</td>
<td>Teaching Mathematics in the Secondary School</td>
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<td>EDCI 672</td>
<td>Advanced Methods of Teaching Mathematics in the Secondary School</td>
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<td>EDCI 573</td>
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</table>

Total Credits 35

1 Other courses may be considered with advisor approval.

**Concentration in Secondary Education Mathematics (SECM)**

<table>
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<td>EDIT 611</td>
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<tr>
<td>EDCI 573</td>
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<td>EDCI 791</td>
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<td>EDRD 619</td>
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Total Credits 35

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**Concentration in Secondary Education Physics (SECP)**

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</tr>
<tr>
<td>EDCI 791</td>
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<tr>
<td>EDRD 619</td>
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</table>

Total Credits 35

1 Other courses may be considered with advisor approval.
EDUC 522 Foundations of Secondary Education 3
EDUC 672 Human Development and Learning: Secondary Education 3

**MEd Requirement**

EDUC 675 Research in Secondary Education 3

**Electives**

Select nine credits from the following:

1. EDCI 671 Innovations in Science Teaching
2. EDEP 551 Principles of Learner Motivation
3. EDEP 653 Culture and Intelligence
4. EDIT 504 Introduction to Educational Technology
5. EDSE 501 Introduction to Special Education
6. EDSE 502 Classroom Management and Applied Behavior Analysis
7. EDSE 626 The Inclusive Classroom
8. EDUC 547 Scientific Inquiry and the Nature of Science

Total Credits 35

1 Other courses may be considered with advisor approval.

### Transformative Teaching

**Concentration in Transformative Teaching (TTCH)**

This concentration provides experienced school-based educators with valuable online and face-to-face professional development opportunities that help them to:

1. continually surface and rethink the routines and assumptions that shape their work in schools;
2. reflect upon their practice in the critical company of others;
3. design thoughtful and constructive responses to the obstacles that inhibit teaching and student learning;
4. develop the skills and dispositions to keep them in the classroom and in schools;
5. be leaders in their schools, in their professional associations, and in their communities around the world as civically engaged advocates for educators and students.

Experienced educators with or without a master’s degree may apply for the 30-credit master’s degree program.

#### Coursework

<table>
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<td>EDUC 649</td>
<td>Critical Dialogue in Education</td>
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<td>EDUC 651</td>
<td>Critical Theories and Pedagogies</td>
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<td>EDUC 653</td>
<td>Technology and Learning</td>
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<td>EDUC 655</td>
<td>Teacher Research Methods</td>
<td>3</td>
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<td>EDUC 657</td>
<td>Teaching for Democracy and Social Justice</td>
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<tr>
<td>EDUC 659</td>
<td>Teacher Leadership</td>
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<td>EDUC 661</td>
<td>Teacher Empowerment and Policy</td>
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<td>Culturally Relevant Pedagogy</td>
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<tr>
<td>EDUC 667</td>
<td>Teacher Inquiry in Practice II</td>
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</tbody>
</table>

Total Credits 12

### Other courses may be considered with advisor approval.

### Accelerated Master’s

**Biology, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Biology concentration)**

**Overview**

Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s program and obtain a BA (p. 619) or BS in Biology (p. 624) (degree without concentration) and an MEd in Curriculum and Instruction (concentration in secondary education biology) (p. 161) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Biology Undergraduate Program (p. 617) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

**Accelerated Option Requirements**

Students must complete the following courses in their senior year:

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<tr>
<td>Fall Semester</td>
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<tr>
<td>EDUC 573</td>
<td>Critical Reflective Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 673</td>
<td>Critical Dialogue in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 672</td>
<td>Critical Reflective Practice</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 619</td>
<td>Critical Dialogue in Education</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.
Chemistry, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Chemistry concentration)

Overview
Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s option and obtain a BA (p. 638) or BS in Chemistry (p. 643) (degree without concentration) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education chemistry) in an accelerated time frame after completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Chemistry and Biochemistry (p. 636) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Requirements
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td>3</td>
<td>EDCI 673</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Earth Science, BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Earth Science concentration)

Overview
Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s option and obtain both a BS in Earth Science (p. 604) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education earth science) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Atmospheric, Oceanic and Earth Sciences (p. 599) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Requirements
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td>3</td>
<td>EDCI 673</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

English, BA or Creative Writing, BFA/Curriculum and Instruction, Accelerated MEd (Secondary Education English concentration)

Overview
Highly-qualified Mason undergraduates may be admitted to the bachelor’s/accelerated master’s option and obtain both a BA in English (p. 359) or a BFA in Creative Writing (p. 351) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education English) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of English (p. 350) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).
This accelerated option is offered jointly by the Department of English (p. 350) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 569</td>
<td>3</td>
<td>EDCI 669</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
<td><strong>6</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Integrative Studies, BA (Social Science for Education Concentration)/Curriculum and Instruction, Accelerated MEd (Secondary Education History and Social Science Concentration)

Overview
Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s option and obtain both a BA in Integrative Studies (p. 574) (concentration in social science for education) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education history and social science) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the School of Integrative Studies (p. 564) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 567</td>
<td>3</td>
<td>EDCI 667</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
<td><strong>6</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

**Physics, BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Physics concentration)**

**Overview**
Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s program and obtain both a BS in Physics (p. 731) and an MEd in Curriculum and Instruction (p. 161), Secondary Education Physics Concentration in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Mathematical Sciences (p. 707) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

**Accelerated Option Requirements**
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### Total Credits 12

Alternative course options are available for students who begin their program in the spring. Students should contact the coordinator for the Bachelor’s/Accelerated Master’s Degree program in the College of Education and Human Development.
Bachelor's Degree (any)/Curriculum and Instruction, Accelerated MEd (Early Childhood Education for Diverse Learners Concentration)

Overview
Highly-qualified undergraduates may be admitted to the bachelor's/accelerated master's program and obtain either a BA or BS in any degree area and an MEd in Curriculum and Instruction, (Early Childhood Education for Diverse Learners concentration) in an accelerated time-frame after completion of 159 credits. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program.

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program) on the College of Education and Human Development website.

Accelerated Option Requirements
Students complete up to 12 credits of ECED courses in their senior year (p. 1407).

<table>
<thead>
<tr>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
</tr>
</tbody>
</table>

While undergraduate students, accelerated master's students are able to apply two of the courses taken above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor's/Accelerated Master's Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Bachelor's Degree (any)/Curriculum and Instruction, Accelerated MEd (Elementary Education Concentration)

Overview
Highly-qualified undergraduates may be admitted to the bachelor's/accelerated master's option and obtain either a BA or BS in any degree area and an MEd in Curriculum and Instruction, (Elementary Education concentration) in an accelerated time-frame after satisfactory completion of 159 credits. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this option.

Students in an accelerated degree option must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's option, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program) on the College of Education and Human Development website.

Accelerated Option Requirements
Required Courses
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 542</td>
<td>Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 543</td>
<td>Children, Family, Culture, and Schools, 4-12 Year Olds</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 544</td>
<td>Curriculum and Methods of Teaching in Elementary Education</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 555</td>
<td>Literacy Teaching and Learning in Diverse Elementary Classrooms I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

While undergraduate students, accelerated master's students are able to apply two of the courses listed above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor's/Accelerated Master's Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Data-Driven Decision-Making for Continuous Educational Improvement Graduate Certificate

Banner Code: E1-CERG-DDDM

Academic Advising
Phone: 703-993-3679
Email: khowe1@gmu.edu
Website: gse.gmu.edu/educational-psychology/academics/data-driven-decision-making-for-continuous-educational-improvement-graduate-certificate

This 12-credit online certificate prepares teachers, building-level and district-level leaders to create, analyze and interpret a variety of student performance assessments in order to improve instruction and student learning. The four carefully-sequenced courses for the certificate focus on developing meaningful teacher-created and classroom-based student assessments, interpreting both informal and formal assessment data, and using those data in making curricular decisions. Practicing teachers and other school leaders have the opportunity to apply assessment and decision-making skills to their own classrooms or schools. Credits earned for the certificate may be applied toward the Educational Psychology, MS (p. 185).
This graduate certificate may only be pursued on a part-time basis.

### Admissions & Policies

#### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

#### Certificate Requirements

Total credits: 12

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 591</td>
<td>Data-Driven Decision Making for Continuous Educational Improvement</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 592</td>
<td>Data-Driven Decision-Making: Development of Assessments</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 593</td>
<td>Data-Driven Decision Making: Analysis and Interpretation of Assessment Data</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 594</td>
<td>Data-Driven Decision-Making Application in Education Contexts</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

---

### Designing Digital Learning in Schools Graduate Certificate

**Banner Code**: E1-CERG-DDLS

**Academic Advising**

Phone: 703-993-3798  
Email: LearnTech@gmu.edu  
Website: learntech.gmu.edu/learning-technologies-schools/degree-options/digital-learning-in-schools-graduate-certificate

This certificate is offered to practicing teachers who wish to gain the necessary knowledge and skills for integrating digital learning and K–12 curricular knowledge outcomes. The certificate is framed by four learning outcomes: investigation of the theory and practice of digital learning, connection of digital learning and knowledge outcomes, use of design principles and processes to inform practice, and knowledge of a range of technologies appropriate for PreK-12 learners.

The graduate certificate may only be pursued on a part-time basis.

#### Admissions & Policies

#### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

#### Certificate Requirements

Total credits: minimum 15

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIT 786</td>
<td>Design and Teacher Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDIT 787</td>
<td>Coaching Advocacy Digital Learning</td>
<td>3</td>
</tr>
<tr>
<td>Three credits of</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>EDIT 790</td>
<td>Practicum in Instructional Technology</td>
<td>3</td>
</tr>
<tr>
<td>or EDIT 780</td>
<td>Principles of School-Based Design</td>
<td></td>
</tr>
<tr>
<td>EDIT 791</td>
<td>Project Development Practicum I</td>
<td>1-6</td>
</tr>
</tbody>
</table>
Dual Licensure Early Childhood Education PK-3 and Early Childhood Special Education Graduate Certificate

Banner Code: E1-CERG-ECPS

Academic Advising
Phone: 703-993-3844
Email: earlyed@gmu.edu
Website: gse.gmu.edu/early-childhood/academics/dual-licensure-early-childhood-special-education?_ga=1.87013400.1890918952.1459866939

This 48-credit hour certificate offers required coursework for teacher licensure in Early Childhood Education PK-3 and Early Childhood Special Education.

This graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Policies

Students who have completed graduate or undergraduate coursework prior to admission to this graduate certificate may request that some required courses be waived based on prior coursework. Students who are eligible to waive coursework must complete a minimum of 15 credits to graduate. A grade of B- or better must be earned in all coursework.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 48

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 501</td>
<td>Developmental Pathways of Diverse Learners, Birth-Adolescence</td>
<td>3</td>
</tr>
<tr>
<td>ECED 502</td>
<td>Foundations of Language and Literacy for Diverse Prekindergarten and Kindergarten Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 503</td>
<td>Inclusive Curriculum for Young Learners: Planning Instruction and Guidance</td>
<td>3</td>
</tr>
<tr>
<td>ECED 504</td>
<td>Engaging Families of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 505</td>
<td>Introduction to Early Childhood Special Education</td>
<td>3</td>
</tr>
<tr>
<td>ECED 506</td>
<td>Medical and Developmental Aspects of Disabilities of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 511</td>
<td>Assessment of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 512</td>
<td>Language and Literacy Assessment and Instruction for Diverse Primary Grade Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 513</td>
<td>Integrating Social Studies Across the Content Areas for Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 515</td>
<td>Mathematics for Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 516</td>
<td>Science for Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 522</td>
<td>Developing Language, Literacy, and Communication of Diverse Infants and Toddlers</td>
<td>3</td>
</tr>
<tr>
<td>ECED 523</td>
<td>Early Intervention for Infants Toddlers with Disabilities: Collaborative Consultative Approaches</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following course pairings:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 788</td>
<td>Internship in Early Childhood Education Prekindergarten-Third Grade and Internship with Diverse Infants and Toddlers</td>
<td>3</td>
</tr>
<tr>
<td>ECED 791</td>
<td>Internship in Early Childhood Special Education Birth - Five and Internship in Kindergarten - Third Grade</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 48

E-Learning Graduate Certificate

Banner Code: E1-CERG-ELRN

Academic Advising
Phone: 703-993-3798
Email: LearnTech@gmu.edu
Website: learntech.gmu.edu/instructional-design-technology/academics/elearning-graduate-certificate

This 15-credit certificate provides professionals with specialized knowledge in instructional design and e-learning practices that utilize current and emerging technologies to meet education and training goals in schools, communities, government agencies, and corporate settings. Courses are available online to meet the needs of students who find it difficult to attend our face-to-face courses.

The graduate certificate in e-learning may be pursued on a full-time or part-time basis.

Admissions & Policies

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 15
Coursework
EDIT 611  Innovations in e-Learning  3
EDIT 705  Instructional Design  3
EDIT 706  Business of Learning Design and Technologies  3
Total Credits  9

Electives
E-Learning electives are offered for variable credit each semester and cover industry-standard commercial and open source software tools.
Select 6 credits from the following:
EDIT 526  Web Accessibility and Design  3
EDIT 530  Scripting and Programming  3
EDIT 571  Visual Design and Applications  3
EDIT 572  Digital Audio/Video Design and Applications  3
EDIT 573  Project Management  3
EDIT 574  Social Media and Digital Collaboration Applications  3
EDIT 575  e-Learning Design Applications  3
EDIT 576  Mobile Learning and Applications  3
EDIT 771  Overview of Digital Media  3
EDIT 772  Virtual Worlds, Augmented Reality, and Gaming Applications  3
Total Credits  6

ESOL Education (PK-12) for Practitioners Graduate Certificate
Banner Code: E1-CERG-ESEP
Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/english-as-a-second-language-esol-education-for-practitioners-graduate-certificate
This certificate prepares educators for both domestic and international teaching assignments working with culturally and linguistically-diverse learners. It provides courses for licensed teachers to earn an add-on endorsement in English as a second language (ESL) PK-12, also known as English for speakers of other languages (ESOL). Candidates whose first language is not English may be required to pass an oral and written proficiency assessment in English to meet state licensure requirements and national professional standards.
The graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions
Prerequisite for Admission
Six credits of a modern foreign language (p. 414)

Requirements
Certificate Requirements
Total credits: 21
Students must earn a B or higher in all coursework.
Coursework
EDCI 510  Linguistics for PreK-12 ESOL Teachers  3
EDCI 516  Bilingualism and Language Acquisition Research  3
EDCI 519  Methods of Teaching Culturally Linguistically Diverse Learners  3
EDCI 520  Assessment of Language Learners  3
EDRD 515  Language and Literacy in Global Contexts  3
EDRD 610  Content Literacy for English Language Learners, PK-12  3
EDUC 537  Introduction to Culturally Linguistically Diverse Learners  3
Total Credits  21

Early Childhood Education PK-3 (Licensure) Graduate Certificate
Banner Code: E1-CERG-EPK3
Academic Advising
Phone: 703-993-3844
Email: earlyed@gmu.edu
Website: gse.gmu.edu/early-childhood/academics/graduate-certificate-early-childhood-education-pk3-licensure
This 33-credit hour certificate offers required coursework for teacher licensure in Early Childhood Education PK-3.
This certificate may be pursued on a part-time or full-time basis.
This certificate qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Early_Childhood_Education_PK_3/Gedt.html).

Admissions & Policies

Policies
Students who have completed equivalent graduate or undergraduate coursework prior to enrollment may request that some courses in this
Early Childhood Education for Diverse Learners Minor

This 15-credit minor provides undergraduate students with background knowledge in Early Childhood Education for Diverse Learners. Completing this minor partially fulfills requirements for licensure in Early Childhood Education, PK-3 and Early Childhood Special Education in Virginia.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 15

Coursework

| ECED 401 | Developmental Pathways of Diverse Learners, Birth-Adolescence | 3 |
| ECED 402 | Foundations of Language and Literacy for Diverse Prekindergarten and Kindergarten Learners | 3 |
| ECED 403 | Inclusive Curriculum for Young Learners: Planning Instruction and Guidance | 3 |
| ECED 404 | Engaging Families of Diverse Young Learners | 3 |
| ECED 411 | Assessment of Diverse Young Learners | 3 |
| ECED 412 | Language and Literacy Assessment and Instruction for Diverse Primary Grade Learners | 3 |
| ECED 413 | Integrating Social Studies Across the Content Areas for Diverse Young Learners | 3 |
| ECED 415 | Mathematics for Diverse Young Learners | 3 |
| ECED 416 | Science for Diverse Young Learners | 3 |
| Select one from the following: | | 6 |
| ECED 790 & ECED 795 | Internship with Diverse Preschool Children and Internship in Kindergarten - Third Grade | |
| ECED 788 | Internship in Early Childhood Education Prekindergarten-Third Grade | |

Total Credits 15

Early Childhood Special Education (Licensure) Graduate Certificate

Banner Code: E1-CERG-SPEC

Academic Advising

Phone: 703-993-3844
Email: earlyed@gmu.edu
Website: gse.gmu.edu/early-childhood/academics/graduate-certificate-early-childhood-special-education-licensure

This certificate offers required coursework for teacher licensure in Early Childhood Special Education.

This graduate certificate may be pursued on a part-time or full-time basis.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Early_Childhood_Special_Education/Gedt.html).

Admissions & Policies

Policies

Students who have completed graduate or undergraduate coursework prior to admission to this graduate certificate may request that required courses be waived based on prior coursework. Students who are eligible to waive coursework must complete a minimum of 15 credits to graduate with the Early Childhood Special Education Graduate Certificate.
Certificate Requirements

Total credits: 33

Students enrolled in this certificate must earn a B- or higher in all coursework.

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 501</td>
<td>Developmental Pathways of Diverse Learners, Birth-Adolescence</td>
<td>3</td>
</tr>
<tr>
<td>ECED 502</td>
<td>Foundations of Language and Literacy for Diverse Prekindergarten and Kindergarten Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 503</td>
<td>Inclusive Curriculum for Young Learners: Planning Instruction and Guidance</td>
<td>3</td>
</tr>
<tr>
<td>ECED 504</td>
<td>Engaging Families of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 505</td>
<td>Introduction to Early Childhood Special Education</td>
<td>3</td>
</tr>
<tr>
<td>ECED 506</td>
<td>Medical and Developmental Aspects of Disabilities of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 511</td>
<td>Assessment of Diverse Young Learners</td>
<td>3</td>
</tr>
<tr>
<td>ECED 522</td>
<td>Developing Language, Literacy, and Communication of Diverse Infants and Toddlers</td>
<td>3</td>
</tr>
<tr>
<td>ECED 523</td>
<td>Early Intervention for Infants Toddlers with Disabilities: Collaborative Consultative Approaches</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 791</td>
<td>Internship with Diverse Infants and Toddlers and Internship in Preschool Early Childhood Special Education</td>
</tr>
<tr>
<td>&amp; ECED 793</td>
<td></td>
</tr>
<tr>
<td>ECED 789</td>
<td>Internship in Early Childhood Special Education Birth - Five</td>
</tr>
</tbody>
</table>

Total Credits 33

Admissions & Policies

Requirements

Certificate Requirements

Total credits: 24

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLE 610</td>
<td>Leading Schools and Communities</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 612</td>
<td>Education Law</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 614</td>
<td>Managing Financial and Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 616</td>
<td>Curriculum Development and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 618</td>
<td>Supervision and Evaluation of Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 620</td>
<td>Organizational Theory and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 690</td>
<td>Using Research to Lead School Improvement</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 791</td>
<td>Internship in Educational Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 24

Education Leadership Graduate Certificate

Banner Code: E1-CERG-EDLE

Academic Advising

Phone: 703-993-3633
Email: edleprog@gmu.edu
Website: gse.gmu.edu/education-leadership/academics/education-leadership-graduate-certificate

This certificate, a state-approved (Virginia) sequence of courses leading to the Administration and Supervision PreK-12 endorsement area, is designed for educators who already hold a valid teaching license and already have a master’s degree from a regionally accredited university.

The program emphasizes an understanding of the complexities of change in schools, communities, and organizations. Participants are expected to develop and demonstrate the knowledge, skills, and dispositions necessary to create and maintain learning environments that value diversity, continual knowledge acquisition, instructional leadership, innovative and ethical decision-making, reflective practice, and successful achievement of all school-aged youth.

This graduate certificate may be pursued on a part-time or full-time basis and may be added as a secondary program of study by current Mason students who meet the admission requirements and are enrolled in non-licensure graduate programs. This certificate option is available to students enrolled in the Education Leadership program and not in the Education Leadership with Special Education Concentration (SELE).

Education Leadership, MEd

Banner Code: E1-MED-EDLE

Academic Advising

Phone: 703-993-3633
Email: edleprog@gmu.edu
Website: gse.gmu.edu/education-leadership/academics/masters-in-education-education-leadership

This 30-credit master’s degree (24-credit licensure component and 6 additional credits) prepares candidates for leadership and management positions in a variety of educational settings. The program emphasizes an understanding of the complexities of change in schools, communities, and organizations. Participants are expected to develop and demonstrate the knowledge, skills, and dispositions necessary to create and maintain learning environments that value diversity, continual knowledge acquisition, instructional leadership, innovative and ethical decision-making, reflective practice, and successful achievement of all school-aged youth.
acquisition, instructional leadership, innovative and ethical decision making, reflective practice, and successful achievement of all school-aged youth.

### Requirements

#### Degree Requirements

**Total credits: 30**

**MEd without concentration**

**Licensure Requirements**

Students must earn a B- or better in all licensure coursework which is a prerequisite to the remaining MEd requirements.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLE 610</td>
<td>Leading Schools and Communities</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 612</td>
<td>Education Law</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 614</td>
<td>Managing Financial and Human Resources</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 616</td>
<td>Curriculum Development and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 618</td>
<td>Supervision and Evaluation of Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 620</td>
<td>Organizational Theory and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 690</td>
<td>Using Research to Lead School Improvement</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 791</td>
<td>Internship in Educational Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 24

1 The internship is integral to the MEd and provides an opportunity to synthesize and apply the knowledge and practice the skills identified in the Educational Leadership Constituency Consortium Standards through substantial, sustained work in educational settings.

**MEd Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLE 634</td>
<td>Contemporary Issues in Education Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 636</td>
<td>Adult Motivation and Conflict Management in Education Settings: A Case Study Approach</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 6

**MEd with concentration in Independent School Leadership (non-licensure) (ISL)**

This concentration is a non-licensure path within the Education Leadership program with a focus on the unique leadership and instructional needs of directors, heads of schools, and other professionals responsible for the growth and management of independent and private schools. Like other candidates in the Education Leadership program, students will develop and demonstrate the knowledge, skills, and dispositions necessary to create and maintain learning environments that value diversity, instructional leadership, innovative and ethical decision-making, reflective practice, and the successful achievement of all students, with an emphasis on the independent school context.

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLE 610</td>
<td>Leading Schools and Communities</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 612</td>
<td>Education Law</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 614</td>
<td>Managing Financial and Human Resources</td>
<td>3</td>
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<tr>
<td>EDLE 616</td>
<td>Curriculum Development and Evaluation</td>
<td>3</td>
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<tr>
<td>EDLE 618</td>
<td>Supervision and Evaluation of Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 620</td>
<td>Organizational Theory and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 690</td>
<td>Using Research to Lead School Improvement</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 792</td>
<td>Internship in Independent School Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 30

**MEd with concentration in Mathematics Specialist Leader (K–8) (MSLR)**

This concentration is designed for working professionals. Students study mathematics content and pedagogy, teaching, curriculum and professional development. They also explore school-based leadership issues in mathematics education. The internship is an individual experience designed and developed in consultation with a faculty advisor or mentor. This program includes all coursework required for Virginia state licensure as a K-8 mathematics specialist. Students must earn a B- or higher in all licensure coursework. Students who apply for this licensure must have three years of successful teaching experience in addition to the MEd degree.

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 644</td>
<td>Mathematics Learning and Assessment (K-8)</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 645</td>
<td>Curriculum Development in Mathematics Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Three credits of**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 646</td>
<td>Mathematics Education Leadership for School Change</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 666</td>
<td>Research in Mathematics Teaching</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 702</td>
<td>Internship in Mathematics Education</td>
<td>3</td>
</tr>
<tr>
<td>MATH 610</td>
<td>Number Systems and Number Theory for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 611</td>
<td>Geometry and Measurement for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 612</td>
<td>Probability and Statistics for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 613</td>
<td>Algebra and Functions for K-8 Teachers</td>
<td>3</td>
</tr>
<tr>
<td>MATH 614</td>
<td>Rational Numbers and Proportional Reasoning for K-8 Teachers</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 30

**MEd with concentration in Special Education Leadership (SELE)**

This concentration (24-credit licensure component and 6 additional credits) is designed to provide training for educators who administer program implementation efforts for learners with exceptional needs. It is appropriate for those who have an interest in becoming special education directors, program coordinators, school building administrators, department chairs, or lead teachers; however, opportunities beyond special education also exist.
Licensure Requirements
Students must earn a B- or higher in all licensure coursework.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDLE 612</td>
<td>Education Law</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 618</td>
<td>Supervision and Evaluation of Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 620</td>
<td>Organizational Theory and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 791</td>
<td>Internship in Educational Leadership</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 690</td>
<td>Using Research to Lead School Improvement</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 702</td>
<td>Managing Resources for Special Education Programs</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 703</td>
<td>Creating a Collaborative Culture</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 743</td>
<td>Leadership in Special Education Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 24

MEd Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 701</td>
<td>Legal Issues and Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 744</td>
<td>Current Issues in Special Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Electives
Select four courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDIT 413</td>
<td>Technology, Society, and the Culture of Learning</td>
<td>12-13</td>
</tr>
<tr>
<td>EDLE 412</td>
<td>Schools and the Law</td>
<td>3</td>
</tr>
<tr>
<td>EDLE 420</td>
<td>Organization and Management of Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 303</td>
<td>Politics of American Education</td>
<td>3</td>
</tr>
<tr>
<td>INTS 312</td>
<td>Images and Experiences of Childhood: Social Construct, Literature, and Film (must register for 3 credits)</td>
<td>12-13</td>
</tr>
<tr>
<td>or INTS 316</td>
<td>Introduction to Childhood Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12-13

Education and Human Development, PhD (title change pending SCHEV approval)

Banner Code: E1-PHD-EDHD

Academic Advising
Phone: 703-993-2011
Email: jstahle@gmu.edu
Website: gse.gmu.edu/phd-in-education/

Note: As of catalog publication in April, the title for this program (formerly known as Education, PhD) has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia. Check the college/school website for current program title status.

This program is designed to advance professional study to develop research-informed expertise in a selected field of professional education. As a program of doctoral study, it emphasizes theory and research as much as it does practice, breadth of study as much as depth, and process as well as knowledge. It seeks to develop both knowledge and the skills useful in educational roles as well as the abilities to analyze and respond to problems in their relationships to various educational concerns.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18-19

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 300</td>
<td>Introduction to Teaching</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 382</td>
<td>Education in Contemporary Society</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study. See Graduate Admissions Policies (p. 66).

Eligibility and Application Requirements
Admission is highly-selective and applicants must fulfill all admission requirements: a minimum of three years of successful experience as a practitioner in an educational setting, baccalaureate and master's (or equivalent) degrees from accredited institutions, demonstrated high intellectual capability and leadership potential, three letters of recommendation and GRE general test scores including the writing assessment.

For more information, call the PhD Office at 703-993-2011. Completed applications must be submitted by January 15 for fall admission,
Education and Human Development, PhD (title change pending SCHEV approval)

by October 1 for spring admission. To apply, see Graduate Admissions (https://www2.gmu.edu/admissions-aid/how-apply/graduate).

Policies
For policies governing all doctoral degrees, see AP.6.10 Requirements for Doctoral Degrees (p. 92).

Program of Study
A written program of study which lists all courses required to complete the program is used to verify that students have met all requirements at graduation. If changes are made in the program of study after its approval, the changes must be made in writing and submitted to the Office of the University Registrar with the Advancement to Candidacy paperwork.

Reduction of Credit
Students must have a master’s degree before being admitted to the PhD. As such, admitted students will receive a reduction of 9 credits.

Requirements
Degree Requirements
Total credits: 75

Program Advisory Committee
Students choose a program advisory committee of three George Mason University faculty members prior to the end of their second semester. It is chaired by the student’s major advisor who represents the student’s primary specialization. One member must represent the student’s secondary emphasis. The major functions of this committee include assessing the student’s goals, interests and academic needs, approving the program of study, monitoring the student’s progress through the program and evaluating the student’s three portfolio reviews.

Core Requirements
General Culture
EDUC 800 Ways of Knowing 3

Total Credits 3

Research Methods
EDRS 810 Problems and Methods in Education Research 3
EDRS 811 Quantitative Methods in Educational Research 3
EDRS 812 Qualitative Methods in Educational Research 3
Select two from the following: 6
EDRS 818 Critical Discourse Analysis in Education Research
EDRS 820 Evaluation Methods for Educational Programs and Curricula
EDRS 821 Advanced Applications of Quantitative Methods
EDRS 822 Advanced Applications of Qualitative Methods
EDRS 823 Advanced Research Methods in Single Subject/Case Design

EDRS 824 Mixed Methods Research: Integrating Qualitative and Quantitative Approaches
EDRS 825 Advanced Research Methods in Self-Study of Professional Practice
EDRS 826 Qualitative Case Study Methods
EDRS 827 Introduction to Measurement and Survey Development
EDRS 828 Item Response Theory
EDRS 830 Hierarchical Linear Modeling
EDRS 831 Structural Equation Modeling
EDRS 832 Document Analysis and Archival Research
EDRS 897 Special Topics in Research Methods
Total Credits 15

Reduction of Credits
Students receive a reduction of 9 credits based on their earned Master’s degree.

Total Credits 9

Portfolio Review
All students are required to create electronic portfolios to define academic and professional goals; formulate specific plans to achieve those goals through coursework, research experiences, and field-based activities; demonstrate growth in understanding the specializations and how knowledge in them is advanced through inquiry; synthesize and reflect upon the process and results of learning activities; modify goals and plans as needed based on academic and reflective self-evaluation as well as feedback from the student’s Program Advisory Committee and demonstrate readiness to proceed to the dissertation phase of the program.

The first portfolio review must be completed when 18 credits have been completed or before the end of the third semester. The second portfolio review must be scheduled at the completion of 36 credit hours. When students complete the coursework phase of the program, a final meeting is held with the Program Advisory Committee. This meeting is the context for conducting the comprehensive portfolio assessment, a formal evaluation of a student’s readiness to proceed to the dissertation phase of the program which is analogous to the traditional doctoral comprehensive exam.

Primary Specialization
Professional specializations include: early childhood education, education leadership, education policy, educational psychology, exercise, fitness and health promotion, higher education, international education, learning technologies design research, literacy and reading, mathematics or science education leadership, multilingual/multicultural education, research methodology, science education research, special education, and teaching and teacher education.

Students select course work based on their area of specialization. They may choose EDUC 994 and EDUC 890 to broaden their professional expertise. These internships must be taken in a setting that differs from the student’s work setting, and includes 100 clock hours of work.

Total Credits 18-24
Secondary Specialization

Students may develop a secondary specialization from coursework offered within CEHD or coursework offered within other Mason units, in consultation with their advisor.¹

Total Credits: 3-18

¹ In some situations, students can receive a reduction of 9 additional credits from their master's toward fulfillment of the secondary specialization requirement if their master's degree area of study is not the same as their doctoral specialization area and it aligns with their program of study. Students make this decision in consultation with their program advisory committee members. Students who do not receive this additional credit reduction must take at least 12 credits in the secondary specialization area.

Dissertation Proposal and Research

Advancement to Candidacy

Upon successful completion of all coursework and the comprehensive portfolio assessment, students are advanced to candidacy and enroll in EDUC 998 Doctoral Dissertation Proposal.

Dissertation

Once enrolled in EDUC 998 Doctoral Dissertation Proposal, students must maintain continuous registration in at least 1 credit; once enrolled in EDUC 999 Doctoral Dissertation Research, students must follow the university continuous registration policy as specified in AP.6.10.6 Dissertation Registration (p. 93).

Minimum 12 credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 998</td>
<td>Doctoral Dissertation Proposal</td>
<td>1</td>
</tr>
<tr>
<td>EDUC 999</td>
<td>Doctoral Dissertation Research</td>
<td>2</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

¹ Students must register for 3 credits the first semester enrolled in EDUC 998 Doctoral Dissertation Proposal. Students preparing their proposal must register for 1 credit each semester thereafter until the proposal has been successfully defended.

² Students must register for 3 or 6 credits the first semester enrolled in EDUC 999 Doctoral Dissertation Research and must register for at least 1 credit thereafter until all work has been completed including the semester in which the degree is conferred.

Educational Psychology Minor

Banner Code: EDP

This 19-credit minor is available to all Mason undergraduate students and provides students a grounding in topics related to human growth and development, cognition, learning and instruction, motivation, measurement, and research methods.

Requirements

Minor Requirements

Total credits: 19

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 350</td>
<td>Perspectives on Achievement Motivation</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 302</td>
<td>Human Growth and Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Educational Psychology, MS

Banner Code: E1-MS-EDP

Academic Advising

Phone: 703-993-3679
Email: khowe1@gmu.edu
Website: gse.gmu.edu/educational-psychology/

This master's program is designed to offer professionals and students the opportunity to apply principles of learning, cognition, and motivation to vital problems in the area of education; develop a solid understanding of research, assessment, and evaluation methodologies; and develop an analytical and scholarly approach to critically assessing theoretical perspectives, research, and practice within and across content domains. By participating in a supportive and collegial environment with faculty from numerous educational disciplines and expertise, students are expected to develop the skills to meet the needs of diverse populations and design and implement effective educational programs appropriate for a broad range of cultural contexts.

Admissions & Policies

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements

Total credits: 30

Students must complete a minimum of 30 credits in one of four concentrations. Each concentration offers students the option of a thesis or a project to fulfill the research requirement.
**Concentration in Assessment, Evaluation, and Testing (EDPA)**

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRS 531</td>
<td>Educational and Psychological Measurement</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 798</td>
<td>Directed Inquiry in Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or EDEP 799</td>
<td>Thesis in Educational Psychology</td>
<td></td>
</tr>
</tbody>
</table>

Select two from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 597</td>
<td>Special Topics in Educational Psychology (must register for 3 credits)</td>
<td>1</td>
</tr>
<tr>
<td>EDRS 630</td>
<td>Educational Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDRS 631</td>
<td>Program Evaluation</td>
<td>3</td>
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</tbody>
</table>

Total Credits 12

1. Topic must focus on research methodology assessment, evaluation, and/or testing.

**Educational Psychology Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 550</td>
<td>Theories of Learning and Cognition</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 551</td>
<td>Principles of Learner Motivation</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 632</td>
<td>Human Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

**Research Methodology Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRS 590</td>
<td>Education Research</td>
<td>3</td>
</tr>
<tr>
<td>EDRS 620</td>
<td>Quantitative Inquiry in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDRS 621</td>
<td>Qualitative Inquiry in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

---

**Concentration in Learning, Cognition, and Motivation (EDPL)**

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 798</td>
<td>Directed Inquiry in Educational Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or EDEP 799</td>
<td>Thesis in Educational Psychology</td>
<td></td>
</tr>
<tr>
<td>EDRS 531</td>
<td>Educational and Psychological Measurement</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
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<td>Special Topics in Educational Psychology (must register for 3 credits)</td>
<td>1</td>
</tr>
<tr>
<td>EDEP 653</td>
<td>Culture and Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 654</td>
<td>Learning, Motivation, and Self-Regulation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

1. Topic must focus on Learning, Cognition, and Motivation.

**Educational Psychology Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td>Theories of Learning and Cognition</td>
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<td>Principles of Learner Motivation</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 632</td>
<td>Human Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

**Research Methodology Core**

<table>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>Education Research</td>
<td>3</td>
</tr>
<tr>
<td>EDRS 620</td>
<td>Quantitative Inquiry in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDRS 621</td>
<td>Qualitative Inquiry in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

---

**Concentration in Teacher Preparation (EDPT)**

Individuals pursuing the Educational Psychology, MS Concentration in Teacher Preparation must be admitted into one of the following teacher licensure certificate programs prior to completion of MS coursework: English as a Second Language (p. 187), Secondary Education (p. 202), Students with Disabilities who Access the General Curriculum (p. 210), Students with Disabilities who Access the Adapted Curriculum (p. 209), or Visual Impairments (p. 211). Students apply three courses (9 credits) from the certificate towards the MS degree in educational psychology with the expectation that they will complete the teacher certification program.

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 550</td>
<td>Theories of Learning and Cognition</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 551</td>
<td>Principles of Learner Motivation</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 539</td>
<td>Human Development and Learning PK-12</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

---

**Educational Psychology Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 550</td>
<td>Theories of Learning and Cognition</td>
<td>3</td>
</tr>
<tr>
<td>EDEP 551</td>
<td>Principles of Learner Motivation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9
or EDUC 672  Human Development and Learning: Secondary Education

Total Credits 9

Research Methodology Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRS 590</td>
<td>Education Research 3</td>
</tr>
<tr>
<td>EDRS 620</td>
<td>Quantitative Inquiry in Education 3</td>
</tr>
<tr>
<td>EDRS 621</td>
<td>Qualitative Inquiry in Education 3</td>
</tr>
</tbody>
</table>

Total Credits 9

Accelerated Master’s

Bachelor's Degree (any)/Educational Psychology, Accelerated MS

Overview

Qualified Mason undergraduates may be admitted to a bachelor's/accelerated master's program and obtain a BA or BS in any degree area and an Educational Psychology, MS within an accelerated time frame in one of the following three concentrations:

- Assessment, Evaluation and Testing (EDPA)
- Learning and Decision-Making in Leadership (EDPD)
- Learning, Cognition and Motivation (EDPL)

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing accelerated programs, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Application Requirements

Applicants to all GMU graduate programs must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Additionally, applicants must have an overall GPA of at least 3.00. See the Accelerated Master’s Admissions (https://www2.gmu.edu/admissions-aid/how-apply/accelerated-masters) webpage to apply.

Accelerated Option Requirements

Concentration in Assessment, Evaluation and Testing (EDPA)

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 550</td>
<td>3</td>
<td>EDEP 551</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDRS 590</td>
<td>3</td>
<td>EDRS 620</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Learning and Decision-Making in Leadership (EDPD)

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 550</td>
<td>3</td>
<td>EDEP 551</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDRS 590</td>
<td>3</td>
<td>EDRS 620</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Learning, Cognition, and Motivation (EDPL)

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 550</td>
<td>3</td>
<td>EDEP 551</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDRS 590</td>
<td>3</td>
<td>EDRS 620</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

English as a Second Language (ESL/ESOL)/Special Education Graduate Certificate

Banner Code: E1-CERG-ELSE

Academic Advising

Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/english-as-a-second-language-special-education-graduate-certificate

This certificate offers coursework for students and professionals seeking crossover training in ESL/ESOL and special education.

The graduate certificate may only be pursued on part-time basis.

Admissions & Policies

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 18

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 516</td>
<td>Bilingualism and Language Acquisition Research</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 519</td>
<td>Methods of Teaching Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 520</td>
<td>Assessment of Language Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 501</td>
<td>Introduction to Special Education</td>
<td>3</td>
</tr>
<tr>
<td>or EDSE 540</td>
<td>Characteristics of Students with Disabilities who Access the General Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 503</td>
<td>Language Development and Reading</td>
<td>3</td>
</tr>
</tbody>
</table>
Select one from the following: 3
EDSE 626 The Inclusive Classroom
EDSE 628 Elementary Reading, Curriculum, Strategies for Students Who Access the General Education Curriculum
EDSE 629 Secondary Curriculum and Strategies for Students with Disabilities who Access the General Curriculum

Total Credits 18

Foreign Language: Arabic Licensure Graduate Certificate

Banner Code: E1-CERG-ARAL

Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/foreign-language-licensure-graduate-certificate/arabic

This certificate is designed to provide an interdisciplinary, theory-based course of study for initial licensure candidates and provisionally-licensed teachers. It is intended to assist students in developing a reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions
Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 27

Students must earn a B or higher in all coursework.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 516</td>
<td>Bilingualism and Language Acquisition Research</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 520</td>
<td>Assessment of Language Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 560</td>
<td>Methods of Teaching in Foreign/World Languages</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 684</td>
<td>Advanced Methods of Teaching Foreign/Second Languages in PK-12 Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 620</td>
<td>Reading/Writing in Foreign/World Languages</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 511</td>
<td>Child and Adolescent Development in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

Internship Options
A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

Code | Title | Credits
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6

Both elementary and secondary school placements are required. Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
- On-the-Job Internship: Available only to students who are employed as full-time foreign language teachers who are teaching the certificate language in an accredited school.

Foreign Language: Chinese Licensure Graduate Certificate

Banner Code: E1-CERG-CHNL

Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/foreign-language-licensure-graduate-certificate/chinese

This certificate is designed to provide an interdisciplinary, theory-based course of study for initial licensure candidates and provisionally-licensed teachers. It is intended to assist students in developing a reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.
Certificate Requirements

Total credits: 27

Students must earn a B or higher in all coursework.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 516</td>
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<td>3</td>
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<td>3</td>
</tr>
<tr>
<td>EDCI 684</td>
<td>Advanced Methods of Teaching Foreign/Second Languages in PK-12 Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 620</td>
<td>Reading/Writing in Foreign/World Languages</td>
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<td>3</td>
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</tbody>
</table>

Total Credits 21

Internship Options

A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6

This graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions

Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 27

Students must earn a B or higher in all coursework.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
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<td>3</td>
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</tbody>
</table>

Total Credits 21

Internship Options

A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

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<th>Code</th>
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<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6

This graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions

Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 27

Students must earn a B or higher in all coursework.

Required Courses

<table>
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<tr>
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<th>Title</th>
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</tr>
<tr>
<td>EDRD 620</td>
<td>Reading/Writing in Foreign/World Languages</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 511</td>
<td>Child and Adolescent Development in Global Contexts</td>
<td>3</td>
</tr>
</tbody>
</table>

Foreign Language: French Licensure Graduate Certificate

Banner Code: E1-CERG-FRNL

Academic Advising

Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/foreign-language-licensure-graduate-certificate/french

This certificate is designed to provide an interdisciplinary, theory-based course of study for initial licensure candidates and provisionally-licensed teachers. It is intended to assist students in developing a reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions

Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 27

Students must earn a B or higher in all coursework.

Required Courses

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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<td>Assessment of Language Learners</td>
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<tr>
<td>EDCI 560</td>
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<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

Internship Options

A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6

Both elementary and secondary school placements are required. Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
- On-the-Job Internship: Available only to students who are employed as full-time foreign language teachers who are teaching the certificate language in an accredited school.
EDUC 537  Introduction to Culturally Linguistically Diverse Learners  3

Total Credits  21

Internship Options
A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits  6

Both elementary and secondary school placements are required. Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
- On-the-Job Internship: Available only to students who are employed as full-time foreign language teachers who are teaching the certificate language in an accredited school.

Foreign Language: German Licensure Graduate Certificate

Banner Code: E1-CERG-GRML

Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/foreign-language-licensure-graduate-certificate/german

This certificate is designed to provide an interdisciplinary, theory-based course of study for initial licensure candidates and provisionally-licensed teachers. It is intended to assist students in developing a reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions
Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Certificate Requirements
Total credits: 27
Students must earn a B or higher in all coursework.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 516</td>
<td>Bilingualism and Language Acquisition Research</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 520</td>
<td>Assessment of Language Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 560</td>
<td>Methods of Teaching Foreign/World Languages</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 684</td>
<td>Advanced Methods of Teaching Foreign/Second Languages in PK-12 Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 620</td>
<td>Reading/Writing in Foreign/World Languages</td>
<td>3</td>
</tr>
<tr>
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<td>Child and Adolescent Development in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits  21

Internship Options
A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits  6

Both elementary and secondary school placements are required. Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
- On-the-Job Internship: Available only to students who are employed as full-time foreign language teachers who are teaching the certificate language in an accredited school.

Foreign Language: Japanese Licensure Graduate Certificate

Banner Code: E1-CERG-JPNL

Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/foreign-language-licensure-graduate-certificate/japanese

This certificate is designed to provide an interdisciplinary, theory-based course of study for initial licensure candidates and provisionally-licensed teachers. It is intended to assist students in developing a
reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions
Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 27

Students must earn a B or higher in all coursework.

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Bilingualism and Language Acquisition Research</td>
<td>3</td>
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<td>EDCI 520</td>
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<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

Internship Options
A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6

Both elementary and secondary school placements are required. Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.

- On-the-Job Internship: Available only to students who are employed as full-time foreign language teachers who are teaching the certificate language in an accredited school.

Foreign Language: Korean Licensure Graduate Certificate

Banner Code: E1-CERG-KRNL

Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/foreign-language-licensure-graduate-certificate/korean

This certificate is designed to provide an interdisciplinary, theory-based course of study for initial licensure candidates and provisionally-licensed teachers. It is intended to assist students in developing a reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions
Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 27

Students must earn a B or higher in all coursework.

Required Courses

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</tr>
<tr>
<td>EDRD 620</td>
<td>Reading/Writing in Foreign/World Languages</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6
Foreign Language: Latin Licensure Graduate Certificate

**Requirements**

### Certificate Requirements

Total credits: 27

Students must earn a B or higher in all coursework.

#### Required Courses

<table>
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<tr>
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<tbody>
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</tbody>
</table>

Total Credits: 21

#### Internship Options

A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

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<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
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</tr>
</tbody>
</table>

Total Credits: 6

Both elementary and secondary school placements are required. Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
- On-the-Job Internship: Available only to students who are employed as full-time foreign language teachers who are teaching the certificate language in an accredited school.

---

Foreign Language: Spanish Licensure Graduate Certificate

Banner Code: E1-CERG-SPNL

**Admissions & Policies**

**Admissions**

Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

**Policies**

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

This certificate is designed to provide an interdisciplinary, theory-based course of study for initial licensure candidates and provisionally-licensed teachers. It is intended to assist students in developing a reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.
reflective stance toward practice and to enhance their ability to address critical issues in language and learning. It also intends to advance their fundamental understanding about language, technology, pedagogy, and culture, as well as issues related to diversity in schools and in society at large.

This graduate certificate may be pursued on a full-time or part-time basis.

**Admissions & Policies**

**Admissions**
Praxis Core or equivalent and demonstrated proficiency in the certificate language are prerequisites for admission.

**Policies**
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

**Requirements**

**Certificate Requirements**
Total credits: 27

Students must earn a B or higher in all coursework.

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
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<tbody>
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<tr>
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<td>Introduction to Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

**Internship Options**
A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

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</thead>
<tbody>
<tr>
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<td>Internship in Education</td>
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</tr>
</tbody>
</table>

Total Credits 6

Both elementary and secondary school placements are required. Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
- On-the-Job Internship: Available only to students who are employed as full-time foreign language teachers who are teaching the certificate language in an accredited school.

**Geographic and Environmental Science Education (non-licensure) Graduate Certificate**

**Banner Code:** E1-CERG-GESE

**Academic Advising**
Website: gse.gmu.edu/secondary-education-6-12/academics/secondary-education-geographic-environmental-science-education-graduate-certificate

This 15 to 16 credit non-licensure certificate is designed to provide students who have a background in the sciences with greater content knowledge in the geographic and environmental sciences as well as effective methods in teaching science. For those with an undergraduate degree in teaching, students focus on the principles and fundamental topics of geography, environment, pedagogy, instruction of these sciences as well as hands-on experience and current tools and methods in science education research. This certificate is designed for teachers, scientists, public officials, field naturalists, environmental interpreters, and others having responsibility for educating or informing people about the environment and its geography.

This graduate certificate may be pursued on a part-time or full-time basis.

**Admissions & Policies**

**Policies**
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

**Requirements**

**Certificate Requirements**
Total credits: 15-16

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 670</td>
<td>Advanced Methods in Science Teaching</td>
<td>3</td>
</tr>
<tr>
<td>GGS 550</td>
<td>Geospatial Science Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

**Electives**
Students with an undergraduate degree in pedagogy must take at least two science electives, and students with an undergraduate degree in science must take at least two science education electives.

Select a minimum of three courses from the following:

<table>
<thead>
<tr>
<th>Science Electives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 500 Computational Science Tools</td>
</tr>
<tr>
<td>EVPP 521 Marine Conservation</td>
</tr>
<tr>
<td>EVPP 543 Tropical Ecosystems</td>
</tr>
</tbody>
</table>
Gifted Child Education Graduate Certificate

Banner Code: E1-CERG-AGCE

Academic Advising
Phone: 703-993-3173
Email: astl@gmu.edu
Website: gse.gmu.edu/advanced-teaching-studies/academics/gifted

This certificate is designed for professionals who are interested in working with gifted children. Students completing this certificate fulfill the requirements for add-on endorsement in gifted education for currently-licensed teachers.

This graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 21

Coursework
EDCI 621 Introduction to Gifted and Talented Learners 3
EDCI 622 Curriculum Differentiation for Diverse Learners 3
EDCI 623 Models and Strategies for Teaching Gifted Learners 3
EDCI 624 Assessment, Identification, and Evaluation of Gifted Learners 3
EDCI 625 Contemporary Issues and Trends in Gifted Education 3
EDCI 626 Action Research in Gifted Education 3
EDCI 627 Advanced Practicum in Gifted Education 3

Total Credits 21

1 One year of successful full-time teaching in an accredited public or non-public school may be accepted in lieu of the EDCI 627 Advanced Practicum in Gifted Education (VA Licensure Regulations for School Personnel, 1998).

Human Development and Family Science Minor

Banner Code: HDFS

Academic Advising
Phone: 703-993-5076
Email: bletiecq@gmu.edu
Website: hdfs.gmu.edu/human-development-family-science/minor

This 15-credit interdisciplinary minor is available to all Mason undergraduate students and provides background knowledge in human development and family science, specifically addressing how diverse children and adults develop, adapt, and function within the contexts of their families, communities and society.

This minor is a joint program with coursework selected from both the College of Education and Human Development (CEHD) and the College of Humanities and Social Sciences (p. 295).

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15

Core Course
HDFS 200 Individual and Family Development 3
HDFS 400 Advanced Family Processes (Mason Core) (p. 135) 3

Total Credits 6

Electives
Select at least one course from each of the two component areas (development and diversity) below
A third elective may be selected from any component or with permission of an HDFS advisor

Total Credits 9

To reflect the interdisciplinary nature of the HDFS minor, two courses must have prefixes from disciplines outside of your major area of study (e.g., for PSYC majors, two courses must come from CEHD prefixes: ATEP (p. 1183), ECED (p. 1407), EDUC (p. 1424), HEAL (p. 1605), PHED
(p. 1825); for ECED majors, two courses must come from CHSS prefixes: ANTH (p. 1119), INTS (p. 1668), PSYC (p. 1844), SOCI (p. 1923)).

**Development**
Select at least one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 401</td>
<td>Developmental Pathways of Diverse Learners, Birth-Adolescence</td>
</tr>
<tr>
<td>EDUC 302</td>
<td>Human Growth and Development</td>
</tr>
<tr>
<td>INTS 312</td>
<td>Images and Experiences of Childhood: Social Construct, Literature, and Film</td>
</tr>
<tr>
<td>INTS 316</td>
<td>Introduction to Childhood Studies</td>
</tr>
<tr>
<td>INTS 319</td>
<td>Contemporary Youth Studies</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 313</td>
<td>Child Development</td>
</tr>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
</tr>
<tr>
<td>SOCI 360</td>
<td>Youth Culture and Society</td>
</tr>
</tbody>
</table>

**Diversity**
Select at least one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ANTH 315</td>
<td>Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective</td>
</tr>
<tr>
<td>ATEP 205</td>
<td>Cultural Competence</td>
</tr>
<tr>
<td>ECED 405</td>
<td>Introduction to Early Childhood Special Education</td>
</tr>
<tr>
<td>EDUC 203</td>
<td>Disability in American Culture (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HEAL 350</td>
<td>Interventions for Populations and Communities at Risk</td>
</tr>
<tr>
<td>INTS 320</td>
<td>Construction of Differences: Race, Class, and Gender</td>
</tr>
<tr>
<td>INTS 336</td>
<td>Poverty, Wealth and Inequality in the US</td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
</tr>
<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

**Human Development and Family Science, BA**

Banner Code: E1-BA-HDFS

Academic Advising
Phone: 703-993-5076
Email: bletiecq@gmu.edu
Website: hdfs.gmu.edu/human-development-family-science

This degree prepares its graduates to use family-centered and strengths-based approaches to support the health and well-being of individuals and families in diverse communities. Graduates will have a strong interdisciplinary foundation in the HDFS field and competencies in 10 areas as established by the National Council on Family Relations, including:

- internal dynamics of relationships and families
- human growth and development
- family-and community-based program planning, implementation, and evaluation
- social policies and laws affecting families
- family diversity
- research methodology
- professional ethics as related to the HDFS field

The HDFS curriculum prepares students to effectively engage with families across the lifespan and in a variety of service settings and professions, from early childhood education and care to family law and policy advocacy. We offer students 5 concentrations, including:

- child development, education, and services
- adolescent development and services
- adult development and aging
- family health and well-being
- family research, policy, and advocacy

Our program prepares students to critically analyze complex family issues, advocate for families in schools, communities, and in the policy arena, and address social-structural factors contributing to and influencing family functioning, health, and well-being (e.g., poverty and wealth inequality, immigration and illegalization, family homelessness, incarceration, family violence, and discrimination and structural violence such as racism, nationalism, or heterosexism). Students are required to complete a 6-credit internship and integrate research training with service fieldwork. Such an experience is a critical component of HDFS student development and will further prepare our students for graduate education and diverse careers in the human development and family science field.

The HDFS program is a joint academic degree program sponsored by the College of Education and Human Development (CEHD) (p. 154) and the College of Humanities and Social Sciences (CHSS) (p. 295).

**Requirements**

**Degree Requirements**
Total credits: minimum 120

**Mason Core**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication</td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>Information Technology and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>3</td>
</tr>
<tr>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>Arts</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization/World History</td>
<td>3</td>
</tr>
<tr>
<td>Social and Behavioral Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science</td>
<td>7</td>
</tr>
<tr>
<td>Synthesis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 40

**Additional Requirements for the BA**

One PHIL or one RELI course: 3
Philosophy (PHIL) (p. 1818)
Religious Studies (RELI) (p. 1904)
Social and behavioral sciences course (p. 142)  
Non-Western culture  
Proficiency in a foreign language through the intermediate level (coursework or testing to determine proficiency)  

| Total Credits | 9-18 |

This requirement is additional to the Mason Core social and behavioral sciences (p. 142) requirement.

### Major Requirements

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
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<tbody>
<tr>
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<td>Developmental Pathways of Diverse Learners, Birth-Adolescence</td>
</tr>
<tr>
<td>or PSYC 313</td>
<td>Child Development</td>
</tr>
<tr>
<td>ECED 404</td>
<td>Engaging Families of Diverse Young Learners</td>
</tr>
<tr>
<td>or INTS 321</td>
<td>Parent-Child Relations</td>
</tr>
<tr>
<td>HDFS 200</td>
<td>Individual and Family Development</td>
</tr>
<tr>
<td>HDFS 250</td>
<td>Family Financial Literacy and Resource Management</td>
</tr>
<tr>
<td>HDFS 300</td>
<td>Individual and Family Services Delivery</td>
</tr>
<tr>
<td>HDFS 400</td>
<td>Advanced Family Processes (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>
| HDFS 401 | Family Law and Public Policy  
| HDFS 498 | Internship and Analysis in Human Development and Family Science |
| HDFS 499 | Advanced Internship Analysis in Human Development and Family Science |
| SOCI 303 | Methods and Logic of Inquiry |
| or PSYC 301 | Research Methods in Psychology |
| Select one from the following: | 3 |
| PSYC 415 | Psychological Factors in Aging |
| HHS 432 | Healthy Aging |
| SOCI 341 | Sociology of Aging |
| Total Credits | 33 |

### Concentration in Adolescent Development and Services (ADS)

Select 15 credits from the following or in consultation with your advisor:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 315</td>
<td>Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective</td>
</tr>
<tr>
<td>COMM 334</td>
<td>Family and Health Communication</td>
</tr>
<tr>
<td>CRIM 302</td>
<td>Delinquency</td>
</tr>
<tr>
<td>CRIM 405</td>
<td>Law and Justice around the World (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>EDEP 402</td>
<td>Brain, Behavior, and Neuroimaging in Children</td>
</tr>
<tr>
<td>EDEP 405</td>
<td>The Neuroscience of Learning and Cognition</td>
</tr>
<tr>
<td>EDRD 301</td>
<td>Facilitating Literacy in School or Community Settings</td>
</tr>
<tr>
<td>HDFS 301</td>
<td>The Hospitalized Child and Family</td>
</tr>
<tr>
<td>INTS 312</td>
<td>Images and Experiences of Childhood: Social Construct, Literature, and Film</td>
</tr>
<tr>
<td>INTS 314</td>
<td>Conflict, Trauma and Healing</td>
</tr>
<tr>
<td>INTS 316</td>
<td>Introduction to Childhood Studies</td>
</tr>
<tr>
<td>INTS 317</td>
<td>Issues in Family Relationships</td>
</tr>
<tr>
<td>INTS 319</td>
<td>Contemporary Youth Studies</td>
</tr>
<tr>
<td>INTS 436</td>
<td>Social Justice Education</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 304</td>
<td>Principles of Learning</td>
</tr>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 466</td>
<td>Psychology of Intimate Relationships</td>
</tr>
<tr>
<td>SOCI 300</td>
<td>Social Control and Freedom</td>
</tr>
<tr>
<td>SOCI 302</td>
<td>Sociology of Delinquency</td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
</tr>
<tr>
<td>SOCI 309</td>
<td>Marriage, Families, and Intimate Life</td>
</tr>
<tr>
<td>SOCI 310</td>
<td>Sociology of Deviance</td>
</tr>
<tr>
<td>SOCI 360</td>
<td>Youth Culture and Society</td>
</tr>
<tr>
<td>SOCW 415</td>
<td>Child and Family Welfare</td>
</tr>
<tr>
<td>WMST 303</td>
<td>Psychology of Women</td>
</tr>
<tr>
<td>WMST 308</td>
<td>Introduction to Lesbian, Gay, Bisexual, Transgender, Transsexual, and Queer Studies</td>
</tr>
<tr>
<td>Total Credits</td>
<td>15</td>
</tr>
</tbody>
</table>

Other courses of interest may be approved by the program coordinator.

### Concentration in Adult Development and Aging (ADA)

Select 15 credits from the following or in consultation with your advisor:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 334</td>
<td>Family and Health Communication</td>
</tr>
<tr>
<td>COMM 399</td>
<td>Special Topics in Communication</td>
</tr>
<tr>
<td>EDUC 203</td>
<td>Disability in American Culture (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GCH 480</td>
<td>Health Maintenance and Health Aspects of Aging</td>
</tr>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
</tr>
<tr>
<td>HAP 403</td>
<td>Assisted Living/Senior Housing Management and Philosophy</td>
</tr>
<tr>
<td>HAP 445</td>
<td>Introduction to Health Services Research</td>
</tr>
<tr>
<td>HAP 463</td>
<td>Aging and Health Care Policy</td>
</tr>
<tr>
<td>HEAL 220</td>
<td>Dimensions of Mental Health</td>
</tr>
<tr>
<td>HEAL 310</td>
<td>Drugs and Health</td>
</tr>
<tr>
<td>HEAL 327</td>
<td>Women's Health</td>
</tr>
<tr>
<td>HEAL 331</td>
<td>Men's Health</td>
</tr>
<tr>
<td>HEAL 351</td>
<td>Relationship Health</td>
</tr>
<tr>
<td>HEAL 372</td>
<td>Health Communication</td>
</tr>
<tr>
<td>HHS 432</td>
<td>Healthy Aging</td>
</tr>
</tbody>
</table>
### Concentration in Child Development, Education, and Services (CDES)

Select 15 credits from the following or in consultation with your advisor:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 315</td>
<td>Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective</td>
</tr>
<tr>
<td>COMM 334</td>
<td>Family and Health Communication</td>
</tr>
<tr>
<td>ECED 402</td>
<td>Foundations of Language and Literacy for Diverse Prekindergarten and Kindergarten Learners</td>
</tr>
<tr>
<td>ECED 403</td>
<td>Inclusive Curriculum for Young Learners: Planning Instruction and Guidance</td>
</tr>
<tr>
<td>ECED 405</td>
<td>Introduction to Early Childhood Special Education</td>
</tr>
<tr>
<td>ECED 406</td>
<td>Medical and Developmental Aspects of Disabilities of Diverse Young Learners</td>
</tr>
<tr>
<td>ECED 422</td>
<td>Developing Language, Literacy, and Communication of Diverse Infants and Toddlers</td>
</tr>
<tr>
<td>ECED 423</td>
<td>Early Intervention for Infants Toddlers with Disabilities: Collaborative Consultative Approaches</td>
</tr>
<tr>
<td>EDEP 402</td>
<td>Brain, Behavior, and Neuroimaging in Children</td>
</tr>
<tr>
<td>EDEP 405</td>
<td>The Neuroscience of Learning and Cognition</td>
</tr>
</tbody>
</table>

**Total Credits**: 15

1 Other courses of interest may be approved by the program coordinator.

### Concentration in Family Health and Well-Being (FHW)

Select 15 credits from the following or in consultation with your advisor:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 334</td>
<td>Family and Health Communication</td>
</tr>
<tr>
<td>EDUC 203</td>
<td>Disability in American Culture (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GCH 300</td>
<td>Introduction to Public Health</td>
</tr>
<tr>
<td>GCH 310</td>
<td>Health Behavior Theories</td>
</tr>
<tr>
<td>GCH 332</td>
<td>Health and Disease</td>
</tr>
<tr>
<td>GCH 350</td>
<td>Health Promotion and Education</td>
</tr>
<tr>
<td>GCH 445</td>
<td>Social Determinants of Health</td>
</tr>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
</tr>
<tr>
<td>HAP 445</td>
<td>Introduction to Health Services Research</td>
</tr>
<tr>
<td>HEAL 110</td>
<td>Personal Health</td>
</tr>
<tr>
<td>HEAL 220</td>
<td>Dimensions of Mental Health</td>
</tr>
<tr>
<td>HEAL 230</td>
<td>Introduction to Health Behavior (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HEAL 310</td>
<td>Drugs and Health</td>
</tr>
<tr>
<td>HEAL 325</td>
<td>Health Aspects of Human Sexuality</td>
</tr>
<tr>
<td>HEAL 327</td>
<td>Women's Health</td>
</tr>
<tr>
<td>HEAL 331</td>
<td>Men's Health</td>
</tr>
<tr>
<td>HEAL 351</td>
<td>Relationship Health</td>
</tr>
<tr>
<td>HEAL 372</td>
<td>Health Communication</td>
</tr>
<tr>
<td>INTS 314</td>
<td>Conflict, Trauma and Healing</td>
</tr>
<tr>
<td>INTS 316</td>
<td>Introduction to Childhood Studies</td>
</tr>
<tr>
<td>INTS 317</td>
<td>Issues in Family Relationships</td>
</tr>
<tr>
<td>INTS 319</td>
<td>Contemporary Youth Studies</td>
</tr>
<tr>
<td>INTS 410</td>
<td>Contemporary Health Issues</td>
</tr>
<tr>
<td>INTS 440</td>
<td>Conflict, Trauma and Healing</td>
</tr>
<tr>
<td>INTS 317</td>
<td>Issues in Family Relationships</td>
</tr>
<tr>
<td>INTS 410</td>
<td>Contemporary Health Issues</td>
</tr>
<tr>
<td>INTS 440</td>
<td>Death, Dying, and Decision Making</td>
</tr>
<tr>
<td>NUTR 422</td>
<td>Nutrition throughout the Life Cycle</td>
</tr>
</tbody>
</table>
PSYC 379 Applied Cross-Cultural Psychology (Mason Core) (p. 135)
PSYC 418 Death, Dying, and Grieving
PSYC 466 Psychology of Intimate Relationships
SOCI 308 Race and Ethnicity in a Changing World
SOCI 309 Marriage, Families, and Intimate Life
SOCI 355 Social Inequality (Mason Core) (p. 135)
SOCI 390 Sociology of Health, Illness, and Disability
WMST 300 Current Issues in Women and Gender Studies
WMST 303 Psychology of Women
WMST 308 Introduction to Lesbian, Gay, Bisexual, Transgender, Transsexual, and Queer Studies

Total Credits 15

1 Other courses of interest may be approved by the program coordinator.

Concentration in Family Research, Policy, and Advocacy (FRPA)
Select 15 credits from the following or in consultation with your advisor:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 220</td>
<td>Introduction to Law and Society</td>
</tr>
<tr>
<td>CRIM 405</td>
<td>Law and Justice around the World (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GCH 376</td>
<td>Health Ethics, Leadership, and Advocacy</td>
</tr>
<tr>
<td>GOVT 301</td>
<td>Public Law and the Judicial Process</td>
</tr>
<tr>
<td>GOVT 318</td>
<td>Interest Groups, Lobbying, and the Political Process</td>
</tr>
<tr>
<td>GOVT 353</td>
<td>Social Entrepreneurship</td>
</tr>
<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
</tr>
<tr>
<td>GOVT 366</td>
<td>Public Policy Analysis</td>
</tr>
<tr>
<td>GOVT 407</td>
<td>Law and Society</td>
</tr>
<tr>
<td>GOVT 414</td>
<td>Politics of Race and Gender</td>
</tr>
<tr>
<td>GOVT 427</td>
<td>Feminist Political Thought</td>
</tr>
<tr>
<td>GOVT 445</td>
<td>Human Rights</td>
</tr>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
</tr>
<tr>
<td>HAP 312</td>
<td>Healthcare Law</td>
</tr>
<tr>
<td>HAP 442</td>
<td>Introduction to Health Care Politics and Policy</td>
</tr>
<tr>
<td>HAP 445</td>
<td>Introduction to Health Services Research</td>
</tr>
<tr>
<td>INTS 302</td>
<td>Argument and Advocacy</td>
</tr>
<tr>
<td>INTS 317</td>
<td>Issues in Family Relationships</td>
</tr>
<tr>
<td>INTS 337</td>
<td>Social Justice Consciousness and Personal Transformation</td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
</tr>
<tr>
<td>INTS 405</td>
<td>Women and Leadership</td>
</tr>
<tr>
<td>PSYC 362</td>
<td>Psychology of Gender</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 466</td>
<td>Psychology of Intimate Relationships</td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
</tr>
<tr>
<td>SOCI 309</td>
<td>Marriage, Families, and Intimate Life</td>
</tr>
</tbody>
</table>

Total Credits 15

Electives
Select 14-23 credits of electives

International ESOL Education (PK-12) Licensure Graduate Certificate

Banner Code: E1-CERG-INEL

Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/international-esol-education-licensure-certificate

This certificate offers coursework leading to teacher licensure (Virginia) in English as a Second Language. Candidates whose first language is not English may be required to pass an oral and written proficiency assessment in English to meet state licensure requirements and national professional standards.

This graduate certificate may be pursued on part-time or full-time basis.

Admissions & Policies

Admissions
Pre-requisite for Admission
• Praxis Core or equivalent.
• Six credits of a modern foreign language. Coursework may be taken at either the graduate or undergraduate level and does not count towards meeting the total credit hour requirement for the certificate.

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).
### Certificate Requirements

#### Total credits: 30

Students must earn a B or higher in all coursework.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 510 Linguistics for PreK-12 ESOL Teachers</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 516 Bilingualism and Language Acquisition Research</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 519 Methods of Teaching Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 520 Assessment of Language Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 790 Internship in Education</td>
<td>6</td>
</tr>
<tr>
<td>EDRD 515 Language and Literacy in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 610 Content Literacy for English Language Learners, PK-12</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 511 Child and Adolescent Development in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 537 Introduction to Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits:** 30

#### Internship Options

A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program. Both elementary and secondary school placements are required.

- **EDCI 790 Internship in Education**

Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
- On-the-Job Internship: Available only to students who are employed as full-time ESOL teachers and are teaching in an accredited school.

### International Elementary Education (PK-6) Licensure Graduate Certificate

**Banner Code:** E1-CERG-IEEL

**Academic Advising**

Phone: 703-993-3173  
Email: mme@gmu.edu  
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/international-elementary-education-certificate

This certificate offers coursework leading to teacher licensure (Virginia) in Elementary Education PK-6. The certificate prepares educators for international teaching assignments. Additionally, this certificate prepares students who wish to teach in International Baccalaureate (IB) schools worldwide by integrating IB curriculum into the licensure coursework. Students completing the licensure requirements may take EDUC 621 Teaching and Learning in the International Baccalaureate Program as an additional course to become eligible for the International Baccalaureate Certificate in Teaching and Learning through the IB. The coursework may be completed in the part-time evening program or during the summer intensive program.

This graduate certificate may be pursued on a full-time or part-time basis.

### Admissions & Policies

#### Admissions

**Prerequisites for Admission**

- Praxis Core or equivalent
- Must be within 9 credits of completion of elementary education endorsements

#### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Certificate Requirements

#### Total credits: 27

Students must earn a B or higher in all coursework.

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRD 515 Language and Literacy in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 511 Child and Adolescent Development in Global Contexts</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 512 Teaching Elementary Social Studies in International Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 513 Teaching Elementary Math in International Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 514 Teaching Elementary Science in International Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 516 Language Across the Elementary International School Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 520 Elementary Curriculum, Instruction, and Assessment in International Schools</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits:** 27

#### Internship Options

A six-credit, 15-week daytime internship is required for completion of the state-approved licensure program.

- **EDCI 790 Internship in Education**

Two options are available to meet the needs of most individuals:

- Placement Internship: One semester, daytime internship in the classroom of a cooperating teacher. Intern assumes co-teaching and independent teaching responsibilities.
• On-the-job Internship: Available only to students who are employed as full-time international elementary teachers and are teaching in an accredited international school.

International Special Education (PK-12) Graduate Certificate

Banner Code: E1-CERG-ISED

Academic Advising
Phone: 703-993-3173
Email: mme@gmu.edu
Website: gse.gmu.edu/teaching-culturally-diverse-exceptional-learners/master-concentration/international-special-education-graduate-certificate

This certificate is designed for pre-service and in-service international teachers and educators who desire additional training in special education. All coursework may be applied to the MED in Special Education (p. 207) and will count towards Virginia licensure in special education K-12.

This graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 15

Coursework
Students must earn grades of B or higher in all coursework. Most coursework has some field experience component.

- EDCI 776 Consultation Collaboration in Diverse K-12 Settings 3
- EDSE 501 Introduction to Special Education 3
- EDSE 502 Classroom Management and Applied Behavior Analysis 3
- EDSE 540 Characteristics of Students with Disabilities who Access the General Curriculum 3
- EDSE 627 Assessment 3
Total Credits 15

Literacy: K-12 Reading Specialist Graduate Certificate

Banner Code: E1-CERG-LTRS

Academic Advising
Phone: 703-993-7611
Email: literacy@gmu.edu
Website: gse.gmu.edu/literacy-and-reading/academics/literacy-reading-specialist-graduate-certificate

This certificate, a state-approved (Virginia) sequence of courses leading to reading specialist licensure, is designed for teachers who have a master's degree. Coursework includes foundational knowledge, instructional and assessment strategies for individuals and groups, and preparation as a literacy coach and staff developer. Licensure also requires a master's degree, passing the state licensing exam, and three years of teaching under contract.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 21

Coursework
Students enrolled in this program must earn a B- or higher in all coursework.

- EDRD 630 Literacy Foundations and Instruction for Diverse Populations: Birth through Middle Childhood 3
- EDRD 631 Literacy Foundations and Instruction for Diverse Populations: Adolescence Through Adulthood 3
- EDRD 632 Literacy Assessments and Interventions for Groups 3
- EDRD 633 Literacy Assessments and Interventions for Individuals 3
- EDRD 634 School-Based Leadership in Literacy 3
- EDRD 635 School-Based Inquiry in Literacy 3
Three credits of 3
- EDRD 637 Supervised Literacy Practicum
Total Credits 21

Mild Disabilities Minor

Banner Code: MDIS

Academic Advising
Phone: 703-003-3287
Email: speced@gmu.edu
Website: gse.gmu.edu/special-education/academics/undergraduate-minor-mild-disabilities
This minor provides undergraduate students with background knowledge in mild disabilities. Completing this minor partially fulfills requirements for licensure in Special Education in Virginia.

Admissions & Policies

Policies
At least eight credits must be unique to this minor and may not be used to fulfill requirements of the student’s major, concentration, an undergraduate certificate, or another minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15

Coursework
EDSE 401 Introduction to Special Education 3
EDSE 402 Classroom Management and Applied Behavior Analysis 3
EDSE 403 Language Development and Reading 3
EDSE 428 Elementary Reading, Curriculum, Strategies for Students Who Access the General Education Curriculum 3
EDSE 440 Characteristics of Students with Disabilities Who Access the General Curriculum 3

Total Credits 15

Qualitative Research Graduate Certificate
Banner Code: E1-CERG-QR
Website: https://gse.gmu.edu/academics/masters-degree-and-graduate-certificate

This graduate certificate provides supplemental preparation for qualitative researchers in higher education and policy organizations. Coursework is interdisciplinary and will provide theoretical and applied research training across case study, ethnography, grounded theory, mixed methods, narrative inquiry, and participatory action research.

The graduate certificate in qualitative research may be pursued only on a part-time basis.

Admissions and Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).
Secondary Education Licensure Graduate Certificate

• a minimum cumulative GPA of 3.00
• passing scores on the Virginia Department of Education (VDOE) prescribed entry assessment
• an official College of Education and Human Development review of discipline-specific content competencies coursework (note: a minimum grade of C (2.00) must have been attained in such coursework completed at Mason).

See website (https://cehd.gmu.edu/teacher/think-you-want-to-be-a-teacher) for more information on the admissions process.

Prior to application for internship, students are required to complete all discipline-specific content competency (https://cehd.gmu.edu/endorse) requirements, pass licensure assessments, and have earned a grade of B (3.00) or better in all licensure coursework.

Requirements

Certificate Requirements

Total credits: 38

Discipline-Specific Content Competencies Coursework

Coursework is additional to discipline-specific content competencies coursework satisfied with the core requirements of the English major (p. 360).

Literature

Select one American literature course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklife</td>
</tr>
<tr>
<td>ENGH 340</td>
<td>Early American Literature</td>
</tr>
<tr>
<td>ENGH 341</td>
<td>Literature of the American Renaissance</td>
</tr>
<tr>
<td>ENGH 343</td>
<td>Development of the American Novel to 1914</td>
</tr>
<tr>
<td>ENGH 344</td>
<td>Development of the American Novel since 1914</td>
</tr>
<tr>
<td>ENGH 345</td>
<td>American Drama of the 20th Century</td>
</tr>
<tr>
<td>ENGH 346</td>
<td>American Poetry of the 20th Century</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 350</td>
<td>African American Literature Through 1946</td>
</tr>
<tr>
<td>ENGH 351</td>
<td>Contemporary African American Literature</td>
</tr>
<tr>
<td>ENGH 355</td>
<td>Recent American Fiction</td>
</tr>
<tr>
<td>ENGH 356</td>
<td>Recent American Poetry</td>
</tr>
<tr>
<td>ENGH 442</td>
<td>Topics: American Literary Periods</td>
</tr>
</tbody>
</table>

Select one British literature course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 320</td>
<td>Literature of the Middle Ages</td>
</tr>
<tr>
<td>ENGH 321</td>
<td>English Poetry and Prose of the 16th Century</td>
</tr>
<tr>
<td>ENGH 322</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGH 323</td>
<td>Shakespeare: Special Topics</td>
</tr>
<tr>
<td>ENGH 324</td>
<td>English Renaissance Drama</td>
</tr>
<tr>
<td>ENGH 325</td>
<td>English Poetry and Prose of the 17th Century</td>
</tr>
</tbody>
</table>

Language

Select one world literature course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 330</td>
<td>Augustan Age: 1660-1745</td>
</tr>
<tr>
<td>ENGH 331</td>
<td>Age of Sensibility: 1745-1800</td>
</tr>
<tr>
<td>ENGH 332</td>
<td>Restoration and 18th Century Drama</td>
</tr>
<tr>
<td>ENGH 333</td>
<td>British Novel of the 18th Century</td>
</tr>
<tr>
<td>ENGH 334</td>
<td>British Poetry of the Romantic Period</td>
</tr>
<tr>
<td>ENGH 335</td>
<td>Prose and Poetry of the Victorian Period</td>
</tr>
<tr>
<td>ENGH 336</td>
<td>British Novel of the 19th Century</td>
</tr>
<tr>
<td>ENGH 337</td>
<td>British Poetry after 1900</td>
</tr>
<tr>
<td>ENGH 338</td>
<td>British Novel after 1900</td>
</tr>
<tr>
<td>ENGH 339</td>
<td>British and Irish Drama after 1900</td>
</tr>
<tr>
<td>ENGH 421</td>
<td>Topics in Medieval and Renaissance Literature</td>
</tr>
<tr>
<td>ENGH 422</td>
<td>Chaucer</td>
</tr>
<tr>
<td>ENGH 431</td>
<td>Topics: British Literary Periods</td>
</tr>
</tbody>
</table>

Select one world literature course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 360</td>
<td>Continental Fiction, 1770-1880</td>
</tr>
<tr>
<td>ENGH 361</td>
<td>Continental Fiction, 1880-1950</td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 366</td>
<td>The Idea of a World Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 367</td>
<td>World Literatures in English</td>
</tr>
</tbody>
</table>

Total Credits 9

Teacher Licensure Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 469</td>
<td>Teaching English in Secondary School</td>
</tr>
<tr>
<td>EDCI 479</td>
<td>Advanced Methods of Teaching English in the Secondary School</td>
</tr>
<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>EDCI 491</td>
<td>Internship Seminar in Secondary Training</td>
</tr>
<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
</tr>
</tbody>
</table>

Total Credits 23

Secondary Education Licensure Graduate Certificate

Banner Code: E1-CERG-SELC

Academic Advising

Phone: 703-993-3696
Email: seed@gmu.edu
Website: gse.gmu.edu/secondary-education-6-12/academics/secondary-education-licensure-graduate-certificate
This certificate offers coursework towards teacher licensure (Virginia) to students enrolled in non-licensure graduate programs at Mason or those who already have a master's degree.

This graduate certificate may be pursued on a part-time or full-time basis.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Secondary_Education_Licensure/Gedt.html).

**Admissions & Policies**

**Policies**
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

**Requirements**

**Certificate Requirements**
Total credits: 23

Students enrolled in this program must earn a B or higher in all coursework.

**Core Courses**
Six credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 790</td>
<td>Internship in Education</td>
</tr>
<tr>
<td>EDCI 791</td>
<td>Internship Seminar in Secondary Teaching</td>
</tr>
<tr>
<td>EDRD 619</td>
<td>Literacy in Content Areas</td>
</tr>
<tr>
<td>EDUC 522</td>
<td>Foundations of Secondary Education</td>
</tr>
<tr>
<td>EDUC 672</td>
<td>Human Development and Learning: Secondary Education</td>
</tr>
</tbody>
</table>

Total Credits 17

**Curriculum and Methods Courses**
Select one content course specific to your program from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 567</td>
<td>Teaching Social Studies in the Secondary School</td>
</tr>
<tr>
<td>EDCI 569</td>
<td>Teaching English in the Secondary School</td>
</tr>
<tr>
<td>EDCI 572</td>
<td>Teaching Mathematics in the Secondary School</td>
</tr>
<tr>
<td>EDCI 573</td>
<td>Teaching Science in the Secondary School</td>
</tr>
</tbody>
</table>

Total Credits 3

**Advanced Curriculum and Methods Courses**
Select one content course specific to your program from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 667</td>
<td>Advanced Methods of Teaching Social Sciences in the Secondary School</td>
</tr>
<tr>
<td>EDCI 669</td>
<td>Advanced Methods of Teaching English in the Secondary School</td>
</tr>
</tbody>
</table>

Secondary Education – Biology (6-12) Undergraduate Certificate
Banner Code: E1-CERB-SEEB

Academic Advising
Phone: 703-993-2080
Email: preteach@gmu.edu
Website: gse.gmu.edu/secondary-education-6-12/academics/secondary-education-biology-undergraduate-certificate

This 27-credit undergraduate certificate is available only to students pursuing a BA (p. 619) or BS (p. 624) in Biology. Students who complete both the BA or BS in Biology and this undergraduate certificate will be considered Virginia state-approved educator preparation program completers and will be eligible for recommendation for an initial VA teaching license in Secondary Education (6-12) Biology.

This certificate may be pursued on a part-time or full-time basis.

**Admissions & Policies**

**Admissions**
Students applying for this undergraduate certificate as a secondary program must have satisfied the following requirements:

- a minimum cumulative GPA of 3.00
- passing scores on the Virginia Department of Education (VDOE) prescribed entry assessment
- an official College of Education and Human Development review of discipline-specific content competencies coursework (note: a minimum grade of C (2.00) must have been attained in such coursework completed at Mason).

See website (https://cehd.gmu.edu/teacher/think-you-want-to-be-a-teacher) for more information on the admissions process.

Prior to application for internship, students are required to complete all discipline-specific content competency (https://cehd.gmu.edu/endorse) requirements, pass licensure assessments, and have earned a grade of B (3.00) or better in all licensure coursework.

**Requirements**

**Certificate Requirements**
Total credits: 27

**Discipline-Specific Content Competencies Coursework**
Coursework is additional to discipline-specific content competencies coursework satisfied with the core requirements of the major either for the BA (p. 619) or BS (p. 624) in Biology.
Human Anatomy/Physiology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 430</td>
<td>Advanced Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 431</td>
<td>Advanced Human Anatomy and Physiology II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 4

Teacher Licensure Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 473</td>
<td>Teaching Science in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 483</td>
<td>Advanced Methods of Teaching Science in Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core) (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>EDCI 491</td>
<td>Internship Seminar in Secondary Training</td>
<td>2</td>
</tr>
<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 23

Secondary Education – Chemistry (6-12) Undergraduate Certificate

Banner Code: E1-CERB-SEEC

Admissions & Policies

Admissions

Students applying for this undergraduate certificate as a secondary program must have satisfied the following requirements:

- a minimum cumulative GPA of 3.00
- passing scores on the Virginia Department of Education (VDOE) prescribed entry assessment
- an official College of Education and Human Development review of discipline-specific content competencies coursework (note: a minimum grade of C (2.00) must have been attained in such coursework completed at Mason).

Secondary Education – Earth Science (6-12) Undergraduate Certificate

Banner Code: E1-CERB-SEES

Academic Advising

Phone: 703-993-2080
Email: preteach@gmu.edu
Website: gse.gmu.edu/secondary-education-6-12/academics/masters-education-secondary-education-earth-science-concentration

This 27-credit undergraduate certificate is available only to students pursuing a BS in Earth Science (p. 604). Students who complete both the BS in Earth Science (p. 604) and this undergraduate certificate

See website (https://cehd.gmu.edu/teacher/think-you-want-to-be-a-teacher) for more information on the admissions process.

Prior to application for internship, students are required to complete all discipline-specific content competency (https://cehd.gmu.edu/endorse) requirements, pass licensure assessments, and have earned a grade of B (3.00) or better in all licensure coursework.

Requirements

Certificate Requirements

Total credits: 27

Discipline-Specific Content Competencies Coursework

Coursework is additional to discipline-specific content competencies coursework satisfied with the core requirements of the major either for the BA (p. 638) or BS (p. 643) in Chemistry.

Inorganic Chemistry

Select 4 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 441</td>
<td>Properties and Bonding of Inorganic Compounds</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 445</td>
<td>Inorganic Preparations and Techniques</td>
<td></td>
</tr>
<tr>
<td>CHEM 446</td>
<td>Bioinorganic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 467</td>
<td>The Chemistry of Enzyme-Catalyzed Reactions</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 4

Teacher Licensure Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 473</td>
<td>Teaching Science in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 483</td>
<td>Advanced Methods of Teaching Science in Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core) (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>EDCI 491</td>
<td>Internship Seminar in Secondary Training</td>
<td>2</td>
</tr>
<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 23
George Mason University

will be considered Virginia state-approved educator preparation program completers and will be eligible for recommendation for an initial VA teaching license in Secondary Education (6-12) Earth Science.

This certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Students applying for this undergraduate certificate as a secondary program must have satisfied the following requirements:

- a minimum cumulative GPA of 3.00
- passing scores on the Virginia Department of Education (VDOE) prescribed entry assessment
- an official College of Education and Human Development review of discipline-specific content competencies coursework (note: a minimum grade of C (2.00) must have been attained in such coursework completed at Mason).

See website (https://cehd.gmu.edu/teacher/think-you-want-to-be-a-teacher) for more information on the admissions process.

Prior to application for internship, students are required to complete all discipline-specific content competency (https://cehd.gmu.edu/ endorse) requirements, pass licensure assessments, and have earned a grade of B (3.00) or better in all licensure coursework.

Requirements

Certificate Requirements

Total credits: 27

Discipline-Specific Content Competencies Coursework

Coursework is additional to discipline-specific content competencies coursework satisfied with the core requirements of the major (p. 604), with a total of 32 credits from the four fields of Geology, Astronomy, Oceanography, and Meteorology.

Astronomy

Select four credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 103</td>
<td>Astronomy (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>ASTR 111</td>
<td>Introductory Astronomy: The Solar System (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ASTR 112</td>
<td>Introductory Astronomy Lab: The Solar System (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ASTR 113</td>
<td>Introductory Astronomy: Stars, Galaxies, and the Universe (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ASTR 114</td>
<td>Introductory Astronomy Lab: Stars, Galaxies, and the Universe (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ASTR 115</td>
<td>Finding New Worlds (Mason Core)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits

27

Teacher Licensure Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 473</td>
<td>Teaching Science in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 483</td>
<td>Advanced Methods of Teaching Science in Secondary School</td>
<td>3</td>
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<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>EDCI 491</td>
<td>Internship Seminar in Secondary Training</td>
<td>2</td>
</tr>
<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits

23

Secondary Education – Mathematics (6-12) Undergraduate Certificate

Banner Code: E1-CERB-SEEM

Academic Advising

Phone: 703-993-2080
Email: preteach@gmu.edu
Website: gse.gmu.edu/secondary-education-6-12/academics/secondary-education-mathematics-undergraduate-certificate

This 38-credit undergraduate certificate is available only to students pursuing a BA (p. 711) or BS (p. 716) in Mathematics. Students who complete both the BA (p. 711) or BS (p. 716) in Mathematics and this undergraduate certificate will be considered Virginia state-approved educator preparation program completers and will be eligible for recommendation for an initial VA teaching license in Secondary Education (6-12) Mathematics.

This certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Students applying for this undergraduate certificate as a secondary program must have satisfied the following requirements:

- a minimum cumulative GPA of 3.00
- passing scores on the Virginia Department of Education (VDOE) prescribed entry assessment
- an official College of Education and Human Development review of discipline-specific content competencies coursework (note: a minimum grade of C (2.00) must have been attained in such coursework completed at Mason).

See website (https://cehd.gmu.edu/teacher/think-you-want-to-be-a-teacher) for more information on the admissions process.

1 This course must also be paired with either of the following labs: ASTR 112 Introductory Astronomy Lab: The Solar System (Mason Core) (p. 135) or ASTR 114 Introductory Astronomy Lab: Stars, Galaxies, and the Universe (Mason Core) (p. 135).
Prior to application for internship, students are required to complete all discipline-specific content competency requirements, pass licensure assessments, and have earned a grade of B (3.00) or better in all licensure coursework.

Requirements

Certificate Requirements

Total credits: 38

Discipline-Specific Content Competencies - Mathematics Coursework

All other discipline-specific content competencies coursework should be satisfied with the core requirements of the BA (p. 711) or BS (p. 716) in Mathematics, with the exception of Discrete Math for the BS degree.

Abstract Algebra

MATH 321 Abstract Algebra 3

Calculus

MATH 315 Advanced Calculus I 3
or MATH 316 Advanced Calculus II

Discrete Mathematics

MATH 125 Discrete Mathematics I (Mason Core) (p. 135) 3
or MATH 325 Discrete Mathematics II

Euclidean and Non-Euclidean Geometry

MATH 302 Foundations of Geometry 3

Probability or Statistics

Select one from the following: 3

MATH 351 Probability
MATH 352 Statistics
MATH 453 Advanced Mathematical Statistics
STAT 250 Introductory Statistics I (Mason Core) (p. 135)
STAT 350 Introductory Statistics II

Total Credits 15

Teacher Licensure Coursework

EDCI 372 Teaching Mathematics in the Secondary School 3
EDCI 472 Advanced Methods for Teaching Mathematics in the Secondary School 3
EDCI 490 Student Teaching in Education (Mason Core) (p. 135) 6
EDCI 491 Internship Seminar in Secondary Training 2
EDRD 419 Literacy in the Content Areas 3
EDUC 372 Human Development, Learning, and Teaching (Mason Core) (p. 135) 3
EDUC 422 Foundations of Secondary Education 3

Total Credits 23

Admissions & Policies

Admissions

Students applying for this undergraduate certificate as a secondary program must have satisfied the following requirements:

- a minimum cumulative GPA of 3.00
- passing scores on the Virginia Department of Education (VDOE) prescribed entry assessment
- an official College of Education and Human Development review of discipline-specific content competencies coursework (note: a minimum grade of C (2.00) must have been attained in such coursework completed at Mason).

See website (https://cehd.gmu.edu/teacher/think-you-want-to-be-a-teacher) for more information on the admissions process.

Prior to application for internship, students are required to complete all discipline-specific content competency requirements, pass licensure assessments, and have earned a grade of B (3.00) or better in all licensure coursework.

Requirements

Certificate Requirements

Total credits: 26

Discipline-Specific Content Competencies - Mathematics Coursework

Coursework is additional to discipline-specific content competencies coursework satisfied with the core requirements of the major (p. 731).

Three credits of

PHYS 390 Topics in Physics

Total Credits 3
## Teacher Licensure Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 473</td>
<td>Teaching Science in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 483</td>
<td>Advanced Methods of Teaching Science in Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core) (p. 135)</td>
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<tr>
<td>EDCI 491</td>
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<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
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</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>

## Severe Disabilities Minor

**Banner Code:** SPSD

**Academic Advising**

Phone: 703-993-2387  
Email: speced@gmu.edu  
Website: gse.gmu.edu/special-education/academics/undergraduate-minor-severe-disabilities

This minor provides undergraduate students with background knowledge in severe disabilities. Completing this minor partially fulfills requirements for licensure in Special Education in Virginia.

### Admissions & Policies

For policies governing all undergraduate minors, see AP.5.3.4 Minors (p. 86).

### Requirements

**Minor Requirements**

Total credits: **15**

#### Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 401</td>
<td>Introduction to Special Education</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 432</td>
<td>Positive Behavior Supports</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 434</td>
<td>Communication and Severe Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 447</td>
<td>Medical and Developmental Risk Factors for Children with Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 469</td>
<td>Interdisciplinary Approach for Children with Sensory and Motor Disabilities</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**  

**15**

## Special Education Leadership Graduate Certificate

**Banner Code:** E1-CERG-SELE

**Academic Advising**

Phone: 703-393-3633  
Email: edleprog@gmu.edu  
Website: gse.gmu.edu/special-education/academics/special-education-leadership-graduate-certificate

This non-licensure certificate provides training for educators who administer program implementation efforts for learners with exceptional needs. It is designed for those who have an interest in becoming special education directors, program coordinators, school building administrators, department chairs, or lead teachers; however, opportunities beyond special education also exist.

This graduate certificate is a cohort-only program in which students begin and end the program together as a group. It may only be pursued on a part-time basis.

### Admissions & Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

**Certificate Requirements**

Total credits: **15**

#### Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 701</td>
<td>Legal Issues and Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 702</td>
<td>Managing Resources for Special Education Programs</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 703</td>
<td>Creating a Collaborative Culture</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 743</td>
<td>Leadership in Special Education Administration</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 744</td>
<td>Current Issues in Special Education</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**  

**15**

## Special Education, MEd

**Banner Code:** E1-MED-EDSE

**Academic Advising**

Phone: 703-993-2387  
Email: speced@gmu.edu  
Website: gse.gmu.edu/special-education/academics/masters-in-special-education

This master’s degree is designed to prepare both educators for the classroom and individuals working in a special education context outside
of the classroom with the specialized skills and content knowledge needed to support the needs of individuals with disabilities. Students may focus their program on a specific area in the field by completing a licensure or non-licensure certificate program in conjunction with the MEd and using certificate coursework to fulfill the elective credits for the MEd degree program.

Requirements

Degree Requirements

Total credits: 30

MEd Coursework (without concentration)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 501</td>
<td>Introduction to Special Education</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDSE 503</td>
<td>Language Development and Reading</td>
<td></td>
</tr>
<tr>
<td>EDSE 557</td>
<td>Foundations of Language and Literacy for Diverse Learners</td>
<td></td>
</tr>
<tr>
<td>EDSE 625</td>
<td>Applied Behavior Analysis: Verbal Behavior</td>
<td></td>
</tr>
<tr>
<td>EDSE 636</td>
<td>Supporting Communication and Literacy for Individuals with Autism</td>
<td></td>
</tr>
<tr>
<td>EDSE 517</td>
<td>Computer Applications for Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 590</td>
<td>Special Education Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 637</td>
<td>Autism Across the Lifespan: Collaboration with Critical Partners</td>
<td></td>
</tr>
<tr>
<td>EDSE 662</td>
<td>Consultation and Collaboration</td>
<td></td>
</tr>
<tr>
<td>EDSE 663</td>
<td>Collaborative Teamwork to Support Students with Significant Disabilities</td>
<td></td>
</tr>
<tr>
<td>EDSE 664</td>
<td>Ethical and Professional Conduct for Behavior Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Electives 15

Select from graduate EDAT courses (p. 1177)

Select from graduate EDSE courses (p. 1948)

Total Credits 30

MEd with concentration in Early Childhood Special Education (Non-licensure) (SPEC)

This concentration is for professionals who already hold an early childhood special education teacher license or are interested in working in an early childhood special education context outside the classroom. Students who wish to seek early childhood education licensure are advised to consider completing the Early Childhood Special Education Licensure graduate certificate program in conjunction with the MEd. Students may use their certificate coursework to fulfill the elective credits for the MEd degree program.

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 503</td>
<td>Inclusive Curriculum for Young Learners: Planning Instruction and Guidance</td>
<td>3</td>
</tr>
<tr>
<td>ECED 505</td>
<td>Introduction to Early Childhood Special Education</td>
<td>3</td>
</tr>
<tr>
<td>ECED 506</td>
<td>Medical and Developmental Aspects of Disabilities of Diverse Young Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

ECED 522 Developing Language, Literacy, and Communication of Diverse Infants and Toddlers 3

ECED 685 Applied and Teacher Research in Early Childhood Education 3

or ECED 691 Policy Perspectives in Early Childhood Education

Electives 15

Select 15 credits from graduate ECED courses or courses approved by an academic advisor (p. 1407)

Total Credits 30

Accelerated Master's

Bachelor's Degree (any)/Special Education, Accelerated MEd

Overview

Highly-qualified undergraduates may be admitted to the bachelor's/accelerated master's option and obtain a BA or BS in any degree area and an MEd in Special Education (with or without the concentration in early childhood special education [non-licensure]) in an accelerated timeframe after completion of 144 credits. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program.

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program) on the College of Education and Human Development web site.

Accelerated Option Requirements: No Concentration Requirements

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Semester</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDSE 501</td>
<td>3</td>
<td>EDSE 503 or 557</td>
<td>3</td>
</tr>
<tr>
<td>EDSE approved elective (p. 1948)</td>
<td>3</td>
<td>EDSE approved elective (p. 1948)</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Accelerated Option Requirements: Early Childhood Special Education [Non-Licensure] Concentration Requirements

Complete up to 12 credits of ECED courses during senior year (p. 1407)

Total Credits 12
Process
While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the Bachelor’s and Master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Specialized Reading Instruction for Students with Specific Learning Disabilities Graduate Certificate
Banner Code: E1-CERG-SRLD

Academic Advising
Phone: 703-993-2387
Email: speced@gmu.edu
Website: https://gse.gmu.edu/special-education/academics/specialized-reading-instruction-graduate-certificate

This 15-credit certificate prepares educators to meet the unique needs of K-12 students with specific learning disabilities who experience severe deficits in reading and written language. Candidates develop a deep level of knowledge in development, difficulties, assessment, instruction and progress monitoring for these students. This certificate does not apply toward teacher licensure.

This graduate certificate may only be pursued on a part-time basis.

Requirements
Certificate Requirements
Total credits: 15

Requirements
EDSE 562  Foundations of Reading Instruction for Students with Specific Learning Disabilities  3
EDSE 563  Language Structure and Literacy Development for Students with Specific Learning Disabilities  3
EDSE 564  Phonology, Phonics, and Fluency for Students with Specific Learning Disabilities  3
EDSE 565  Vocabulary, Comprehension, and Written Expression for Students with Specific Learning Disabilities  3
EDSE 566  Practicum I for Specialized Reading Instruction for Students with Specific Learning Disabilities  1

Total Credits 15

Students with Disabilities who Access the Adapted Curriculum Graduate Certificate
Banner Code: E1-CERG-SDAC

Academic Advising
Phone: 703-993-2387
Email: speced@gmu.edu
Website: gse.gmu.edu/special-education/academics/students-disabilities-access-adapted-curriculum-certificate

This certificate offers required coursework for Virginia teacher licensure in Special Education: Adapted Curriculum.

This certificate may be pursued on a part-time or full-time basis.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Students_With_Disabilities_Who_Access_Adapted_Curriculum/Gedt.html).

Admissions & Policies

Policies
Students who have completed graduate or undergraduate coursework equivalent to certificate coursework prior to admission to this program may request that some courses in this certificate be waived. Students who are eligible to waive coursework must complete a minimum of 15 credits to graduate. Students must earn a B- or better in all coursework.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements
Certificate Requirements
Total credits: 36

Coursework
EDSE 501  Introduction to Special Education  3
EDSE 531  Transition and Community-Based Instruction  3
EDSE 532  Positive Behavior Supports  3
EDSE 533  Curriculum and Assessment in Severe Disabilities  3
EDSE 534  Communication and Severe Disabilities  3
EDSE 547  Medical and Developmental Risk Factors for Children with Disabilities  3
Students with Disabilities who Access the General Curriculum Graduate Certificate

Banner Code: E1-CERG-SDGC

Academic Advising
Phone: 703-993-2387
Email: speced@gmu.edu
Website: gse.gmu.edu/special-education/academics/students-disabilities-access-general-curriculum-graduate-certificate

This 33-credit certificate offers required coursework for Virginia teacher licensure to individuals who will be working with students with disabilities who access the general curriculum. The certificate prepares individuals to work with students with disabilities who take Standards of Learning tests (SOLs) or Virginia Grade Level Assessments (VGLA).

This certificate may be pursued on a part-time or full-time basis.

This certificate qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Students_With_Disabilities Who_Access_General_Curriculum/Gedt.html).

Admissions & Policies

Policies

Students who have completed graduate or undergraduate coursework in a university program prior to admission to the certificate may request that some courses be waived based on the content in prior coursework. Students waiving coursework must complete a minimum of 15 credits to be eligible for the certificate. Students enrolled in this program must earn a B- or higher in all coursework.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 33

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 501</td>
<td>Introduction to Special Education</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 502</td>
<td>Classroom Management and Applied Behavior Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 503</td>
<td>Language Development and Reading</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 540</td>
<td>Characteristics of Students with Disabilities who Access the General Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 544</td>
<td>Adapted Instructional Methods and Transition for Secondary Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 627</td>
<td>Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 628</td>
<td>Elementary Reading, Curriculum, Strategies for Students Who Access the General Education Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 629</td>
<td>Secondary Curriculum and Strategies for Students with Disabilities who Access the General Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 662</td>
<td>Consultation and Collaboration</td>
<td>3</td>
</tr>
<tr>
<td>6 credits of</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>EDSE 784</td>
<td>Internship: Adapted Curriculum</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 36

Visual Impairment and Blindness Minor

Banner Code: VISB

Academic Advising
Phone: 703-993-2387
Email: speced@gmu.edu
Website: gse.gmu.edu/special-education/academics/undergraduate-minor-visual-impairment-and-blindness

This minor provides undergraduate students with background knowledge in teaching students with visual impairments. Completing this minor partially fulfills requirements for licensure in Special Education in Virginia.

Admissions & Policies

Policies

At least eight credits must be unique to this minor and may not be used to fulfill requirements of the student’s major, concentration, an undergraduate certificate, or another minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 17
Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAT 422</td>
<td>Assistive Technology for Individuals with Sensory Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 401</td>
<td>Introduction to Special Education</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 411</td>
<td>Characteristics of Students with Visual Impairments</td>
<td>2</td>
</tr>
<tr>
<td>EDSE 412</td>
<td>Braille Code</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 418</td>
<td>Curriculum and Assessment of Students with Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 432</td>
<td>Positive Behavior Supports</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>17</td>
</tr>
</tbody>
</table>

Visual Impairments Licensure, PK-12 Graduate Certificate

Banner Code: E1-CERG-VILI

Admissions & Policies

Policies

Students must complete EDSE 501 Introduction to Special Education either prior to admission to the certificate or in their first semester. Students who have completed graduate or undergraduate coursework in a university program prior to admission to the certificate may request that some courses be waived based on the content in prior coursework. Students waiving coursework must complete a minimum of 15 credits to be eligible for the certificate.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 34

Students enrolled in this certificate must earn a B- or higher in all coursework.

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDAT 522</td>
<td>Assistive Technology for Individuals with Sensory Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 513</td>
<td>Medical and Educational Implications of Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 514</td>
<td>Orientation and Mobility for Students with Visual Impairments</td>
<td>2</td>
</tr>
<tr>
<td>EDSE 518</td>
<td>Curriculum and Assessment of Students with Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 532</td>
<td>Positive Behavior Supports</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 613</td>
<td>Teaching Methods for Students with Visual Impairments</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 616</td>
<td>Braille Reading and Writing</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 663</td>
<td>Collaborative Teamwork to Support Studnts with Significant Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDSE 785</td>
<td>Internship: Visual Impairment (must complete six credits)</td>
<td>2-6</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>34</td>
</tr>
</tbody>
</table>

School of Recreation, Health, and Tourism

Science and Technology Campus (PW)
Bull Run Hall, Ste 220

Phone: 703-993-2060
Email: srht@gmu.edu
Website: rht.gmu.edu

The School of Recreation, Health, and Tourism (RHT) offers one doctoral specialization, three master’s degrees, two graduate certificates, two bachelor’s/accelerated master’s programs, five undergraduate degrees, six minors, seven interdisciplinary minors with other units, and one undergraduate certificate.

The PhD in Education with an Exercise, Fitness, and Health Promotion specialization cultivates research-based educators and practitioners to be critical thinkers and apply evidence-based (research-based) practice principles to preserve and enhance human movement in all settings and populations, promote optimal health and enhanced quality of life through physical activity, and provide rewarding learning experiences, through the conduct and dissemination of exemplary scholarship and preparation of professionals committed to service.

The MS in Athletic Training (MSAT) is a professional, entry-level program that prepares students to practice as athletic training healthcare providers.

The MS in Exercise, Fitness, and Health Promotion (EFHP) takes a science-based approach toward the fields of health and human performance. The program focuses on the role of physical activity in the promotion of health, fitness and quality of life.

The MS in Sport and Recreation Studies meets the growing need for professionals and academics in the areas of recreation administration, sport and leisure studies and sport management. The MS in Athletic Training (MSAT) is a professional, entry-level program that prepares students to practice as athletic training healthcare providers. The BS in Athletic Training, accredited by the Commission on the Accreditation of Athletic Training Education (CAATE) prepares students for careers in athletic training and graduate study in other allied health professions.
Bachelor’s Degrees

The BS in Health, Fitness, and Recreation Resources, with concentrations in Sport Management, Parks and Outdoor Recreation and Therapeutic Recreation prepare students for supervisory and management careers in private and public parks and recreation systems (clinical and community), non-profit and for-profit sport organizations. The Parks and Outdoor Recreation and Therapeutic Recreation concentrations are accredited by the Council on Accreditation for Parks, Recreation, Tourism, and Related Professions (COAPT).

The BS in Kinesiology, which is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP: American College of Sports Medicine sponsored), holds national program recognition status from the National Strength and Conditioning Association (NSCA-ERP) and prepares students to develop and utilize science-based approaches to healthful and proactive living strategies. Emphasis is placed upon the development of future professionals with the knowledge, skills, and abilities to enhance physical performance, fitness, and general well-being across the age spectrum.

The BSED in Physical Education, accredited by the National Council for the Accreditation of Teacher Education (NCATE), prepares students for a teaching career (K–12) in public and private schools. The BS in Tourism and Events Management degree is one of the fastest growing majors at the university with concentrations in Events Management, Hospitality Management and Tourism Management.

Interdisciplinary Minors

In addition to school-based minors, RHT offers seven minors in interdisciplinary areas of study. These minors require coursework from two or more disciplines and are administered by interunit faculty groups.

Minor in Sport Analytics

The Sport Analytics Minor (p. 234) is offered jointly by the School of Recreation, Health and Tourism (p. 211), School of Business (p. 846), College of Science (p. 593), and Volgenau School of Engineering (p. 953).

Minor in Sport and Conflict Resolution

The Sport and Conflict Resolution Minor (p. 232) offered by the School of Recreation, Health, and Tourism (p. 211) and School for Conflict Analysis and Resolution (p. 882).

Minor in Sport Communication

The Sport Communication Minor (p. 320) is offered jointly by the School of Recreation, Health and Tourism (p. 211) and the Department of Communication (p. 303).

Minor in Sustainability

The Sustainability Studies Minor (p. 685) is offered jointly by the Department of Environmental Science and Policy (p. 660) and School of Integrative Studies (p. 564). Students may take select Parks, Recreation and Leisure Studies and Tourism and Events Management (p. 223) courses to meet elective requirements.

Minor in Sport and American Culture

The Sport and American Culture Minor (p. 231) is offered jointly by the School of Recreation, Health and Tourism (p. 211) and Department of History and Art History (p. 381). Students will learn about sport and its interconnection with other societal institutions. For details, see the School of Recreation, Health, and Tourism website. (http://rht.gmu.edu/programs/minor7)

Minor in Event Technical Production

The Event Technical Production Minor (CEHD) (p. 217) is offered jointly by the School of Recreation, Health and Tourism (p. 211) and the School of Theater (p. 835) in the College of Visual and Performing Arts (p. 763). Students will learn how to plan, manage and execute live events and presentations. For details, see the School of Recreation, Health and Tourism website. (https://rht.gmu.edu/hospitality-tourism-and-events-manage/degree-options/event-technical-production-minor)

Minor in Sport and Computer Game Design

The Sport and Computer Game Design Minor (p. 231) is offered jointly by the School of Recreation, Health and Tourism (p. 211) and the Computer Game Design Program (p. 777) in the College of Visual and Performing Arts (p. 763). This minor provides a combined introductory look at both the sports and computer game industries.

Faculty

School Faculty

Professors
R. Baker, Brayley, S. Caswell, Daniels, D. Wiggins

Associate Professors
J. Ambegaonkar, Banville, A. Caswell, Cortes, Esherick, M. Jones, Kozlowski, Lee, R. Miller, M. Park, P. Rodgers, Schack, B. Wiggins

Assistant Professors
Aidoo, Atwater, Ferry, Fyock, Jin, Martin, McDowell, Robison, Slocum, White

Instructors
Casserly, DeGregorio, P. Gilbert, Jacobson, T. Jones, Krout, Moore, Norden, P. Wiggins

Requirements & Policies

Requirements

Writing-Intensive Requirement

The university requires all undergraduate students to successfully complete at least one 300-level or above course designated ‘writing-intensive’ (WI) in their major(s). For RHT students, the WI requirement is satisfied by the successful completion of KINE 450 Research Methods, PHED 340 Social and Cultural Issues in Physical Education, or SRST 450 Research Methods dependent on program requirements.

Policies

Minors

In accordance with university policy, at least eight credits must be unique to the minor and may not fulfill requirements of the student’s major, concentration, or another minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
Programs

- Athletic Training, BS
- Athletic Training, MS
- Coaching Minor
- Event Technical Production Minor (CEHD)
- Exercise, Fitness, and Health Promotion, MS
- Health Promotion Minor
- Health, Fitness, and Recreation Resources, BS
- International Sport Management Graduate Certificate
- Kinesiology Minor
- Kinesiology, BS
- Outdoor Recreation and Experiential Leadership Undergraduate Certificate
- Physical Education, BSEd
- Recreation Management Minor
- Sport Coaching Graduate Certificate
- Sport Management Minor
- Sport and American Culture Minor
- Sport and Computer Game Design Minor
- Sport and Conflict Resolution Minor (CEHD)
- Sport and Recreation Studies, MS
- Sports Analytics Minor
- Tourism and Events Management Minor
- Tourism and Events Management, BS

Athletic Training, BS

Banner Code: E1-BS-ATT

Academic Advising

Phone: 703-993-9914
Email: aalleni@gmu.edu
Website: rht.gmu.edu/athletic-training/

This degree provides educational and clinical experiences concerning the management of injuries and health problems associated with physical activity. The goal is to equip students with the knowledge and skills that must be mastered to successfully prepare for the athletic training Board of Certification (BOC®) Examination and practice as an entry-level athletic trainer. In addition to fall and spring semester courses, students will engage in coursework during the second and third summers of their academic program.

Admissions & Policies

Admissions

Freshmen Applications

Admission to Mason is competitive, and successful candidates generally have a B+ average or higher in a challenging college preparatory curriculum. All students accepted to Mason and declaring athletic training as a major are admitted into the program (typically freshmen).

Freshmen are bound to university admissions criteria as stated in Undergraduate Admission Policies (p. 63).

To progress within the program, students must earn a minimum grade of C in all within-major courses and maintain a cumulative minimum within-major GPA of 3.0 or greater.

Transfer Student Applications

Admission as a transfer student into the ATEP is competitive. Transfer applicants are evaluated on an individual basis and admission is contingent upon satisfactory completion of standards identical to all other students enrolled in the ATEP. Students transferring from another institution must provide documentation of successful completion of all ATEP-related coursework with a grade of C or higher, a cumulative within-major GPA of 3.0 or higher on a 4.0 scale, and related clinical education/experiences. Additional documentation includes transcripts, course syllabi, a letter from the ATEP director of the previous institution certifying satisfactory completion of all clinical experiences, completed proficiency assessments signed and dated by an approved clinical instructor attained at the previous institution, and current Emergency Cardiac Care (ECC) and First Aid certifications. All transfer students must meet with the ATEP Director for an evaluation of all previously-completed coursework.

Policies

For all policies regarding undergraduate degrees, see AP .5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: 123

Mason Core

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication</td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td></td>
</tr>
<tr>
<td>STAT 250 (Introductory Statistics I)</td>
<td>3</td>
</tr>
<tr>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>Arts</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>Social and Behavioral Sciences</td>
<td></td>
</tr>
<tr>
<td>HEAL 230 (Introduction to Health Behavior)</td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science</td>
<td></td>
</tr>
<tr>
<td>BIOL 124 (Human Anatomy and Physiology)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 125 (Human Anatomy and Physiology)</td>
<td>4</td>
</tr>
<tr>
<td>Synthesis/Capstone (satisfied by major requirements)</td>
<td>(p. 143)</td>
</tr>
<tr>
<td>Total Credits</td>
<td>38</td>
</tr>
</tbody>
</table>

Professional Courses: Year 1 and 2

Students begin the pre-professional phase upon admission to Mason by enrolling in the twelve required prerequisite courses below. Upon
successful completion of all pre-professional coursework with a grade of C or higher and a minimum cumulative GPA of 3.0, students may advance into the professional phase (two levels) of the program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 120</td>
<td>First Aid and Emergency Care</td>
<td>2</td>
</tr>
<tr>
<td>ATEP 150</td>
<td>Introduction to Athletic Training and Preventative Care Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 201</td>
<td>Medical and Scientific Terminology</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 300</td>
<td>Functional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 325</td>
<td>Athletic Training Foundations</td>
<td>3</td>
</tr>
<tr>
<td>KINE 310</td>
<td>Exercise Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>KINE 320</td>
<td>Principles of Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>KINE 450</td>
<td>Research Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 23

The following required pre-professional courses satisfy (and are listed with) Mason Core (p. 135) requirements. They are therefore not included in the total pre-professional credit count.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 124</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 125</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>HEAL 230</td>
<td>Introduction to Health Behavior (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Professional Courses: Year 3 and 4

#### Professional Courses: Year 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 310</td>
<td>Advanced Functional Anatomy (Summer Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 320</td>
<td>Therapeutic Interventions Foundations (Summer Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 330</td>
<td>Emergency Procedures for Athletic Trainers (Fall Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 340</td>
<td>Lower Body Physical Assessment (Fall Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 345</td>
<td>Athletic Training Clinical Techniques 1 (Fall Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 351</td>
<td>Lower Body Therapeutic Interventions (Fall Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 354</td>
<td>Athletic Training Clinical Techniques 2 (Spring Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 361</td>
<td>Upper Body Therapeutic Interventions (Spring Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 365</td>
<td>Athletic Training Clinical Techniques 4 (Spring Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 367</td>
<td>Athletic Training Practicum 1 (Spring Semester)</td>
<td>2</td>
</tr>
<tr>
<td>ATEP 370</td>
<td>Upper Body Physical Assessment (Spring Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 375</td>
<td>Athletic Training Clinical Techniques 3 (Spring Semester)</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 400</td>
<td>Pathopharmacology (Spring Semester)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 62

---

**Notes**

- If an ATEP major course has to be repeated it must be taken and successfully completed at GMU.
- Practicum courses require a clinical education field experience component.
- Students will engage in coursework during the second and third summers of their academic program.

### Special Requirements

#### Fees and Expenses

All ATEP (p. 1183) courses have a per credit fee of $25. ATEP 486 has an additional fee of $200. Fees cover the following:

- laboratory supplies and equipment
- clinical attire
- clinical supplies
- clinical education manuals

#### Technical Standards

After admission to the pre-professional phase, students must submit a technical standards certification statement indicating that they have read, understand, and can meet the technical standards for athletic training students, either with or without accommodation. These standards outline the essential functional tasks that students must be able to perform to enroll in and complete the program. Students requiring special accommodations are encouraged to contact the Office of Disability Services (http://ds.gmu.edu).

#### Health Examinations and Certifications

Athletic training students are required to have evidence of completion of the three hepatitis B immunizations, a titer report indicating positive immunity, or a signed waiver. Students choosing not to complete hepatitis B immunizations will be required to sign a declination waiver. Some practicum sites require proof of tuberculosis screening in accordance with current U.S. Public Health Service recommendations. Students will be responsible for any costs associated with such screenings. All professional phase students must complete annual blood-borne pathogens and infectious disease exposure training offered in the practicum courses. All students must have Emergency Cardiac...
Care (CPR, AED) and First Aid certifications before entering their first practicum experience and must maintain these certifications through the remainder of the ATEP. For additional information about ATEP academic policies and procedures refer to the program handbook (https://rht.gmu.edu/athletic-training/forms).

**Background Check**

Students will be required to undergo a criminal background check at the student’s expense, to enter the professional phase of the ATEP. Some practicum sites require an additional background check before engaging in patient treatment. If a criminal background check fails to meet the requirements of a student’s assigned practicum site, the student will be withdrawn from the practicum site and may be prohibited from completion of the curriculum. Students are encouraged to disclose any criminal background incidences to the ATEP Director and Clinical Education Coordinator prior to practicum placement.

**Transportation Responsibilities**

It is the responsibility of professional phase ATEP students to arrange transportation to and from their assigned practicum course sites. It is recommended that students have personal transportation. A limited number of sites are accessible via public transportation from the Fairfax campus. In the case that a practicum site is not accessible by public transportation and the student does not have a car, it is suggested the student take public transportation as far as possible and then take a taxi to the site. The student is responsible for all transportation fees including but not limited to gas, parking, bus, metro, taxi and zip car expenses. Students that have financial difficulty are encouraged to meet with a financial aid advisor to seek additional assistance.

**Summer Courses**

Students are required to engage in professional ATEP courses during professional phase years 3 and 4. Housing and travel arrangements are the responsibility of the student.

**Athletic Training, MS**

*Banner Code: E1-MS-ATT*

*Academic Advising*

Phone: 703-993-9914
Email: aallen@gmu.edu
Website: rht.gmu.edu/athletic-training/

This is a professional preparation program for aspiring athletic training healthcare professionals.

The program will provide students with a strong foundation of the competencies and proficiencies (knowledge, skills and attitudes) established by the Commission on Accreditation of Athletic Training Education (CAATE) for professional athletic trainer preparation. Because of increasing employment opportunities in youth athletic leagues and school settings, students will also take coursework in pediatric sports medicine to address the special needs of this patient population.

Successfully completing the program will prepare a student to become a national athletic training Board certified (BOC®), Virginia Board of Medicine licensed athletic trainer.

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## Admissions & Policies

### Admissions

**Application Requirements**

In addition to fulfilling admission requirements for graduate study as specified in the Graduate Admission Policies (p. 66), applicants are required to have already completed the following prerequisites at GMU or another institution with a grade of "C" or better:

- **Anatomy and Physiology** 6-8
- **Exercise Physiology** 3
- **Research Methods** 3
- **Basic Nutrition** 3
- **Medical Terminology** 3

Applicants who marginally meet some of the admissions requirements may be invited for an interview.

### Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

## Requirements

### Degree Requirements

Total credits: 65

All courses must be taken at GMU.

The MSAT requires a grade of B- or higher in all ATEP required coursework, and maintenance of current Health Care Provider Emergency Cardiac Care (ECC) and First Aid certifications.

### MS Core Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 510</td>
<td>Advanced Functional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 520</td>
<td>Therapeutic Interventions Foundations</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 525</td>
<td>Athletic Training Foundations</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

### Professional Phase

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 530</td>
<td>Emergency Procedures for Athletic Trainers</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 540</td>
<td>Lower Body Physical Assessment</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 545</td>
<td>Athletic Training Clinical Techniques 1</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 550</td>
<td>Lower Body Therapeutic Interventions</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 555</td>
<td>Athletic Training Clinical Techniques 2</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 560</td>
<td>Upper Body Therapeutic Interventions</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 565</td>
<td>Athletic Training Clinical Techniques 4</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 570</td>
<td>Upper Body Physical Assessment</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 575</td>
<td>Athletic Training Clinical Techniques 3</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 600</td>
<td>Pathopharmacology</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 650</td>
<td>Administration and Management in Athletic Training</td>
<td>3</td>
</tr>
<tr>
<td>ATEP 660</td>
<td>Pediatric Sports Medicine</td>
<td>3</td>
</tr>
</tbody>
</table>
Students choosing not to complete three hepatitis B immunizations must provide a titer report indicating positive immunity, or a signed waiver. Students choosing not to complete hepatitis B immunizations will be required to sign a declination waiver.

Students must be able to perform to enroll in and complete the Athletic Training program and is not accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The institution will be submitting a self-study to begin the accreditation process on July 1, 2017. Submission of the self-study and completion of a site visit does not guarantee that the program will become accredited. Students who graduate from the program prior to accreditation will not be eligible for licensure in most states.

**Technical Standards**

After admission to the MSAT, students must submit a technical standards certification statement, located on the MSAT website, indicating that they have read, understand, and can meet the technical standards for athletic training students, either with or without accommodation. These standards outline the essential functional tasks that students must be able to perform to enroll in and complete the program. Students requiring special accommodations are encouraged to contact the Office of Disability Services (http://ds.gmu.edu).

**Health Examinations and Certifications**

Athletic training students are required to have evidence of completion of the three hepatitis B immunizations, a titer report indicating positive immunity, or a signed waiver. Students choosing not to complete hepatitis B immunizations will be required to sign a declination waiver. Some practicum sites require proof of tuberculosis screening in accordance with current U.S. Public Health Service recommendations. Students will be responsible for any costs associated with such screenings. All MSAT students must complete annual blood-borne pathogens and infectious disease exposure training offered in the practicum courses. All students must have proof of current Emergency Cardiic Care (CPR/AED Certification at the level of a Healthcare Professional (e.g. American Heart Association’s Basic Life Support for Healthcare Professionals, the Emergency Care & Safety Institute (ECSI)) and First Aid Certification. For additional information about ATEP academic policies and procedures refer to the program handbook (https://rht.gmu.edu/athletic-training/forms).

**Special Requirements**

**Fees and Expenses**

All ATEP (p. 1183) courses have a per credit fee of $25. ATEP 686 has an additional fee of $200. Fees cover the following:

- laborary supplies and equipment
- clinical attire
- clinical supplies
- clinical education manuals

**Transportation Responsibilities**

It is the responsibility of the MSAT students to arrange transportation to and from their assigned practicum course sites. It is recommended that students have personal transportation. A limited number of sites are accessible via public transportation. In the case that a practicum site is not accessible by public transportation and the student does not have a car, it is suggested the student take public transportation as far as possible and then take a taxi to the site. The student is responsible for all transportation fees including but not limited to gas, parking, bus, metro, taxi and zip car expenses. Students that have financial difficulty are encouraged to meet with a financial aid advisor to seek additional assistance.

**Summer Courses**

Students are required to engage in MSAT summer courses. Housing and travel arrangements are the responsibility of the student.

**Coaching Minor**

**Banner Code: COCH**

**Academic Advising**

Phone: 703-993-5261
Email: lblue@gmu.edu
Website: rht.gmu.edu/sport-management/degree-options/coaching-minor

This minor has been designed for Mason students interested in the coaching profession at all age and ability levels, including future high school teachers who also want to coach. With this selection of courses, students will be introduced to foundational concepts in sport psychology, philosophy, pedagogy, nutrition, athletic training and physiology as well as important sport industry business concepts. Coaching minors will complete their work with a field experience in sport coaching.
This minor is available to all Mason undergraduate students.

### Admissions & Policies

#### Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Requirements

#### Minor Requirements

Total credits: 18

<table>
<thead>
<tr>
<th>Coursework</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 203 Prevention, Recognition, and Management of Athletic and Fitness Related Injuries</td>
<td>3</td>
</tr>
<tr>
<td>PHED 306 Psychomotor Learning</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 201 Introduction to Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 210 Foundations of Sport Coaching</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 320 Psychology of Sport</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 341 Field Experience in Sport Coaching</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 18

#### Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 230</td>
<td>Fundamentals of Production (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>THR 313</td>
<td>Event Technology</td>
<td>3</td>
</tr>
<tr>
<td>or TOUR 313</td>
<td>Event Technology</td>
<td></td>
</tr>
<tr>
<td>TOUR 220</td>
<td>Introduction to Event Management</td>
<td>3</td>
</tr>
<tr>
<td>Select 6 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THR 235</td>
<td>Costume Crafts</td>
<td></td>
</tr>
<tr>
<td>THR 314</td>
<td>Lighting Stagecraft</td>
<td></td>
</tr>
<tr>
<td>THR 315</td>
<td>Sound Engineering</td>
<td></td>
</tr>
<tr>
<td>THR 333</td>
<td>Scenic Design</td>
<td></td>
</tr>
<tr>
<td>TOUR 190</td>
<td>Wedding Planning</td>
<td></td>
</tr>
<tr>
<td>TOUR 221</td>
<td>Event Implementation and Evaluation</td>
<td></td>
</tr>
<tr>
<td>TOUR 480</td>
<td>Special Topics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 15

### Event Technical Production Minor (CEHD)

Banner Code: EVTP

#### Academic Advising

Phone: 703-993-1120  
Email: esteven6@gmu.edu  
Website: rht.gmu.edu/hospitality-tourism-and-events-management/degree-options/event-technical-production-minor

This minor is offered jointly with the College of Visual and Performing Arts (p. 763) (School of Theater (p. 835)).

This minor, available to all Mason undergraduate students, offers the opportunity to study special event management and event technologies, design and production for installations and special events. Students will gain insights into industry standards and practices regarding planning, managing, and executing live events and presentations. The required courses in this minor provide students with a foundational overview of management and production. Students can complement that knowledge with specific electives that meet their individual interests in events and areas of design and technology.

### Admissions & Policies

#### Policies

Eight credits of coursework must be unique to the minor, with a minimum 2.00 GPA earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
Admissions & Policies

Admissions
This program has a limited number of competitive graduate research assistantships that may be available through the College of Education and Human Development or other external research funding sources. Other university funding opportunities (e.g. scholarships, assistantships, fellowships, loans) exist as well. Students may indicate their interest in being considered for an assistantship in their admission application.

Policies
For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 36

All students are required to complete all core courses as well as courses in one concentration and a capstone thesis or research project (6 credits). The typical plan of study for the advanced practitioner concentration is 4 semesters of full-time classes (3 classes/9 credits per semester). In the wellness practitioner concentration, students can choose to attend part-time.

MS Core Coursework
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFHP 610</td>
<td>Advanced Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 611</td>
<td>Movement and Fitness Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 612</td>
<td>Scientific Foundation of Applied Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 620</td>
<td>Research Methods for Applied Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 640</td>
<td>Principles of Strength and Conditioning</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Concentration in Advanced Practitioner (APRC)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDRS 620</td>
<td>Quantitative Inquiry in Education</td>
<td>3</td>
</tr>
<tr>
<td>Three credits of</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>EFHP 599</td>
<td>Independent Study EFHP</td>
<td></td>
</tr>
<tr>
<td>EFHP 613</td>
<td>Advanced Applied Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 614</td>
<td>Advanced Exercise Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>or EFHP 618</td>
<td>Exercise and Sport Psychology</td>
<td></td>
</tr>
<tr>
<td>EFHP 690</td>
<td>Scientific Communications</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Concentration in Wellness Practitioner (WPRC)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFHP 520</td>
<td>Medical Terminology of Health Professionals</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 522</td>
<td>Functional Anatomy for Health and Wellness Practitioners</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 526</td>
<td>Prevention, Recognition, and Management of Fitness Related Injuries</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 614</td>
<td>Advanced Exercise Nutrition</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

or EFHP 618  Exercise and Sport Psychology
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFHP 660</td>
<td>Management of Exercise, Fitness, and Health Promotion Organizations</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Thesis or Project
Three credits of
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFHP 598</td>
<td>Special Topics</td>
<td>3</td>
</tr>
</tbody>
</table>

Three credits from one of the following:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFHP 798</td>
<td>Project 1</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 799</td>
<td>Thesis 2</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

Research Project Option: students complete EFHP 598 Special Topics and EFHP 798 Project. In the topics course, students conduct a directed research project with an EFHP faculty member that is aligned with the faculty member's research agenda. Then, in the project course, students work with the EFHP faculty member to develop a paper and presentation in the format of submission to a peer-reviewed journal and presentation at professional conferences, respectively.

Thesis Option: students complete EFHP 598 Special Topics and EFHP 799 Thesis. In EFHP 598 Special Topics, students develop independent research proposals. Then, in consultation with the EFHP Program Coordinator, students select two additional faculty members to form a three-member thesis committee. One committee member may be selected from faculty outside of the program. Students may not register for thesis credit until the student's thesis committee and the EFHP Program Coordinator have approved a proposal. Once the committee approves the proposal, students register for thesis credit and conduct their independent research projects.

Accelerated Master's

Bachelor's Degree (any)/Exercise, Fitness and Health Promotion, Accelerated MS
Overview
Qualified Mason undergraduates may be admitted to a bachelor's/accelerated master's program and obtain a BA or BS in any degree area and an Exercise, Fitness and Health Promotion, MS. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this option.

Application Requirements
Applicants must have an overall GPA of at least 3.00 and have successfully completed BIOL 124 and BIOL 125. See the Accelerated Master's Admissions (https://www2.gmu.edu/admissions-aid/how-apply/accelerated-masters) webpage to apply.

Accelerated Option Requirements
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFHP 610</td>
<td>Advanced Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 611</td>
<td>Movement and Fitness Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EFHP 612</td>
<td>Scientific Foundation of Applied Kinesiology</td>
<td>3</td>
</tr>
</tbody>
</table>
Health Promotion Minor

Banner Code: HPR

This minor is available to all Mason undergraduate students.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAL 110</td>
<td>Personal Health</td>
<td>3</td>
</tr>
<tr>
<td>HEAL 230</td>
<td>Introduction to Health Behavior (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HEAL 372</td>
<td>Health Communication</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Electives

Select three courses from the following: 9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAL 220</td>
<td>Dimensions of Mental Health</td>
</tr>
<tr>
<td>HEAL 310</td>
<td>Drugs and Health</td>
</tr>
<tr>
<td>HEAL 325</td>
<td>Health Aspects of Human Sexuality</td>
</tr>
<tr>
<td>HEAL 327</td>
<td>Women's Health</td>
</tr>
<tr>
<td>HEAL 331</td>
<td>Men's Health</td>
</tr>
<tr>
<td>HEAL 351</td>
<td>Relationship Health</td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

Health, Fitness, and Recreation Resources, BS

Banner Code: E1-BS-HFRR

This 120-credit degree allows students to specialize in one of three varied concentrations:

- Concentration in Parks and Outdoor Recreation (Green Leaf program (p. 102))
- Concentration in Sport Management
- Concentration in Therapeutic Recreation

Admissions & Policies

Policies

For policies governing all undergraduate degrees, see Academic Policies (p. 74). Students should also review Mason Core (p. 135) requirements.

Internship Application

The internship is a 12-credit capstone course taken at the end of a student’s academic program. Students must have earned 90 credit hours and met the specific prerequisites for their concentration to be eligible for the internship (see PRLS 490 Recreation Management Internship, and SPMT 490 Internship). The internship is designed to be a capstone experience for each student in his or her specific concentration area.

The internship process begins with a mandatory meeting hosted by the internship coordinator. During the preliminary phase students will develop learning goals and consult with faculty on viable internship sites. Once the internship site has been selected, the student must complete 400 hours of an applied experience in their field of study for Sport Management and Parks and Outdoor Recreation. Therapeutic Recreation (TR) requires a 560-hour, sixteen consecutive week field placement experience in therapeutic recreation services under a certified therapeutic recreation therapist (CTRS) using the therapeutic recreation process.

Throughout the internship for all programs, the student will be monitored by a site supervisor (CTRS for therapeutic recreation), as well as a university supervisor, to facilitate a meaningful experience.

Requirements

Degree Requirements

Total credits: 120

Concentration in Parks and Outdoor Recreation (POR)

This concentration within the Recreation Management program explores the contribution of recreation and parks to public well-being and quality of life. The curriculum includes courses in natural resources management, outdoor recreation programming, and environmental education. The Recreation Management program is accredited by the Council on Accreditation of Parks, Recreation, Tourism and Related Professions. Graduates of this career ready program are employed in national, state, and local recreation and park agencies, non-profit organizations, and private and commercial operations. Students complete both a supervised practicum and internship in professional settings.

Mason Core

Written Communication (p. 135) 6
Oral Communication (p. 136) 3
Information Technology (p. 136) 3
Quantitative Reasoning:
STAT 250 Introductory Statistics I (Mason Core) (p. 135) 3

Literature (p. 140) 3
Arts (p. 137) 3
Western Civilization/World History (p. 143) 3
Social and Behavioral Sciences (p. 142) 3
Global Understanding (p. 139) 3
Natural Science (p. 141) 8
Synthesis/Capstone 8
Total Credits 38

1 Met by PRLS 490 Recreation Management Internship (Mason Core) (p. 135), a program requirement

### Professional Sequence

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 120</td>
<td>First Aid and Emergency Care</td>
<td>2</td>
</tr>
<tr>
<td>PRLS 210</td>
<td>Introduction to Recreation and Leisure</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 241</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 300</td>
<td>People with Nature</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 302</td>
<td>Park Management and Operations</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 310</td>
<td>Program Planning and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 316</td>
<td>Leadership and Outdoor Education</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 317</td>
<td>Social Psychology of Play and Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 323</td>
<td>Program Leadership and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 327</td>
<td>Foundations of Therapeutic Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 362</td>
<td>Cultural and Environmental Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 402</td>
<td>Human Behavior in Natural Environments</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 405</td>
<td>Planning and Operation of Recreation</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 410</td>
<td>Administration of SRT Organizations I</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 411</td>
<td>Administration of SRT Organizations II</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 460</td>
<td>Sport and Recreation Law</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 490</td>
<td>Recreation Management Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>PRLS 501</td>
<td>Introduction to Natural Resources Law</td>
<td>3</td>
</tr>
<tr>
<td>SRST 200</td>
<td>History of Sport and Leisure in America</td>
<td>3</td>
</tr>
<tr>
<td>SRST 450</td>
<td>Research Methods (Satisfies the university Writing Intensive requirement)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 68

### Electives

Select an additional 14 credits from:

Any course, including Physical Activity for Lifetime Wellness courses (http://catalog.gmu.edu/colleges-schools/education-human-development/recreation-health-tourism/health-fitness-recreation-resources-bs/colleges-schools/education-human-development/recreation-health-tourism)

Or a minor (http://catalog.gmu.edu/programs/#filter=filter_29)

**Total Credits** 14

### Concentration in Sport Management (SPMT)

This concentration enhances the professional development of liberal arts-educated students, thereby preparing them to assume entry-level managerial positions in the multi-billion dollar sport industry, including private enterprises, government or public employment sectors, nonprofit or voluntary agencies, and commercial sport ventures. Preparation in sport marketing, sales, finance, ethics, sport communications, economics, law, operations, planning, and program leadership fosters the skills that enhance students’ acquisition and advancement in sport management careers. An integral part of the program is the opportunity to complete two field experiences in sport organizations: a part-time practicum and a full-time internship.

### Mason Core

**Written Communication** (p. 135) 6
**Oral Communication** (p. 136) 3
**Information Technology** (p. 136) 3
**Quantitative Reasoning:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

(p. 135)

**Total Credits** 37

1 Met by SPMT 490 Internship (Mason Core) (p. 135), a program requirement

### Professional Sequence

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 201</td>
<td>Introduction to Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 241</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 302</td>
<td>Philosophical and Ethical Dimensions of Sport</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 304</td>
<td>Sport, Culture, and Society</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 405</td>
<td>Sport Venues and Events</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 412</td>
<td>Sport Marketing and Sales</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 420</td>
<td>Economics and Finance in the Sport Industry</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 430</td>
<td>Sport Communication</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 440</td>
<td>Global Perspectives in Sport</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 455</td>
<td>Governance and Policy in Sport Organizations</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 462</td>
<td>Sport Business Law</td>
<td>3</td>
</tr>
<tr>
<td>or PRLS 460</td>
<td>Sport and Recreation Law</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 470</td>
<td>Strategic Management and Leadership in Sport Organizations</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 475</td>
<td>Sport Management Professional Development Seminar</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 490</td>
<td>Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>SRST 200</td>
<td>History of Sport and Leisure in America</td>
<td>3</td>
</tr>
<tr>
<td>SRST 450</td>
<td>Research Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 57

### Guided Electives

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT courses</td>
<td>Special Topics in Sport Management</td>
<td>9</td>
</tr>
</tbody>
</table>

**Total Credits** 9
Electives
Select an additional 17 credits from any course. (p. 1108)  
Total Credits 17

Concentration in Therapeutic Recreation (TR)
This concentration within the Recreation Management program teaches a holistic approach to the treatment for people with disabilities across the lifespan. Completion of the therapeutic recreation (TR) foundation, issues, processes, programming and assessment courses to name a few, as well as an internship supervised by a Certified Therapeutic Recreation Specialist (CTRS), prepares graduating seniors to sit for the national exam sponsored by the National Council for Therapeutic Recreation Certification (http://nctrc.org) and become a CTRS. The Recreation Management program is accredited by the Council on Accreditation of Parks, Recreation, Tourism and Related Professions. Graduates find employment in clinical and community settings; senior and adult health care; non-profit organizations; and schools.

Mason Core
Written Communication (p. 135) 6
Oral Communication (p. 136) 3
Information Technology (p. 136) 3
Quantitative Reasoning:
STAT 250 Introductory Statistics I (Mason Core) (p. 135) 3

Literature (p. 140) 3
Arts (p. 137) 3
Western Civilization/World History (p. 143) 3
Social and Behavioral Sciences:
PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135) 3
Global Understanding (p. 139) 3
Natural Science:
BIOL 124 Human Anatomy and Physiology 4
BIOL 125 Human Anatomy and Physiology 4
Synthesis/Capstone 1 3
Total Credits 38

1 Met by PRLS 490 Recreation Management Internship (Mason Core) (p. 135), a program requirement

Professional Sequence
ATEP 120 First Aid and Emergency Care 2
KINE 450 Research Methods (Satisfies the university Writing Intensive requirement) 3
PRLS 210 Introduction to Recreation and Leisure 3
PRLS 241 Practicum 3
PRLS 310 Program Planning and Evaluation 3
PRLS 316 Leadership and Outdoor Education 3
PRLS 317 Social Psychology of Play and Recreation 3
PRLS 323 Program Leadership and Evaluation 3
PRLS 327 Foundations of Therapeutic Recreation 3
PRLS 405 Planning and Operation of Recreation Facilities 3
PRLS 410 Administration of SRT Organizations I 3
PRLS 411 Administration of SRT Organizations II 3
PRLS 416 Trends and Programming Assessment in Therapeutic Recreation 3
PRLS 417 Processes, Techniques and Supervision in Therapeutic Recreation 3
PRLS 418 Assessment in Therapeutic Recreation 3
PRLS 460 Sport and Recreation Law 3
PRLS 490 Recreation Management Internship (Mason Core) (p. 135) 12
PRLS 503 Administration and Disability Rights in Therapeutic Recreation 3
PSYC 211 Developmental Psychology (Mason Core) (p. 135) 3
PSYC 325 Abnormal Psychology 3
SRST 200 History of Sport and Leisure in America 3
Total Credits 71

Electives
Select an additional 11 credits from any course, including:

Physical Activity for Lifetime Wellness courses (p. 211)
ATEP 201 Medical and Scientific Terminology
Minor in Psychology (p. 447)
Total Credits 11

Accelerated Master's
Bachelor's Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS
Overview
This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master’s program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>3</td>
</tr>
</tbody>
</table>

Option 1:
To take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate's research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department’s website (http://esp.gmu.edu/academic-programs/graduate/admissions).

**Reserve Graduate Credits**

Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master's program and must then complete an additional 27-31 credits to receive the master's degree.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master's degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor's credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.

**Tourism and Events Management, BS**

**Banner Code:** E1-BS-TEM

**Academic Advising**

Phone: 703-993-5200
Email: mgnoleba@gmu.edu
Website: rht.gmu.edu/hospitality-tourism-and-events-management/advising/

This degree program prepares students to enter diverse professions in hospitality management, tourism management, and events management. Courses and field experiences equip students with knowledge and skills in managing visitor experiences for the benefit of the traveler, host, community and supporting industry. Graduates are employed in commercial, private, and public agencies, within a wide variety of geographic settings. A Tourism and Events Management Minor (p. 234) is available, and has the option of being completed fully online.

This is a Green Leaf Program (p. 102).

**Admissions & Policies**

**Policies**

For all policies regarding undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).
# Requirements

## Degree Requirements

Total credits: 120

### Mason Core

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td>Information Technology (p. 136)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Quantitative Reasoning:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250 Introductory Statistics I (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 311 Women and Tourism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Global Understanding (p. 139)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 210 Global Understanding through Travel and Tourism (Mason Core) (p. 135) (recommended course)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Natural Science (p. 141)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthesis/Capstone</td>
<td>7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>37</td>
</tr>
</tbody>
</table>

1. May not be used to satisfy both degree and Mason Core requirements.

2. Fulfilled by TOUR 490 Hospitality, Tourism, and Events Management Internship (Mason Core) (p. 135), listed in professional sequence requirements.

### Professional Sequence

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRLS 310 Program Planning and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 410 Administration of SRT Organizations I</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 460 Sport and Recreation Law</td>
<td>3</td>
</tr>
<tr>
<td>SRST 450 Research Methods (Satisfies the university Writing Intensive requirement)</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 110 Professionalism and Civility</td>
<td>1</td>
</tr>
<tr>
<td>TOUR 200 Introduction to Tourism Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 220 Introduction to Event Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 230 Introduction to Hospitality Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 241 Hospitality, Tourism, and Events Management Practicum</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 340 Sustainable Tourism</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 412 Hospitality, Tourism, and Events Management Marketing</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 414 Hospitality, Tourism, and Events Management Finance</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 470 Career Preparation</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 490 Hospitality, Tourism, and Events Management Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>47</td>
</tr>
</tbody>
</table>

### Concentration in Events Management (EVNM)

Select eight courses (24 credits) from the following:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 190 Wedding Planning</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 214 Hospitality Tourism and Events Management Accounting</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 221 Event Implementation and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 313 Event Technology</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 314 Hospitality, Tourism, and Events Revenue Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 320 Hospitality Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 330 Resort Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 331 Cruise Ship Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 352 Heritage and Cultural Tourism</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 362 Cultural and Environmental Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 416 Hospitality Sales</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 420 Tourism Planning/Policy</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 440 Meetings and Conventions</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 450 Hospitality Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 480 Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 499 Independent Study (with department approval)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Total Credits</td>
<td>24</td>
</tr>
</tbody>
</table>

### Concentration in Hospitality Management (HPTM)

Select eight courses (24 credits) from the following:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 190 Wedding Planning</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 214 Hospitality Tourism and Events Management Accounting</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 301 Hotel Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 310 Food and Beverage Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 313 Event Technology</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 314 Hospitality, Tourism, and Events Revenue Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 320 Hospitality Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 330 Resort Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 416 Hospitality Sales</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 440 Meetings and Conventions</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 450 Hospitality Human Resources Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 460 Hospitality Facilities Operations</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 480 Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 499 Independent Study (with department approval)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>24</td>
</tr>
</tbody>
</table>
Concentration in Tourism Management (TRSM)

Select eight courses (24 credits) from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 214</td>
<td>Hospitality Tourism and Events Management Accounting</td>
</tr>
<tr>
<td>TOUR 311</td>
<td>Women and Tourism (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>TOUR 314</td>
<td>Hospitality, Tourism, and Events Revenue Management</td>
</tr>
<tr>
<td>TOUR 320</td>
<td>Hospitality Management Information Systems</td>
</tr>
<tr>
<td>TOUR 330</td>
<td>Resort Management</td>
</tr>
<tr>
<td>TOUR 331</td>
<td>Cruise Ship Management</td>
</tr>
<tr>
<td>TOUR 352</td>
<td>Heritage and Cultural Tourism</td>
</tr>
<tr>
<td>TOUR 362</td>
<td>Cultural and Environmental Interpretation</td>
</tr>
<tr>
<td>TOUR 416</td>
<td>Hospitality Sales</td>
</tr>
<tr>
<td>TOUR 420</td>
<td>Tourism Planning/Policy</td>
</tr>
<tr>
<td>TOUR 440</td>
<td>Meetings and Conventions</td>
</tr>
<tr>
<td>TOUR 450</td>
<td>Hospitality Human Resources Management</td>
</tr>
<tr>
<td>TOUR 480</td>
<td>Special Topics</td>
</tr>
<tr>
<td>TOUR 499</td>
<td>Independent Study (with department approval)</td>
</tr>
</tbody>
</table>

Total Credits: 24

May not be used to satisfy both degree and Mason Core (p. 135) requirements.

Electives

Select an additional 12 credits. (p. 1108)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
</tr>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
</tr>
<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
</tr>
<tr>
<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
</tr>
</tbody>
</table>

Option 1:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
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</tr>
<tr>
<td>BIOL 214</td>
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</tr>
<tr>
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<td>Foundations of Ecology and Evolution</td>
</tr>
</tbody>
</table>

Option 2:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
</tr>
<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
</tr>
<tr>
<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
</tr>
</tbody>
</table>

Option 3:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
</tr>
<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
</tr>
</tbody>
</table>

Option 4:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
</tr>
</tbody>
</table>

Accelerated Master's

Bachelor's Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS

Overview

This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master’s program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
</tr>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
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<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
</tr>
<tr>
<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
</tr>
<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
</tr>
</tbody>
</table>

By the beginning of the undergraduate's senior year, they should first submit a Graduate Application for Accelerated Master’s Program form (obtained from the Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us)). Secondly, in their senior year accelerated master's students must complete the two graduate courses indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. They must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. Upon completion and conferral of the undergraduate degree in a Green Leaf-designated (p. 102) program, in the semester indicated in the application, they must additionally submit the Bachelor's/Accelerated Master's Transition form (found on the Office of the University Registrar website (http://registrar.gmu.edu/forms)) and will subsequently be admitted into graduate status.

By at least the beginning of their senior year, they should seek out a faculty member in the Department of Environmental Science and Policy (p. 661) who is willing to serve as their advisor (unless the student is planning to enroll in the MS concentration in Environmental Management). This advisor will aid the student in choosing the appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master's concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason (called "program faculty") can serve as master's advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.
Application Requirements
Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog, excluding the GRE exam requirement (which is not required for those enrolled in the accelerated program). This includes three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate's proposed MS research), and a letter from their advisor stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate's research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department's website (http://esp.gmu.edu/academic-programs/graduate/admissions).

Reserve Graduate Credits
Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master's program and must then complete an additional 27-31 credits to receive the master's degree.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master's degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor's credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.

International Sport Management Graduate Certificate
Banner Code: E1-CERG-ISPM

Academic Advising
Email: gradsrht@gmu.edu
Website: rht.gmu.edu/sport-recreation-studies/international-sport-management-certificate

This graduate certificate offers students the opportunity to study the managerial aspects of international sport enterprises. Theoretically-grounded sport management skills will be examined and applied within the global context of the sport industry.

This graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements
Certificate Requirements
Total credits: 15

Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 551</td>
<td>Sport in the Global Marketplace</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 613</td>
<td>Strategic Leadership in Sport Organizations</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 620</td>
<td>Ethical Issues in Global Sport</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

Electives
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 555</td>
<td>The Australian Model of Sport</td>
</tr>
<tr>
<td>SPMT 556</td>
<td>The Global Soccer Industry</td>
</tr>
<tr>
<td>SPMT 651</td>
<td>Sport and International Development</td>
</tr>
<tr>
<td>SPMT 652</td>
<td>Governance and Policy in International Sport</td>
</tr>
</tbody>
</table>

Other SPMT graduate courses with advisor approval (p. 1962)
Other SRST graduate courses with advisor approval (p. 1966)
Other PRLS graduate courses with advisor approval (p. 1811)

Total Credits 6

Kinesiology Minor
Banner Code: KNES

Academic Advising
Phone: 703-993-5261
Email: lblue@gmu.edu
Website: rht.gmu.edu/kinesiology/minor/

Admissions & Policies

Admissions
This minor is available to all Mason undergraduate students except those earning a BS in Kinesiology.

Policies
Eight credits of coursework must be unique to the minor and may not be used to fulfill requirements of the student’s major, concentration, an
undergraduate certificate, or another minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Required Courses

- ATEP 300  Functional Anatomy  3
- KINE 200  Introduction to Personal Training  3
- KINE 310  Exercise Physiology I  3

Total Credits  9

Electives

Select three courses from the following:  9

- KINE 100  Introduction to Kinesiology
- KINE 250  Endurance Sport Program Design
- KINE 320  Principles of Human Nutrition
- KINE 350  Exercise Prescription and Programming
- KINE 360  Strength Training: Concepts and Applications
- KINE 370  Exercise Testing and Evaluation
- KINE 380  Exercise Prescription and Programming for Special Populations
- KINE 400  Biomechanics
- KINE 410  Exercise Physiology II
- KINE 420  Sport and Exercise Nutrition
- SPMT 320  Psychology of Sport

Total Credits  9

Kinesiology, BS

Banner Code: E1-BS-KNES

Academic Advising

Phone: 703-993-5261
Email: lblue@gmu.edu
Website: rht.gmu.edu/kinesiology/kinesiology-degree-requirements

This degree in kinesiology is a demanding science-based program designed to prepare students for a career in clinical exercise, coaching, corporate fitness, exercise and sport psychology, medical and exercise equipment sales, personal training, sport and exercise nutrition, sport science, or wellness/fitness management. The Kinesiology (KINE) program provides students with a strong science foundation for post-graduate specialized study in kinesiology or professional schools (e.g., chiropractic, medical, physical therapy). The KINE program has a comprehensive approach to the study of human movement. Three separate internship experiences totaling 700 hours provide KINE students with the opportunity to apply evidence-based knowledge and its practical application in general fitness, clinical and sports performance settings. The KINE degree is designed to assist students in their preparation for nationally-recognized certifications, specifically those offered by the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). See Admissions & Policies (p. 226) for details.

Admissions & Policies

Policies

Certification

Students are required to challenge either the ACSM-Certified Exercise Physiologist (EP-C) or the NSCA-Certified Strength and Conditioning Specialist (CSCS) exam by the 7th week of the semester in which they are enrolled in KINE 490 Kinesiology Internship III (Mason Core) (p. 135). All exam registration fees are the responsibility of the student. Scores must be reported to the KINE Internship Coordinator before students can receive credit for KINE 490 Kinesiology Internship III (Mason Core) (p. 135).

GPA and Grading

Students are required to maintain a minimum cumulative GPA of 2.5 each semester and to receive a grade of C or better in all major coursework (BIOL 124 Human Anatomy and Physiology, BIOL 125 Human Anatomy and Physiology, STAT 250 Introductory Statistics I (Mason Core) (p. 135), as well as all Professional Sequence courses). Failure to do so will result in probation or termination from the KINE program. The Kinesiology Academic Advisor is available to assist KINE students with course registration and academic plans. It is expected that KINE students will meet with their Academic Advisor each semester that they are enrolled at GMU.

Requirements

Degree Requirements

Total credits: 120

Mason Core

- Written Communication (p. 135)  6
- Oral Communication (p. 136)  3
- Information Technology (p. 136)  3
- Quantitative Reasoning:
  - STAT 250  Introductory Statistics I (Mason Core) (p. 135)  3
- Literature (p. 140)  3
- Arts (p. 137)  3
- Western Civilization/World History (p. 143)  3
- Social and Behavioral Sciences (p. 142)  3
- Global Understanding (p. 139)  3
- Natural Science:
  - BIOL 124  Human Anatomy and Physiology  4
  - BIOL 125  Human Anatomy and Physiology  4
  - Synthesis/Capstone  1

Total Credits  38

1  Fulfilled by KINE 490 Kinesiology Internship III (Mason Core) (p. 135), listed in professional sequence below.
Professional Sequence

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP 120</td>
<td>First Aid and Emergency Care</td>
<td>2</td>
</tr>
<tr>
<td>ATEP 300</td>
<td>Functional Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>HEAL 110</td>
<td>Personal Health</td>
<td>3</td>
</tr>
<tr>
<td>KINE 100</td>
<td>Introduction to Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>KINE 200</td>
<td>Introduction to Personal Training</td>
<td>3</td>
</tr>
<tr>
<td>KINE 310</td>
<td>Exercise Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>KINE 320</td>
<td>Principles of Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>KINE 330</td>
<td>Seminar in Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>KINE 341</td>
<td>Kinesiology Internship I</td>
<td>3</td>
</tr>
<tr>
<td>KINE 350</td>
<td>Exercise Prescription and Programming</td>
<td>3</td>
</tr>
<tr>
<td>KINE 360</td>
<td>Strength Training: Concepts and Applications</td>
<td>3</td>
</tr>
<tr>
<td>KINE 370</td>
<td>Exercise Testing and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>KINE 380</td>
<td>Exercise Prescription and Programming for Special Populations</td>
<td>3</td>
</tr>
<tr>
<td>KINE 400</td>
<td>Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>KINE 410</td>
<td>Exercise Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>KINE 420</td>
<td>Sport and Exercise Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>KINE 441</td>
<td>Kinesiology Internship II</td>
<td>3</td>
</tr>
<tr>
<td>KINE 450</td>
<td>Research Methods (fulfills writing intensive requirement)</td>
<td>3</td>
</tr>
<tr>
<td>KINE 490</td>
<td>Kinesiology Internship III (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>SPMT 320</td>
<td>Psychology of Sport</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 68

Electives

Select an additional 14 credits from any courses in the university catalog.

| Electives (p. 1108) | 14 |

Total Credits 14

Special Requirements

Fees and Expenses

All KINE (p. 1689) courses have a per credit fee of $15. Fees cover the following:

- laboratory supplies and equipment
- clinical supplies
- internship attire

Technical Standards

This degree is academically-rigorous with a significant experiential learning component, which places specific demands and requirements on its students. After admission into the KINE program, students must submit a technical standards certification statement indicating that they have read, understand, and can meet the technical standards for KINE students, either with or without accommodation. These standards outline the essential functional tasks that students must be able to perform to enroll in and complete the program. Students requiring special accommodations are encouraged to contact the Office of Disability Services (http://ds.gmu.edu).

Health Examinations and Certifications

KINE students are required to obtain a health examination and immunizations before beginning the internship phase of the program. Evidence of completion of the three hepatitis B immunizations and proof of tuberculosis screening in accordance with current U.S. Public Health Service recommendations must be provided. Costs associated with said screenings are to be assumed by the KINE student. Those who choose not to complete hepatitis B immunizations will be required to sign a declination waiver. All students must have Emergency Cardiac Care (CPR, AED) and First Aid certifications before entering their first internship experience and must maintain these certifications through the remainder of the KINE degree program.

Background Check

Students may be required to undergo a criminal background check prior to the first internship experience. Students must assume the risk that classes may be deferred and their program delayed due to the individual severity of notations on such a check and review by individual agencies. Students are encouraged to disclose any criminal background incidences to the KINE Program Coordinator prior to internship placement.

Outdoor Recreation and Experiential Leadership Undergraduate Certificate

Banner Code: E1-CERB-OREL

Academic Advising

Website: rht.gmu.edu/certificate-in-outdoor-recreation-and-experiential-leadership/

This certificate provides students who are pursuing or have previously earned an undergraduate degree the opportunity to develop specialized skills unique to a variety of outdoor adventure and experiential activities, such as backpacking, rock climbing, canoeing, kayaking, and challenge-course facilitation. Coursework focuses on the acquisition of technical skills and application of theory-to-experiential learning in an outdoor recreation curriculum. The certificate provides options to attain certification as low and high element facilitators and Wilderness First Responders. Students completing the certificate requirements will be fully prepared to work as challenge course facilitators, work as instructors at Outdoor Education/Adventure Education organizations, and effectively integrate outdoor experiential programs with existing educational curricula.

This undergraduate certificate may be pursued on a part-time basis.

Admissions & Policies

Policies

A completed undergraduate certificate may be posted to the transcript only after completion of a bachelor’s degree. If applying after earning a bachelor’s degree, transcripts from all attended universities must be submitted.

For policies governing all undergraduate certificates, see AP.5.3.5 Undergraduate Certificate Policies (p. 86).
Requirements

Certificate Requirements
Total credits: 25

Coursework
INTS 204 Leadership Theory and Practice 3
RECR 122 Exploring Outdoor Adventure 2
PRLS 210 Introduction to Recreation and Leisure 3
PRLS 220 Experiential Education Theory and Application 3
PRLS 221 Challenge Course Facilitation 3
PRLS 316 Leadership and Outdoor Education 3
Total Credits 17

Electives
Select 8 credits from the following:
INTS 195 Field-Based Work (max of 1 credit)
RECR 134 Rock Climbing: Introduction
RECR 121 Backpacking: Introduction
RECR 126 White-water Kayaking: Introduction
RECR 127 Coastal Kayaking: Intro
PRLS 180 White-water Canoeing
PRLS 181 White-water Canoeing II
PRLS 200 Wilderness First Responder
PRLS 250 Wilderness Travel and Sustainability
PRLS 480 Special Topics in Recreation Management
Total Credits 8

Physical Education, BSEd
Banner Code: E1-BSED-PHED

Academic Advising
Phone: 703-993-2096
Email: lkrou@gmu.edu
Website: rht.gmu.edu/health-and-physical-education/

This degree program is accredited by the National Council for Accreditation of Teacher Education (NCATE). Completing this degree fulfills requirements for licensure in Health and Physical Education (PK-12) in Virginia. Students complete a student teaching experience in their final semester.

Admissions & Policies

Admissions

Four-Year Students
Students entering as freshmen with an interest in majoring in physical education will initially be accepted with BPRED status (Pre-Bachelor in Health and Physical Education). Students must successfully complete a minimum of 45 credits and attain a cumulative GPA of 2.50 to apply to the BSED in Physical Education Program. In addition, students must:

- submit passing scores for the Praxis Core Academic Skills for Educators Tests:
  - Reading (5712)
  - Writing (5722)
  - Mathematics (5732)
  - or passing scores on approved substitute tests
- have earned passing grades in
  - BIOL 124 Human Anatomy and Physiology
  - BIOL 125 Human Anatomy and Physiology
  - PHED 201 Developmental Motor Patterns
  - PHED 202 Teaching Skillful Movement
- have earned at least 10 professional points (https://rht.gmu.edu/health-and-physical-education/professional-development-plan).

Degree-Seeking Transfer Students
Transfer students can apply for BSEd status by having:

- earned a minimum of 45 credits from their previous institution with a cumulative GPA of 2.50 or by completing 12 credits at Mason with a minimum of a 2.50 GPA;
- submitted passing scores for the Praxis Core Academic Skills for Educators Tests:
  - Reading (5712)
  - Writing (5722)
  - Mathematics (5732)
  - or passing scores on approved substitute tests
- passed
  - BIOL 124 Human Anatomy and Physiology
  - BIOL 125 Human Anatomy and Physiology
  - PHED 201 Developmental Motor Patterns
  - PHED 202 Teaching Skillful Movement
- earned at least 10 professional points (https://rht.gmu.edu/health-and-physical-education/professional-development-plan).

Policies

For policies governing all undergraduate degrees, see the AP.5 Undergraduate Policies (p. 84) section of the catalog.

Student Teaching Internship
To enroll in PHED 415 Student Teaching in Physical Education (Mason Core) (p. 135), physical education majors must:

- have a minimum 2.50 GPA in the last 60 credits of coursework
- have passed and electronically submitted test scores for the VCLA and PRAXIS II exams to George Mason University and provide a paper copy of the test scores to the internship coordinator
- have satisfactorily completed all required Mason core and professional concentration courses.

The application must be completed one full semester before taking PHED 415 Student Teaching in Physical Education (Mason Core) (p. 135). Application deadlines are listed below and forms are located online (http://rht.gmu.edu/programs/phed/student_teaching).
Application Deadlines
• Fall Semester—February 1
• Spring Semester—September 1

Requirements

Degree Requirements
Total credits: 120

Mason Core
Written Communication (p. 135) 6
Oral Communication (p. 136) 3
Information Technology (p. 136) 3
Quantitative Reasoning (p. 136) 3
  MATH 106 Quantitative Reasoning (Mason Core) (p. 135) (recommended course)
Literature (p. 140) 3
Arts (p. 137) 3
Western Civilization/World History (p. 143) 3
Social and Behavioral Sciences (p. 142) 3
Global Understanding (p. 139) 3
Natural Science:
  BIOL 124 Human Anatomy and Physiology 4
  BIOL 125 Human Anatomy and Physiology 4
Synthesis/Capstone 1
Total Credits 38

1 Fulfilled by PHED 415 Student Teaching in Physical Education (Mason Core) (p. 135), listed below in professional sequence.

Professional Sequence
Note: Students are not permitted to enroll in HEAL 405 Teaching Methods in Health Education (K-12), PHED 308 Adapted Physical Education, PHED 403 Elementary School Instruction in Physical Education, PHED 404 Middle and High School Instruction in Physical Education, and PHED 415 Student Teaching in Physical Education (Mason Core) (p. 135), until they have met all BSEd application requirements.

ATEP 120 First Aid and Emergency Care 2
ATEP 300 Functional Anatomy 3
EDRD 300 Literacy and Curriculum Integration 3
EDUC 302 Human Growth and Development 3
HEAL 110 Personal Health 3
HEAL 200 School and Community Safety 1
HEAL 220 Dimensions of Mental Health 3
HEAL 310 Drugs and Health 3
HEAL 325 Health Aspects of Human Sexuality 3
HEAL 405 Teaching Methods in Health Education (K-12) 1 3
KINE 310 Exercise Physiology I 1 3
KINE 320 Principles of Human Nutrition 3
PHED 199 Introduction to Health and Physical Education 1
PHED 201 Developmental Motor Patterns 1 3

PHED 202 Teaching Skillful Movement 1 3
PHED 218 Technology in Health and Physical Education
PHED 273 Net and Target Games 2
PHED 274 Dance and Educational Gymnastics 2
PHED 275 Field and Invasion Games 2
PHED 276 Health-Related Fitness Education 2
PHED 306 Psychomotor Learning 3
PHED 308 Adapted Physical Education 1 3
PHED 320 Student Assessment in Health and Physical Education
PHED 340 Social and Cultural Issues in Physical Education (Satisfies the university Writing Intensive requirement) 3
PHED 403 Elementary School Instruction in Physical Education 1 3
PHED 404 Middle and High School Instruction in Physical Education 1 3
PHED 415 Student Teaching in Physical Education (Mason Core) (p. 135) 2 12
PRLS 316 Leadership and Outdoor Education 3
Total Credits 82

1 Requires a grade of C or better.
2 Students must complete student teaching (PHED 415 Student Teaching in Physical Education (Mason Core) (p. 135)) within 5 years of completing PHED 201 Developmental Motor Patterns and PHED 202 Teaching Skillful Movement. If more than five years has lapsed between taking PHED 201 Developmental Motor Patterns and PHED 202 Teaching Skillful Movement and student teaching (PHED 415 Student Teaching in Physical Education (Mason Core) (p. 135)), students will have to retake these two foundational courses before they can student-teach.

Professional Development and Fitness Requirement
Students must earn at least 10 professional development points (https://rht.gmu.edu/health-and-physical-education/professional-development-plan) to achieve BSEd status and 20 additional points to apply for student teaching. Professional development points may be earned by attending or volunteering at various events and activities.

Additionally, students will be expected to achieve and maintain the healthy zone of health related fitness as measured by FitnessGram® throughout their program. Accommodations will be made for students with documented physical disabilities.

Recreation Management Minor
Banner Code: RMGT

Academic Advising
Phone: 703-993-2027
Email: jkozlows@gmu.edu
Website: rht.gmu.edu/recreation-management/advising
Admissions & Policies

Admissions
This minor (including a practicum) is available to all Mason undergraduate students, with the exception of those enrolled in the Health, Fitness, and Recreation Resources, BS (p. 219) with a concentration in either Parks and Outdoor Recreation or Therapeutic Recreation.

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Coursework
All required 200 and 300 PRLS courses must be completed first.

PRLS 210 Introduction to Recreation and Leisure
PRLS 241 Practicum
PRLS 310 Program Planning and Evaluation
PRLS 316 Leadership and Outdoor Education
PRLS 327 Foundations of Therapeutic Recreation
PRLS 410 Administration of SRT Organizations

Total Credits

Sport Coaching Graduate Certificate
Banner Code: E1-CERG-SPTC

Academic Advising
Phone: 703-993-2060
Email: gradsrht@gmu.edu
Website: rht.gmu.edu/sport-recreation-studies/sports-coaching-certificate

This graduate certificate offers students the opportunity to study the managerial aspects of international sport enterprises. Theoretically-grounded sport management skills will be examined and applied within the global context of the sport industry.

This graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions
This minor is available to all Mason undergraduate students, with the exception of those enrolled in the Health, Fitness, and Recreation Resources, BS (p. 219) with a concentration in Sport Management.

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Certification Requirements
Total credits: 15

Required Courses
- SPMT 614 Legal Issues in Sport
- SPMT 618 Psychology of Coaching
- SPMT 631 Theoretical Models of Sport Coaching

Total Credits

Electives
Select two courses from the following:
- SRST 598 Special Topics
- SPMT graduate courses (p. 1962)
- SRST graduate courses (p. 1966)
- PRLS graduate courses (p. 1811)
- Additional courses with advisor approval

Total Credits

Sport Management Minor
Banner Code: SPMT

Academic Advising
Phone: 703-993-5200
Email: mgnoleba@gmu.edu
Website: rht.gmu.edu/sport-management/degree-options/minor/

This minor introduces students to the sports industry and the sport management academic discipline. Students will learn about the principles of finance, economics, policy and governance as they relate to sports organizations. They will then have the opportunity to choose from a series of sport management courses to complete the minor, based on their area of theoretical or practical interest.
Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 201</td>
<td>Introduction to Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 420</td>
<td>Economics and Finance in the Sport Industry</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 455</td>
<td>Governance and Policy in Sport Organizations</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRLS 410</td>
<td>Administration of SRT Organizations I</td>
<td></td>
</tr>
<tr>
<td>PRLS 460</td>
<td>Sport and Recreation Law</td>
<td></td>
</tr>
<tr>
<td>SPMT 302</td>
<td>Philosophical and Ethical Dimensions of Sport</td>
<td></td>
</tr>
<tr>
<td>SPMT 304</td>
<td>Sport, Culture, and Society</td>
<td></td>
</tr>
<tr>
<td>SPMT 405</td>
<td>Sport Venues and Events</td>
<td></td>
</tr>
<tr>
<td>SPMT 412</td>
<td>Sport Marketing and Sales</td>
<td></td>
</tr>
<tr>
<td>SPMT 430</td>
<td>Sport Communication</td>
<td></td>
</tr>
<tr>
<td>SPMT 440</td>
<td>Global Perspectives in Sport</td>
<td></td>
</tr>
<tr>
<td>SPMT 480</td>
<td>Special Topics in Sport Management</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 18

Sport and American Culture Minor

Banner Code: SAMC

Academic Advising

Phone: 703-993-1250
Email: celzey@gmu.edu
Website: rht.gmu.edu/sport-management/degree-options/sport-and-american-culture-undergraduate-minor/

This interdisciplinary minor is offered jointly by the School of Recreation, Health, and Tourism and the Department of History and Art History (p. 381). This minor is for students who want to immerse themselves in the study of sport, sociology and history. Students must take two required and four elective courses (two from Sport Management and two from History).

Admissions & Policies

Admissions

This minor is available to all Mason undergraduate students.

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 341</td>
<td>History of Sport in the United States</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives (Sport Management)

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 304</td>
<td>Sport, Culture, and Society</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

Sport and Computer Game Design Minor

Banner Code: SCGD

Academic Advising

Phone: 703-993-5200
Email: mgnoleba@gmu.edu
Website: rht.gmu.edu/sport-management/degree-options/sport-and-computer-game-design

This minor is offered jointly with Computer Game Design (p. 777). It offers academic preparation in an industry that has seen rapid expansion in the sale, design, and production of sport-related games around the world. The required courses provide students with a foundational overview of the sports industry, the sport management academic discipline, and computer game design. Students can complement that knowledge with the selection of courses in these two disciplines that meet their individual interests.

Admissions & Policies

Admissions

This minor is available to all Mason undergraduate students.

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAME 210</td>
<td>Basic Game Design</td>
<td>3</td>
</tr>
</tbody>
</table>
Sport and Conflict Resolution Minor (CEHD)

Banner Code: SCNR

Phone: 703-993-9922
Email: cesheric@gmu.edu

There has been a real growth in the establishment of non-profit organizations that use ‘sport for development’, sport to bring diverse communities together and also ‘sport for peace’ organizations in high conflict areas of the world. This minor will help prepare students to work for organizations dedicated to using sports for development, community building and peace. It provides students with a cross section of courses in sports management and conflict resolution. Courses in sports management frame the sports industry in a philosophical, ethical, cultural and business context. Conflict resolution courses will introduce students to foundational concepts in the study of human conflict, the analysis of conflict and problem solving techniques for helping to resolve conflict.

This is an interdisciplinary minor offered by the School for Conflict Analysis and Resolution (p. 882) and the School of Recreation, Health, and Tourism. (p. 211)

Admissions & Policies

Admissions

This minor is available to all Mason undergraduate students.

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 84).

Requirements

Minor Requirements

Total credits: 18

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 201</td>
<td>Introduction to Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 302</td>
<td>Philosophical and Ethical Dimensions of Sport</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 304</td>
<td>Sport, Culture, and Society</td>
<td>3</td>
</tr>
<tr>
<td>CONF 101</td>
<td>Conflict and Our World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 300</td>
<td>Conflict Resolution Techniques and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Elective Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 302</td>
<td>Culture, Identity, and Conflict</td>
<td>3</td>
</tr>
<tr>
<td>CONF 435</td>
<td>Building Peace in Divided Societies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Sport and Recreation Studies, MS

Banner Code: E1-MS-SRST

Academic Advising

Phone: 703-993-2060
Email: gradrht@gmu.edu
Website: rht.gmu.edu/sport-recreation-studies/

This masters, consisting of four concentrations, meets the growing need for professionals and academics in the areas of recreation administration, sport and leisure studies, sport management, and individualized study in sport, recreation, and tourism. This degree prepares students as professionals who will more adequately serve the industry and their communities, and students who wish to pursue advanced study through doctoral programs in these disciplinary areas, leading to employment (and contributions) in academe. This program offers the traditional research masters’ thesis option and the option of an applied research project linked to a professional setting or internship.

Graduate certificates in Sport Coaching (p. 230) and International Sport Management (p. 225) may be taken in conjunction with the MS SRST degree or as stand alone options.
Admissions & Policies

Admissions

Application Requirements
In addition to fulfilling admission requirements for graduate study as specified in Graduate Admissions (p. 66), applicants must have successfully completed an undergraduate course in statistics.

Policies
For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 30

MS Core Coursework
Students are required to take a set of four courses that will provide grounding in historical and socio-cultural foundations, research methods and statistics, ethical and legal issues, and leadership perspectives. In addition, all students will complete a seminar, and either a capstone thesis or project/internship specific to their concentration.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRST 606</td>
<td>Foundations of Sport and Recreation Studies</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 613</td>
<td>Strategic Leadership in Sport Organizations</td>
<td>3</td>
</tr>
<tr>
<td>or PRLS 613</td>
<td>Strategic Leadership in Recreation Administration</td>
<td></td>
</tr>
<tr>
<td>SPMT 614</td>
<td>Legal Issues in Sport</td>
<td>3</td>
</tr>
<tr>
<td>or PRLS 501</td>
<td>Introduction to Natural Resources Law</td>
<td></td>
</tr>
<tr>
<td>SRST 623</td>
<td>Research Design and Statistical Reasoning</td>
<td>3</td>
</tr>
<tr>
<td>SRST 796</td>
<td>Seminar in Sport and Recreation Studies</td>
<td>1</td>
</tr>
<tr>
<td>Select 5 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRST 798</td>
<td>Master's Project/Internship</td>
<td></td>
</tr>
<tr>
<td>SRST 595 &amp; SRST 799</td>
<td>Thesis Preparation and Master's Thesis</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>18</td>
<td></td>
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</tbody>
</table>

Concentration in Recreation Administration (RADM)

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRLS 610</td>
<td>Recreation Administration and Planning</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 611</td>
<td>Social Psychology of Leisure</td>
<td>3</td>
</tr>
<tr>
<td>Select 6 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRLS 531</td>
<td>Natural Resources Recreation Planning</td>
<td></td>
</tr>
<tr>
<td>PRLS 533</td>
<td>Visitor Services</td>
<td></td>
</tr>
<tr>
<td>PRLS 601</td>
<td>History of Leisure and Sport in American Society</td>
<td></td>
</tr>
<tr>
<td>PRLS 612</td>
<td>Philosophy of Leisure and Sport</td>
<td></td>
</tr>
<tr>
<td>SRST 598</td>
<td>Special Topics (must register for 3 credits)</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

1. Additional courses may be selected as electives with advisor approval

Concentration in Sport and Leisure Studies (SPLS)

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRLS 601</td>
<td>History of Leisure and Sport in American Society</td>
<td>3</td>
</tr>
<tr>
<td>PRLS 612</td>
<td>Philosophy of Leisure and Sport</td>
<td>3</td>
</tr>
<tr>
<td>Select 6 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRLS 611</td>
<td>Social Psychology of Leisure</td>
<td></td>
</tr>
<tr>
<td>SPMT 551</td>
<td>Sport in the Global Marketplace</td>
<td></td>
</tr>
<tr>
<td>SPMT 561</td>
<td>Sport and International Development</td>
<td></td>
</tr>
<tr>
<td>SRST 598</td>
<td>Special Topics (must register for 3 credits)</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

1. Additional courses may be selected as electives with advisor approval

Concentration in Sport Management (SPMT)

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 611</td>
<td>Sport Marketing and Sales</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 612</td>
<td>Economics and Financial Management in the Sport Industry</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 616</td>
<td>Sport Operations, Venues, and Event Management</td>
<td>3</td>
</tr>
<tr>
<td>Select 3 credits from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPMT 551</td>
<td>Sport in the Global Marketplace</td>
<td></td>
</tr>
<tr>
<td>SPMT 555</td>
<td>The Australian Model of Sport</td>
<td></td>
</tr>
<tr>
<td>SPMT 556</td>
<td>The Global Soccer Industry</td>
<td></td>
</tr>
<tr>
<td>SPMT 618</td>
<td>Psychology of Coaching</td>
<td></td>
</tr>
<tr>
<td>SPMT 620</td>
<td>Ethical Issues in Global Sport</td>
<td></td>
</tr>
<tr>
<td>SPMT 631</td>
<td>Theoretical Models of Sport Coaching</td>
<td></td>
</tr>
<tr>
<td>SPMT 651</td>
<td>Sport and International Development</td>
<td></td>
</tr>
<tr>
<td>SPMT 652</td>
<td>Governance and Policy in International Sport</td>
<td></td>
</tr>
<tr>
<td>SRST 598</td>
<td>Special Topics (must register for 3 credits)</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

1. SPMT 612 Economics and Financial Management in the Sport Industry may not be used to satisfy the concentration requirement if taken in SRST core.
2. Additional courses may be selected as electives with advisor approval

Concentration in Individualized Study in Sport, Recreation, and Tourism (ISRT)

With advisor approval, select four 3-credit courses within the university catalog that form an integrated program of study.

Total Credits: 12
Accelerated Master’s

Bachelor’s Degree (any)/Sport and Recreation Studies, Accelerated MS

Overview

Qualified Mason undergraduates may be admitted to a bachelor’s/accelerated master’s program and obtain a BA or BS in any degree area and a Sport and Recreation Studies, MS. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this option.

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). Additionally, applicants must have an overall GPA of at least 3.00. See the Accelerated Master’s Admissions (https://www2.gmu.edu/admissions-aid/how-apply/accelerated-masters) webpage to apply.

Accelerated Option Requirements

During their senior year, students complete three to six graduate credits in consultation with the academic program coordinator that apply to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the master’s. A minimum grade of B must be earned to be eligible to count as advanced standing. While still in undergraduate status, students may take up to six graduate credits that are reserve graduate credit and therefore, are applicable to the master’s but do not count toward the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which courses are to be designated as advanced standing and reserve graduate credit.

Sports Analytics Minor

Banner Code: SPTA

This minor provides students with a foundational understanding of the sports industry coupled with the study of how data can be used in the world of sports to enable teams, leagues and other sports businesses to acquire an advantage over their competitors. With the successful completion of this minor, students should be able to use various statistical models and other analytic tools to help sports organizations improve performance in some of the following areas: season ticket sales, luxury box sales, marketing, talent identification, scouting of opponents, the prediction of industry trends and customer service.

This minor is offered jointly with the School of Business (p. 846), College of Science (p. 593), and Volgenau School of Engineering (p. 953).

Admissions & Policies

Admissions

This minor is available to all Mason undergraduate students.

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Tourism and Events Management Minor

Banner Code: TEM

Academic Advising

Phone: 703-993-5200
Email: mgnoleba@gmu.edu
Website: rht.gmu.edu/hospitality-tourism-and-events-management/degree-options/minor/

Admissions & Policies

Admissions

This minor is available to all Mason undergraduate students, with the exception of those enrolled in the Tourism and Events Management, BS (p. 222).

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
Requirements

Minor Requirements
Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 200</td>
<td>Introduction to Tourism Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 220</td>
<td>Introduction to Event Management</td>
<td>3</td>
</tr>
<tr>
<td>TOUR 340</td>
<td>Sustainable Tourism</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Electives
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOUR 190</td>
<td>Wedding Planning</td>
</tr>
<tr>
<td>TOUR 210</td>
<td>Global Understanding through Travel and Tourism (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>TOUR 221</td>
<td>Event Implementation and Evaluation</td>
</tr>
<tr>
<td>TOUR 230</td>
<td>Introduction to Hospitality Management</td>
</tr>
<tr>
<td>TOUR 311</td>
<td>Women and Tourism (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>TOUR 313</td>
<td>Event Technology</td>
</tr>
<tr>
<td>TOUR 330</td>
<td>Resort Technology</td>
</tr>
<tr>
<td>TOUR 352</td>
<td>Heritage and Cultural Tourism</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
</tr>
</tbody>
</table>

College of Health and Human Services

B402 Robinson Hall
Fairfax Campus
MSN: 3C4
Phone: 703-993-1901
Website: chhs.gmu.edu

Administration

- Thomas Prohaska, Dean
- Christine Coussens, Associate Dean, Community Engagement
- Keith Howell, Associate Dean, Research and Program Evaluation
- Frank J. Whittington, Senior Associate Dean, Academic Affairs
- Susan J. Swett, Assistant Dean, Student Affairs
- Catherine Tompkins, Assistant Dean, Undergraduate Studies
- Lisa R. Joyner, Director, Budget and Administration

College Code: HH

The college prepares students to provide professional leadership, care, and services related to health promotion, wellness, disease prevention, and quality of life through the advancement of physical, social, and environmental health practices.

Since 1974, with the approval of its first baccalaureate nursing program, CHHS has evolved and expanded in response to the ever-changing fields of health care and social work. The college is multidisciplinary and offers degree programs and research opportunities in health administration, health policy, health information systems, health services research, nursing, public health, nutrition, global health, rehabilitation science, gerontology, and social work.

CHHS offers regular information sessions to prospective students. For dates and times, or to register for a session, visit the information sessions website (http://chhs.gmu.edu/information-sessions) or call the CHHS Office of Student Affairs at 703-993-1901.

Academic Programs

CHHS is committed to educating the next generation of health professionals, researchers, and educators. Our School of Nursing (p. 280) produces more new RNs each year than any other program in Virginia, and these graduates have one of the state's highest pass rates on the nursing licensure exam. Through the PhD program in nursing, the college is helping to fill the need for nursing faculty and researchers, and through the DNP program, provides an opportunity for nurses to become experts as nurse practitioners, nurse administrators, or nurse educators.

The Department of Health Administration and Policy (p. 247) prepares students for careers as leaders of health care organizations and as health policymakers at the state and national levels, while the Department of Global and Community Health (p. 237) trains public health practitioners with a global reach, who can intervene and improve the health of local and international populations. The Department of Rehabilitation Science (p. 266) provides interdisciplinary programs to educate students to address the needs of the disabled. Graduates of the PhD program in rehabilitation science are prepared for careers in academic, governmental, and industrial research environments. The Department of Nutrition and Food Studies (p. 262) integrates education, research, and outreach in preparing students to improve the health and well-being of populations through food and nutrition. The Department of Social Work (p. 271) educates undergraduate and graduate students to be professional social workers practicing in either community organizations or clinical settings. The CHHS academic units offer a variety of specializations within degree programs, including gerontology, epidemiology and biostatistics, health informatics, clinical social work, and conflict analysis and resolution.

Faculty

College Faculty

Professors

Associate Professors

Assistant Professors
Almond, Avramovic, Blair, Brewster, Brown, Cantiello, de Jonge, Dugger, Fleming, Gallo, Garrison, Gupta, Harman, Herrick, Iannitto, Inoue, Karczmarczyk, Kelly, Kieu, Kirsch, Kodadek, Krall, LaCharite, Lee, Madison, Middle, Miklancie, Min, Oetjen, Paeglow, Painter, Pollack, Poms,
Instructors
Burke, Cornejo, Cuffee, Gendron-Trainer, Henderson, Prudden, Westberg

Assistant Research Professors
Chin, Collins

Research Instructors
Kicinger

Administrative Faculty
Bartush, Beckwith, Brewer, Gaston, Gillette, Helmick, Johnson, Joyner, Park, Perez-Brodeur, Polk, Sawyer, Swett, Walsh, Weissborn

Faculty Emeriti
Ailinger, Baghi, Boland, Boyd, Brenkus, Carty, Chong, Jenkins, Langley, Moore, Moss, Normile, Parker-Smith, Raskin, Redmond, Silva, Sluzki, Sorrell, Travis, Vail, Walker, Wu

Requirements & Policies

Policies

Professional Conduct Policy
All CHHS students are expected to conduct themselves professionally at all times. This means that certain behavior is prohibited, including verbal abuse, insubordination, and behavior that threatens the safety of a client, another student, a faculty member, or other health care provider when the behavior occurs within the context of an academic program. CHHS reserves the right to place on probation, suspend, or terminate any student in its programs who engages in such conduct. Students disciplined for such reasons have the right to appeal to their department chair or director.

Student Affairs

The Office of Student Affairs supports students, faculty, and staff members on a variety of admissions, academic, and policy issues. Student Affairs is involved in recruiting new students; pre-admissions advising; processing applications for graduate programs and undergraduate nursing programs; and conducting orientations for newly admitted students.

Student Affairs maintains the college’s student records; reviews and recommends action on student requests for exceptions to academic policy; processes standard academic actions; and approves student records for degree completion prior to graduation. Student grade appeals fall under university policy as described in AP.3.9 Grade Appeals (p. 82).

Each CHHS student is assigned an academic advisor, with whom he or she should meet at least once per semester in order to ensure that program requirements are met. The assigned advisor may be a faculty member, a departmental program coordinator, or an advisor in the Office of Student Affairs.

Student Responsibility
All students are required to have an active Mason e-mail account (http://itsupport.gmu.edu) and to update any change of address on-line through Patriot Web (https://patriotweb.gmu.edu). The college will not communicate with students via a personal e-mail address, so it is important that students check their Mason e-mail regularly. Students are responsible for knowing the university academic policies and the policies governing their program as stated in the university catalog. They are also responsible to know the semester academic calendar including withdrawal deadlines; to review their Mason transcript on-line to ensure transfer of credit accuracy; and to monitor their degree progression through the degree evaluation tool on Patriot Web (https://patriotweb.gmu.edu).

Background Checks
Many clinical agencies and practicum sites mandate that students working there have a criminal background check. All students enrolled in the School of Nursing are required to complete a criminal background check prior to beginning the program. Students enrolled in other CHHS programs may be required to complete background checks before entering a practicum environment. Information obtained from the background check is strictly confidential but may result in a student’s inability to perform clinical or practicum activities and, therefore, will disqualify the student from entering or continuing in the program. School of Nursing students are sent information regarding the criminal background check process, and associated fees, in their admission packets. Other students are informed individually as they are considered for practicum activities requiring background checks. Students are responsible for notifying the assistant dean of student affairs of any arrests, regardless of adjudication, that occur after acceptance and during enrollment in the program. Failure to promptly notify the assistant dean of student affairs may be grounds for termination from the program.

Health Records
To comply with the policies established by the Commonwealth of Virginia, all students must provide current immunization records to the university’s Student Health Services at the time of admission to the college. Immunizations may be obtained through Student Health Services (http://shs.gmu.edu) on any of the Mason campuses. All students in the School of Nursing also must submit immunization records to the School of Nursing at the time of admission. Additional documentation of good health may be required.

Students should keep copies of their health records should agencies require them for clinical and practicum assignments. All costs associated with immunizations and certifications are the student’s responsibility.

Insurance and Liability
Students are strongly advised to maintain health insurance coverage at all times. All students enrolled in the School of Nursing are required to maintain health insurance at all times. A student health insurance plan (http://shs.gmu.edu/insurance) is available to eligible students through Mason. Students are responsible for their own health care, including emergency care, and CHHS assumes no financial responsibility for the health care of students. Enrolled students who are performing internships and similar experiential learning as a required part of their academic programs are considered agents of the university. They are covered for professional liability by the Commonwealth of Virginia Risk Management Plan (http://risk.gmu.edu) while engaged in their prescribed educational duties.

Academic Outreach
The mission of the Office of Academic Outreach is to provide off-campus graduate coursework that supports the continued professional development and competency of practicing health professionals. This purpose is accomplished through collaborative relationships with expert...
health and instructional resources—individual and organizational—both internal and external to the University.

**Academic Policies**

Students should become familiar with the university's general academic policies in addition to those specific to each academic unit. See Academic Policies (p. 74).

**Graduate Admission**

Admission decisions are made by the faculty committee on admissions of the respective graduate programs. Denial of admission is not subject to appeal. Applicants denied admission to a program are not permitted to enroll in courses in that program through Non-Degree Studies.

If an applicant is offered graduate admission, the college reserves the right to withdraw that offer of admission or to terminate a student in a graduate program if:

- During his or her academic studies, the admitted applicant has a significant drop in academic performance or fails to graduate with a degree prior to the first day of classes for the term admitted.
- There has been a misrepresentation in the application process.
- Prior to the first day of classes for the term admitted, the college learns that the admitted applicant has engaged in behavior that indicates a serious lack of judgment or integrity, irrespective of the outcome of any disciplinary process related to such behavior.

The university further reserves the right to require the applicant to provide additional information (and/or authorization for the release of information) about any such matter.

**Non-Degree Enrollment**

Non-degree status enables students who have no immediate degree objective or may need to satisfy prerequisites for admission to a degree program to enroll in courses for which they are qualified without seeking formal admission to a degree program. Applicants should be aware of the fact that non-degree admission does not guarantee enrollment in any specific course or future degree program. Enrollment in specific courses is based on eligibility criteria and availability of space in courses. In some areas of study, enrollment may be restricted or prohibited.

Non-degree applications and their established deadlines are available online through the Office of Admission (https://www2.gmu.edu/admissions-aid). Detailed information regarding non-degree admission policies and procedures can be found in Non-Degree Enrollment (p. 71).

The Department of Global and Community Health, the Department of Health Administration and Policy, the Department of Nutrition and Food Studies, and the Department of Social Work welcome non-degree students in their classes on a space-available basis. Programs in the College of Health and Human Services which have course restrictions are listed below.

**Graduate Non-Degree Restrictions**

**All Graduate Programs**

Students may take a maximum of 9 credit hours in non-degree studies. A student cannot graduate or receive a degree while in non-degree studies. Non-degree graduate students may not register for classes numbered 800 or higher.

**Nursing, MSN**

A student may be eligible to enroll in approved non-degree MSN courses when space is available if the student:

- Has not applied for the MSN program and has not been previously denied admission to the MSN program
- Holds a BSN from an accredited college and achieved a cumulative degree GPA of 3.00
- Holds a current RN license

MSN non-degree students may not take classes numbered 800 or higher. In addition, they may take a maximum of 9 credit hours in non-degree studies.

**Undergraduate Non-Degree Restrictions**

**Nursing, BSN**

Students must be admitted into the BSN program in order to register for undergraduate nursing (NURS) courses.

**Department of Global and Community Health**

Phone: 703-993-3126
Website: chhs.gmu.edu/gch

**Administration**

- Robert Weiler, Chair

The Department of Global and Community Health (GCH) brings together faculty and students from the disciplines of biostatistics, epidemiology, environmental health, and the behavioral and social sciences. The educational mission of GCH is to provide high-quality undergraduate and graduate degrees and certificates in the core disciplines of community, global, and public health that prepare students to enter the domestic and global public health workforce. The research mission of GCH is to conduct innovative research that addresses pressing and emerging domestic and global health problems and security threats. Establishing partnerships that promote and protect health and well-being, especially among underserved and disadvantaged populations, is the principal focus of our service mission.
Faculty

Department Faculty

Professors
Howell (associate dean for research and program evaluation), Jacobsen, Metcalf, Prohska (Dean), Weiler (Chair), Whittington (Senior Associate Dean for Academic Affairs)

Associate Professors
Cousenss (Associate Dean for Community Engagement), Frankenfeld, Lindley, Weinstein (Center for the Study of Chronic Illness and Disability, Interim Director)

Assistant Professors
Fleming, Gupta, Karczmarczyk, Krall, Paeglow, Painter, Pollack, Poms, Rossheim, von Fricken, Winter

Administrative Faculty
Beckwith (Master of Public Health Program Coordinator), Gillette (Undergraduate Advisor), Helmick (Instructional Designer)

Emeriti
Baghi, Szucli

Requirements & Policies

Requirements

Academic Advising
Each student is assigned an academic advisor who is a faculty member within their academic department or a professional academic advisor within the Office of Student Affairs (OSA). Academic advisor assignments are listed on the CHHS website (http://chhs.gmu.edu/students/advising-gch.cfm), and students are expected to meet with their advisor regularly (at least once each semester) to seek advice about academic schedules and program plans. Students also should meet with their advisor if they are experiencing academic difficulty.

Student Responsibilities
All students are responsible for knowing the requirements of their major as specified in the university catalog for their catalog year; academic deadlines outlined in the semester academic calendar (http://registrar.gmu.edu/calendars); and university policies and procedures as stated in the catalog.

Students also should run their own degree-evaluation (http://registrar.gmu.edu/students/degree-evaluation) to identify graduation requirements and progress towards their degree. While academic advisors can give advice to students, students are responsible for the academic planning decisions they make. Academic advisors cannot be held responsible for mistakes made by students in selecting courses that may not count towards their degree and thus delay a desired graduation date.

Programs

- Community Health, BS
- Global Health, Minor

Community Health, BS

Banner Code: HH-BS-COMH

Academic Advising
Website: chhs.gmu.edu/students/advising-gch.cfm

Community, global, and public health are the fastest growing, most exciting, and versatile areas of study on college campuses across the United States today. Community health is the applied science of protecting and improving the health of individuals, families, populations, and communities using evidence-based health promotion and disease prevention programs and policies. This degree provides students with a basic knowledge and understanding of community and public health systems, and issues and policies related to health promotion, health education and disease prevention in populations of all sizes. Community, public, and global health specialists work with a variety of health-related organizations and are expected to confront complex behavioral, cultural and social health and well-being issues at the local, national and global levels. Community health students develop the competencies and skills necessary for entry-level positions in a variety of professional settings such as local, state, and federal health and social service agencies and non-governmental and voluntary health organizations, health care, and private industry. This program is unique in that it provides a solid foundation for students interested in pursuing graduate degrees in public health or advanced training in a health profession (see the clinical science concentration). Students completing this degree are eligible for and strongly encouraged to take the Certified Health Education Specialist (CHES) exam.

Optional Concentrations
Students may wish to complete an optional concentration in Global Health or Clinical Science.

Global Health Concentration
The Global Health concentration focuses on understanding diseases and other health security threats reflecting the new global landscape, such as tobacco use and obesity, and emerging pandemics such as avian influenza, Ebola, and the Zika virus. Students complete the required coursework for the BS in Community Health and specialized coursework in global health in addition to interdisciplinary coursework. This concentration is designed for students interested in public health at the global level and is particularly focused on improving health conditions in less developed countries.

Clinical Science Concentration
The Clinical Science concentration prepares students for post-graduate clinical training in a health profession field such as medicine, dentistry, nursing, optometry, occupational and physical therapy, and pharmacy. This concentration provides students the flexibility to design their curriculum to satisfy prerequisites for these programs. Students choosing this option are encouraged to check coursework requirements for their desired health profession because such requirements vary.
Admissions & Policies

Policies

- For all policies governing bachelor’s degrees, see A.5.3.2 Requirements for Bachelor’s Degrees (p. 86).
- A criminal background check and proof of vaccination status may be required of students prior to beginning the internship if required by the internship organization.
- A minimum grade of C must be earned in all major courses.
- Students must check with their advisor to ensure that all requirements have been met prior to graduation and should assess their own degree evaluation in Patriot Web each semester.

Requirements

Degree Requirements

Total credits: 120

Students must fulfill all requirements for bachelor’s degrees, including the Mason Core (p. 135) requirements.

Mason Core

Written Communication

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 101</td>
<td>Composition (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 302</td>
<td>Advanced Composition (Mason Core)</td>
<td>3</td>
</tr>
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</table>

Oral Communication

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 101</td>
<td>Interpersonal and Group Interaction (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Quantitative Reasoning

Any Mason Core Quantitative Reasoning course (p. 136) 3-4

Information Technology

Any Mason Core Information Technology course (p. 136) 3-7

Literature

Any Mason Core Literature course (p. 140) 3

Arts

Any Mason Core Arts course (p. 137) 3

Natural Science

Any Mason Core non-lab science course (p. 141) 3
Any Mason Core lab science course (p. 141) 4

Western Civilization

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 100</td>
<td>History of Western Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or HIST 101</td>
<td>Foundations of Western Civilization</td>
<td>3</td>
</tr>
</tbody>
</table>

Global Understanding

GCH 205 Global Health (Mason Core) (p. 135) 3

Social and Behavioral Sciences

Any Mason Core Social and Behavioral Sciences course (p. 142) 3

Total Credits 30-42

Completing the Degree without a Concentration

Students completing the BS without a concentration follow the coursework outlined below.

Additional Courses

Select nine credits of 300- or 400-level courses from the following 9

- GCH (p. 1579)
- HAP (p. 1607)
- HEAL (p. 1605)
- NUTR (p. 1792)
- RHBS (p. 1898)
- Other 300- or 400-level course approved by advisor

General Electives

Select 30 credits of General Electives 30

Total Credits 39

Global Health Concentration (GLOH)

The optional global health concentration enables students to look at public health issues through a global lens and increases understanding.
of the differences in health, well-being, disease, and interventions that exist within an international context.

**Concentration Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 340</td>
<td>Health Geography</td>
<td></td>
</tr>
<tr>
<td>GLOA 101</td>
<td>Introduction to Global Affairs (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or SOCI 120</td>
<td>Globalization and Society (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
<td>3</td>
</tr>
<tr>
<td>GCH 405</td>
<td>Global Health Interventions: History and Systems</td>
<td>3</td>
</tr>
<tr>
<td>GCH 406</td>
<td>Global Health Interventions: Emerging Issues</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>One 3-credit 300- or 400-level GCH course (p. 1579)</td>
<td>3</td>
</tr>
</tbody>
</table>

**General Electives**

Select 21 credits of General Electives

**Total Credits**

39

**Clinical Science Concentration (CLNS)**

The optional clinical science concentration prepares students to apply for graduate programs in fields such as medicine, physical therapy, occupational therapy, dentistry, pharmacy, and optometry. This concentration does not guarantee entrance into a graduate health professional program. It is important to note that, depending on the type of graduate program in which a student is interested, additional coursework may be required. It is the student’s responsibility to determine the essential criteria for admission to their target schools in consultation with the health professions advising office.

**Concentration Courses**

Select a minimum of 20 credits of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103</td>
<td>Introductory Biology I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 246</td>
<td>Introductory Microbiology and Biology of Microorganisms Laboratory</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 306</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms and Biology of Microorganisms Laboratory</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 306</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td></td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>&amp; CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I and Organic Chemistry Lab I</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 315</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II and Organic Chemistry Lab II</td>
<td></td>
</tr>
<tr>
<td>&amp; CHEM 318</td>
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</tbody>
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**Elective**

Select three credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 205</td>
<td>Global Health (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GCH 332</td>
<td>Health and Disease</td>
</tr>
<tr>
<td>GCH 405</td>
<td>Global Health Interventions: History and Systems</td>
</tr>
<tr>
<td>GCH 406</td>
<td>Global Health Interventions: Emerging Issues</td>
</tr>
<tr>
<td>GCH 450</td>
<td>Culture, Sexuality and the Global AIDS Epidemic</td>
</tr>
</tbody>
</table>

**Total Credits**

46

1. At least 8 of these credits must be selected from these courses to fulfill the Mason Core Natural Science requirement.

**Global Health Minor**

Banner Code: GLOH

The global health minor requires 18 credits of coursework and is designed to increase students’ awareness of the major health problems and issues that transcend national boundaries. Students develop an understanding of the critical global health concerns that affect health equity and health care for all people worldwide. Students examine the public health implications of globalization and learn to think critically about how specific global health challenges may be solved in culturally appropriate ways. The minor will enhance the education of students who are planning to work in a variety of settings with a global health focus, including health care, government, education, and non-governmental organizations.

**Admissions & Policies**

**Policies**

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 18

**Coursework**

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 205</td>
<td>Global Health (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
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<td>GCH 332</td>
<td>Health and Disease</td>
<td>3</td>
</tr>
<tr>
<td>GCH 405</td>
<td>Global Health Interventions: History and Systems</td>
<td></td>
</tr>
<tr>
<td>GCH 406</td>
<td>Global Health Interventions: Emerging Issues</td>
<td>3</td>
</tr>
<tr>
<td>GCH 450</td>
<td>Culture, Sexuality and the Global AIDS Epidemic</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

15

**Elective**

Select three credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 412</td>
<td>Fundamentals of Epidemiology</td>
</tr>
<tr>
<td>GCH 491</td>
<td>Study Abroad in Public Health</td>
</tr>
</tbody>
</table>
GCH 494  Special Topics in Global and Community Health

Other GCH elective course approved by the global health minor advisor

Total Credits 3

1  GCH 494 must be approved by the global health minor advisor

Global Health, MS

Banner Code: HH-MS-GLOH

This degree incorporates epidemiology and biostatistics, region-based nutrition, cross-cultural perspectives on health issues, global health systems and organizations, and international health research. The research capstone experience allows students to explore current dilemmas, demands, and health services with a global focus and perspective.

Graduates of this program will have the knowledge base and skills to work and conduct research within the global health environment. Through coursework, students will be prepared to work in the diverse cultural and multidisciplinary environments inherent in global health. Students will learn about the fundamentals of global public health, including epidemiology, environmental health, global health policies, and sociocultural influences on health and behavior. Students will also be trained in how to collaborate among nonprofit, governmental, and business sectors. Graduates will be prepared to work in international health organizations such as nongovernmental organizations (NGOs), governmental organizations, and multilateral organizations, or may choose to pursue a research pathway and continue toward a terminal degree.

Admissions & Policies

Admissions

Requirements

Admission to the program is competitive, and a variety of criteria are evaluated in the admission process, including:

- GRE scores
- undergraduate academic performance
- recent post-baccalaureate coursework
- work experience
- professional goals
- recommendations

Previous undergraduate coursework in statistics, anthropology, sociology, and natural sciences is helpful. Applicants must meet the admission standards and application requirements specified in the Admissions (p. 66) section of the catalog and apply using the online Schools of Public Health Application System (http://www.sophas.org) (SOPHAS). Applications are considered for the fall semester only. For application deadlines and detailed application requirements, please refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Research Core

GCH 601  Introduction to Biostatistics 3
GCH 651  Behavioral Research Methods 3
GCH 712  Introduction to Epidemiology 3
GCH 804  Advanced Quantitative Data Analysis for Health Care Research I 3
Select one from the following: 3
GCH 805  Advanced Quantitative Data Analysis for Health Care Research II
GGS 540  Health Geography
GGS 550  Geospatial Science Fundamentals

Total Credits 15

Capstone Experience

GCH 794  Global Health Research Capstone 3

Total Credits 3

Electives

In consultation with advisor, select 9 credits from the following list: 9

GCH 560  Environmental Health
GCH 571  HIV/AIDS: Concepts, Principles, and Interventions
GCH 600  Health Promotion Methods
GCH 610  Health Behavior Theory
GCH 762  Environmental Epidemiology

Policies

Transfer of Credit

Transfer credit is governed by the AP.6.5.3 Graduate Transfer of Credit (p. 88) policy and the AP.6.9 Requirements for Master's Degrees (p. 91) policy, and transfer credit must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek academic advising through the department prior to taking a course and plan to submit their application to the MS program in their first semester of study.

Requirements

Degree Requirements

Total credits: 42

A graduate course in which a grade of C or below is earned may be repeated only once. Graduate students may repeat no more than two courses. Students must achieve a 3.00 GPA to graduate from the master's program.

Global Health Core

GCH 543  Global Health 3
GCH 626  Migrant Health 3
GCH 640  Global Infectious Diseases 3
GCH 645  U.S. and Global Public Health Systems 3
GCH 650  Global Non-Communicable Diseases 3

Total Credits 15

Research Core

GCH 601  Introduction to Biostatistics 3
GCH 651  Behavioral Research Methods 3
GCH 712  Introduction to Epidemiology 3
GCH 804  Advanced Quantitative Data Analysis for Health Care Research I 3
Select one from the following: 3
GCH 805  Advanced Quantitative Data Analysis for Health Care Research II
GGS 540  Health Geography
GGS 550  Geospatial Science Fundamentals

Total Credits 15

Capstone Experience

GCH 794  Global Health Research Capstone 3

Total Credits 3

Electives

In consultation with advisor, select 9 credits from the following list: 9

GCH 560  Environmental Health
GCH 571  HIV/AIDS: Concepts, Principles, and Interventions
GCH 600  Health Promotion Methods
GCH 610  Health Behavior Theory
GCH 762  Environmental Epidemiology
Public Health Graduate Certificate

Banner Code: HH-CERG-PUBH

Academic Advising
Website: http://chhs.gmu.edu/students/coordinators.cfm#gch

This graduate certificate program will provide students with the fundamental knowledge and skills central to each of the traditional five core areas of public health:

- social and behavioral health
- epidemiology
- biostatistics
- environmental health
- health systems

This graduate certificate may be pursued on a full or part-time basis.

Completing the Public Health Graduate Certificate with a "B" or better in each course will satisfy the GRE requirement for students interested in applying to the MPH program.

Admissions & Policies

Admissions

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Schools of Public Health Application System (http://www.sophas.org) (SOPHAS). To be eligible for admission to this certificate program, applicants must have two years of full-time work experience and currently be working in a health-related field.

Applications are considered for the fall and spring semesters. For more information about the application requirements and deadlines, visit the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Certificate Requirements

Total credits: 18

A minimum GPA of 3.0 is required in all courses applied to the certificate in Public Health.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 560</td>
<td>Environmental Health</td>
<td>3</td>
</tr>
<tr>
<td>GCH 600</td>
<td>Health Promotion Methods</td>
<td>3</td>
</tr>
<tr>
<td>GCH 601</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>GCH 645</td>
<td>U.S. and Global Public Health Systems</td>
<td>3</td>
</tr>
<tr>
<td>GCH 712</td>
<td>Introduction to Epidemiology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Elective

Select three credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 620</td>
<td>Health Communication</td>
<td>3</td>
</tr>
<tr>
<td>GCH 607</td>
<td>Evidence-Based Public Health Practice</td>
<td></td>
</tr>
<tr>
<td>GCH 610</td>
<td>Health Behavior Theory</td>
<td></td>
</tr>
<tr>
<td>GCH 640</td>
<td>Global Infectious Diseases</td>
<td></td>
</tr>
<tr>
<td>GCH 804</td>
<td>Advanced Quantitative Data Analysis for Health Care Research I</td>
<td></td>
</tr>
<tr>
<td>HAP 661</td>
<td>Policy Development and Analysis for Community Health Programs</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

Public Health Minor

Banner Code: PUBH

Academic Advising
Website: chhs.gmu.edu/students/advising-gch.cfm

This minor offers students the opportunity to study concepts and principles related to disease prevention, health promotion, and injury control. The minor provides students with a basic understanding of each of the core areas of public health, introduces students to career opportunities in the fields of global and community health, and prepares students for admission to graduate programs in public health.

Admissions & Policies

Policies

For policies governing all minors, see AP.5.3.4 Minors (p. 86).
Requirements

Minor Requirements
Total credits: 18-19

Coursework

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 205</td>
<td>Global Health (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GCH 300</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>GCH 360</td>
<td>Health and Environment</td>
<td>3</td>
</tr>
<tr>
<td>GCH 412</td>
<td>Fundamentals of Epidemiology</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 310</td>
<td>Health Behavior Theories</td>
</tr>
<tr>
<td>GCH 350</td>
<td>Health Promotion and Education</td>
</tr>
<tr>
<td>GCH 445</td>
<td>Social Determinants of Health</td>
</tr>
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</table>

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 335</td>
<td>Applied Health Statistics</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
</tr>
<tr>
<td>OM 210</td>
<td>Statistical Analysis for Management</td>
</tr>
<tr>
<td>PSYC 300</td>
<td>Statistics in Psychology</td>
</tr>
<tr>
<td>SOCI 313</td>
<td>Statistics for the Behavioral Sciences (Mason Core)</td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Other statistics course as approved by the minor coordinator

Total Credits 18-19

Admissions & Policies

Admissions

Admission decisions are based on a review of:

- applicant’s undergraduate academic performance and recent post-baccalaureate coursework (transcripts);
- GRE or equivalent scores;
- professional and volunteer experience;
- written statement of professional goals; and
- letters of recommendation.

Some background in statistics, biology, and the social sciences is preferred. Applicants must meet the admission standards and application requirements specified in Admissions (p. 66). Applications must be submitted using the online Schools of Public Health Application System (http://www.sophas.org) (SOPHAS). Applications are considered for the fall semester only. For more information about application requirements and deadlines, please visit the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies

Transfer of Credit

Transfer credit is governed by the policies outlined in AP.6.5.3 Graduate Transfer of Credit (p. 88) and AP.6.9 Requirements for Master's Degrees (p. 91), and transfer credit must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek academic advising through the department before taking a course and should plan to submit their application to the MPH program in their first semester of study.

Requirements

Degree Requirements
Total credits: 42

Students must complete 42 credits of graduate coursework with at least a 3.00 GPA in order to graduate. Each course listed below can be used to fulfill only one requirement toward the MPH degree. A graduate course in which a grade of C or below is earned may be repeated only once. Graduate students may repeat no more than two courses.

Public Health Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 543</td>
<td>Global Health</td>
<td>3</td>
</tr>
<tr>
<td>GCH 560</td>
<td>Environmental Health</td>
<td>3</td>
</tr>
<tr>
<td>GCH 600</td>
<td>Health Promotion Methods</td>
<td>3</td>
</tr>
<tr>
<td>GCH 601</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>GCH 645</td>
<td>U.S. and Global Public Health Systems</td>
<td>3</td>
</tr>
<tr>
<td>GCH 712</td>
<td>Introduction to Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>GCH 792</td>
<td>Culminating Experience</td>
<td>0</td>
</tr>
</tbody>
</table>

Total Credits 42

Public Health, MPH

Banner Code: HH-MPH-PUBH

Accredited by the Council on Education for Public Health (CEPH), the 42 credit-hour Master of Public Health (MPH) degree program is designed to prepare students with the foundational public health knowledge and competencies to address the most pressing and emerging health problems and concerns nationally and globally. Graduates are prepared to work in a variety of employment sectors including local, state, and federal health and social service agencies, non-governmental and voluntary health organizations, health care, and private industry. Students may choose from six highly specialized concentrations:

- Community Health Promotion
- Epidemiology
- Global Health
- Health Policy
- Public Health Communication
- Public Health Practice (offered 100% online)

In accordance with the CEPH accreditation standards, students are required to complete:

Coursework in the public health core 18

Specialized coursework in the concentration 21
Practicum Requirements
The required 200-hour practicum gives students the opportunity to apply and improve professional skills in a supervised practice setting and is completed in two parts. Students must have completed at least 21 credits toward the degree program in order to be eligible for their practicum. The first part is completed while enrolled in GCH 780 Practicum Seminar. This zero-credit course is designed to provide students an opportunity to identify and arrange their practicum placements in a structured environment. In the subsequent term, students perform work as interns at their selected placement sites for 200 contact hours and make final presentations of their experiences to the faculty and fellow students.

GCH 780 Practicum Seminar 0
GCH 790 Practicum in Public Health 3
Total Credits 3

Concentration
Students must complete one concentration.

Concentration in Community Health Promotion (CMHP)
The Community Health Promotion concentration prepares health promotion specialists to work in local, state, and federal public health agencies, non-governmental health organizations, the healthcare sector, and private industry. Students in this concentration examine the social, behavioral, and environmental determinants associated with the most pressing health problems, and design, implement, and evaluate appropriate health promotion programs and preventive services to improve population health. The curriculum and practical experiences for this concentration are aligned with the core competencies for the social and behavioral sciences (Association of Schools and Programs for Public Health [ASPH]) and the Areas of Responsibilities and Competencies for Health Education Specialists (National Commission for Health Education Credentialing, Inc., 2015) and prepare students for the Certified Public Health Education Specialists (National Commission for Health Education [ASPPH]) and the Areas of Responsibilities and Competencies for this concentration are aligned with the core competencies for the social and behavioral sciences (Association of Schools and Programs for Public Health [ASPH]) and the Areas of Responsibilities and Competencies for Health Education Specialists (National Commission for Health Education Credentialing, Inc., 2015) and prepare students for the Certified Public Health Education Specialists (National Commission for Health Education [ASPPH]) and the Areas of 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Competencies for Health Education Specialists (National Commission for Health Education Credentialing, Inc., 2015) and prepare students for the Certificated Health Education Specialist (CHES) and the Master Certified Health Education Specialist (MCHES) examinations.

Required Courses
COMM 620 Health Communication 3
GCH 610 Health Behavior Theory 3
GCH 611 Health Program Planning and Evaluation 3
GCH 651 Behavioral Research Methods 3
GCH 772 Social Epidemiology 3
Electives 6
Select six credits from the following:
GCH 515 Lesbian, Gay, Bisexual, Transgender, and Queer Health
GCH 571 HIV/AIDS: Concepts, Principles, and Interventions
GCH 602 Global Health Issues Related to Violence
GCH 612 Interventions in Public Health
GCH 622 Mental Health: A Global Perspective
GCH 626 Migrant Health
GCH 640 Global Infectious Diseases
GCH 650 Global Non-Communicable Diseases
GCH 691 Project Management in Public Health
GCH 762 Environmental Epidemiology

GCH 782 International Research Ethics and Methods
GCH 804 Advanced Quantitative Data Analysis for Health Care Research I
GGS 540 Health Geography
GGS 553 Geographic Information Systems
NUTR 620 Nutrition Education
NUTR 630 Global Nutrition
NUTR 651 Nutrition Assessment, Monitoring and Surveillance
COMM 637 Risk Communication
COMM 639 Science Communication
COMM 660 Climate Change and Sustainability Communication Campaigns
COMM 721 E-Health Communication
EVPP 506 Science of the Environment I
EVPP 641 Environmental Science and Public Policy
EVPP 745 Environmental Toxicology
SOCI 635 Environment and Society
BIOL 666 Human Genetics Concepts for Health Care
PUAD 660 Administration in Public and Nonprofit Organizations
PUAD 630 Emergency Planning and Preparedness
PUAD 636 The NGO: Policy and Management
Advisor-approved elective course
Total Credits 21

Concentration in Epidemiology (EPID)
The Epidemiology concentration prepares students to investigate and analyze factors that influence the occurrence, distribution, prevention, and control of disease. Emphasis is placed on the development of such skills as study design, data collection and management, data analysis and interpretation, and communication of research findings.

Required Courses
GCH 722 Infectious Disease Epidemiology 3
GCH 732 Chronic Disease Epidemiology 3
GCH 804 Advanced Quantitative Data Analysis for Health Care Research I 3
GCH 726 or GCH 805 Advanced Methods in Epidemiology 3
GCH 762 or GCH 772 Environmental Epidemiology 3
Electives 6
Select six credits from the following:
GCH 571 HIV/AIDS: Concepts, Principles, and Interventions
GCH 691 Project Management in Public Health
GCH 726 Advanced Methods in Epidemiology
GCH 762 Environmental Epidemiology
GCH 772 Social Epidemiology
Concentration in Global Health (GLOH)

The Global Health concentration prepares students to apply the tools of public health to the promotion of health in communities, countries, regions, and the world. Concentration coursework emphasizes comparative global health metrics; the socioeconomic, environmental, and other risk factors associated with transnational health concerns; and ethical and effective strategies for preventing and controlling infectious and non-communicable diseases in diverse populations. Students gain professional communication skills and develop competencies in program planning, implementation, monitoring, and evaluation.

**Required Courses**

- COMM 605 / COMM 705: Intercultural Communication
- GCH 611: Health Program Planning and Evaluation
- GCH 626: Migrant Health
- GCH 640: Global Infectious Diseases
- GCH 650: Global Non-Communicable Diseases

**Electives**

Select six credits from the following:

- GCH 515: Lesbian, Gay, Bisexual, Transgender, and Queer Health
- GCH 602: Global Health Issues Related to Violence
- GCH 612: Interventions in Public Health
- GCH 691: Project Management in Public Health
- GCH 762: Environmental Epidemiology
- GCH 772: Social Epidemiology
- GCH 804: Advanced Quantitative Data Analysis for Health Care Research I
- GGS 540: Health Geography
- GGS 553: Geographic Information Systems
- GGS 581: World Food and Population
- NUTR 583: Food and Culture
- NUTR 630: Global Nutrition
- NUTR 651: Nutrition Assessment, Monitoring and Surveillance
- COMM 620: Health Communication
- COMM 637: Risk Communication
- COMM 639: Science Communication
- COMM 640: Controversies in Science Communication
- COMM 641: Advanced Communication Skills for STEM
- COMM 642: Science and the Public
- COMM 660: Climate Change and Sustainability Communication Campaigns
- COMM 721: E-Health Communication
- EVPP 506: Science of the Environment I
- EVPP 641: Environmental Science and Public Policy
- EVPP 650: Ecosystem Analysis and Modeling
- EVPP 745: Environmental Toxicology
- SOCI 635: Environment and Society
- PHIL 643: Environmental Ethics
- BIOL 666: Human Genetics Concepts for Health Care
- BIOL 685: Emerging Infectious Diseases
- BIOS 743: Genomics, Proteomics, and Bioinformatics
- HAP 645: Introduction to Health Services Research
- Advisor-approved elective course

Total Credits **21**

Concentration in Health Policy (HTHP)

The Health Policy concentration addresses the nature and importance of policy and policy-making in today’s public health system. Through coursework and opportunities for practical application, students are introduced to the context and process for policy-making in public health, including the current political, economic, and legal environment for health policy and the basic elements of the public policy-making process and government payment systems. Students graduate with the knowledge and abilities needed to engage with public health and advocacy organizations on policy issues and to analyze and support
policy approaches in an era of scarce public resources and ever-changing priorities.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 661</td>
<td>Policy Development and Analysis for Community Health Programs</td>
<td>3</td>
</tr>
<tr>
<td>HAP 715</td>
<td>Health Economics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 750</td>
<td>Legal Issues in Health Administration</td>
<td>3</td>
</tr>
<tr>
<td>HAP 764</td>
<td>Health Policy and Government Payment Systems for Health Care Services</td>
<td>3</td>
</tr>
<tr>
<td>HAP 793</td>
<td>Final Project in Applied Health Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select six credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 511</td>
<td>Ethics in Public Health</td>
</tr>
<tr>
<td>HAP 632</td>
<td>Grants Funding and Development</td>
</tr>
<tr>
<td>HAP 652</td>
<td>Essentials of Health Insurance and Managed Care</td>
</tr>
<tr>
<td>HAP 662</td>
<td>Health Policy for Elders and People with Disabilities</td>
</tr>
<tr>
<td>HAP 712</td>
<td>Topics in Public Policy</td>
</tr>
<tr>
<td>HAP 742</td>
<td>Health Policy Development and Analysis</td>
</tr>
<tr>
<td>HAP 745</td>
<td>Health Care Security Policy</td>
</tr>
<tr>
<td>HAP 746</td>
<td>Health Policy Leadership</td>
</tr>
<tr>
<td>HAP 766</td>
<td>Policy Implementation and Health System Management Dilemmas</td>
</tr>
</tbody>
</table>

Advisor-approved elective course

**Total Credits** 21

---

**Concentration in Public Health Communication (PHCM)**

The Public Health Communication concentration prepares students to effectively use communication strategies to inform and influence individual and community decisions that affect health. This highly-specialized concentration links the fields of communication and public health and is increasingly recognized as a necessary element of efforts to improve personal and public health. The public health communication concentration emphasizes designing, evaluating, and implementing effective communication strategies and messages to address the health needs of diverse audiences.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 620</td>
<td>Health Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 637</td>
<td>Risk Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 670</td>
<td>Social Marketing</td>
<td>3</td>
</tr>
<tr>
<td>COMM 721</td>
<td>E-Health Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 820</td>
<td>Health Communication Campaigns</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select six credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 515</td>
<td>Lesbian, Gay, Bisexual, Transgender, and Queer Health</td>
</tr>
<tr>
<td>GCH 571</td>
<td>HIV/AIDS: Concepts, Principles, and Interventions</td>
</tr>
<tr>
<td>GCH 602</td>
<td>Global Health Issues Related to Violence</td>
</tr>
<tr>
<td>GCH 612</td>
<td>Interventions in Public Health</td>
</tr>
<tr>
<td>GCH 622</td>
<td>Mental Health: A Global Perspective</td>
</tr>
<tr>
<td>GCH 626</td>
<td>Migrant Health</td>
</tr>
<tr>
<td>GCH 640</td>
<td>Global Infectious Diseases</td>
</tr>
<tr>
<td>GCH 650</td>
<td>Global Non-Communicable Diseases</td>
</tr>
<tr>
<td>GCH 691</td>
<td>Project Management in Public Health</td>
</tr>
<tr>
<td>GCH 762</td>
<td>Environmental Epidemiology</td>
</tr>
<tr>
<td>GCH 772</td>
<td>Social Epidemiology</td>
</tr>
<tr>
<td>GCH 804</td>
<td>Advanced Quantitative Data Analysis for Health Care Research I</td>
</tr>
<tr>
<td>GGS 540</td>
<td>Health Geography</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
</tr>
<tr>
<td>GGS 581</td>
<td>World Food and Population</td>
</tr>
<tr>
<td>NUTR 583</td>
<td>Food and Culture</td>
</tr>
<tr>
<td>NUTR 651</td>
<td>Nutrition Assessment, Monitoring and Surveillance</td>
</tr>
<tr>
<td>NUTR 630</td>
<td>Global Nutrition</td>
</tr>
<tr>
<td>COMM 639</td>
<td>Science Communication</td>
</tr>
<tr>
<td>COMM 660</td>
<td>Climate Change and Sustainability Communication Campaigns</td>
</tr>
<tr>
<td>EVPP 506</td>
<td>Science of the Environment I</td>
</tr>
<tr>
<td>EVPP 641</td>
<td>Environmental Science and Public Policy</td>
</tr>
<tr>
<td>SOCI 635</td>
<td>Environment and Society</td>
</tr>
<tr>
<td>BIOL 685</td>
<td>Emerging Infectious Diseases</td>
</tr>
<tr>
<td>PUAD 502</td>
<td>Administration in Public and Nonprofit Organizations</td>
</tr>
<tr>
<td>PUAD 505</td>
<td>Introduction to Management of Nonprofits</td>
</tr>
<tr>
<td>PUAD 630</td>
<td>Emergency Planning and Preparedness</td>
</tr>
<tr>
<td>PUAD 636</td>
<td>The NGO: Policy and Management</td>
</tr>
</tbody>
</table>

Advisor-approved elective course

**Total Credits** 21

---

**Concentration in Public Health Practice (PHP)**

The Public Health Practice concentration (offered 100% online) is designed to advance the competencies of public health practitioners and other health professionals to fulfill their roles and responsibilities in local, state, and federal public health agencies and non-governmental health-related organizations. Students in this concentration examine the social and environmental factors associated with improving population and community health with a focus on the application of evidence-based public health concepts. This concentration emphasizes public health practice, which comprises disease prevention; community-based participatory approaches; health assessment; planning and evaluating interventions; risk communication; and leadership and management. The curriculum and practicum for this concentration align with the Core Competencies for Public Health Professionals and prepare students for the Certified in Public Health (CPH) examination.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 637</td>
<td>Risk Communication</td>
<td>3</td>
</tr>
<tr>
<td>GCH 607</td>
<td>Evidence-Based Public Health Practice</td>
<td>3</td>
</tr>
<tr>
<td>GCH 609</td>
<td>Community Assessment and Partnerships</td>
<td>3</td>
</tr>
<tr>
<td>GCH 611</td>
<td>Health Program Planning and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>HAP 680</td>
<td>Applied Public Health Leadership and Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select six credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
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<tr>
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<tr>
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<tr>
<td>COMM 660</td>
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</tr>
<tr>
<td>EVPP 506</td>
<td>Science of the Environment I</td>
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<tr>
<td>PUAD 636</td>
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</tr>
</tbody>
</table>

Advisor-approved elective course

**Total Credits** 21
Accelerated Master’s

Bachelor's Degree (any)/Public Health, Accelerated MPH

Overview

Highly-qualified undergraduates in any major may apply to the accelerated Master of Public Health (MPH). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and the Master of Public Health after successfully completing 156 credits. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89) for policies related to this option.

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see the AP.6 Graduate Policies (p. 87) section of the catalog.

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Admissions (p. 66). For information specific to the accelerated MPH, see Application Requirements on the departmental web site (http://chhs.gmu.edu/gch).

Applicants to the accelerated MPH program must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits completed at Mason) and no more than 90 credits. Students must submit:

- a completed application form (available at the department website)
- a career goal statement that includes a declaration of their desired concentration within the MPH program
- two letters of recommendation, one of which must come from a Department of Global and Community Health faculty member.

Students may submit their applications to the accelerated MPH program upon completion of or while enrolled in the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 300</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>GCH 335</td>
<td>Applied Health Statistics</td>
<td></td>
</tr>
</tbody>
</table>

Select two from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 543</td>
<td>Global Health</td>
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</tr>
<tr>
<td>GCH 560</td>
<td>Environmental Health</td>
<td></td>
</tr>
<tr>
<td>GCH 600</td>
<td>Health Promotion Methods</td>
<td></td>
</tr>
<tr>
<td>GCH 601</td>
<td>Introduction to Biostatistics</td>
<td></td>
</tr>
<tr>
<td>GCH 645</td>
<td>U.S. and Global Public Health Systems</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits

As graduate students, accelerated master’s students have an advanced standing. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

While still undergraduates, students in the accelerated master’s program may take up to 6 additional graduate credits from the courses listed above that have not already been taken. These “reserve credits” do not apply to the student’s undergraduate degree but may later be applied to their master’s degree, using the Bachelor’s/Accelerated Master’s Transition Form (http://registrar.gmu.edu/wp-content/uploads/BAMT.pdf).

The ability to take courses, including those not listed above, for reserve graduate credit is available to all high-achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates. (p. 76)

Department of Health Administration and Policy

Phone: 703-993-1929
Website: hap.gmu.edu/

Administration

- P. J. Maddox, Chair

The mission of the Department of Health Administration and Policy (HAP) is to provide innovative education, service and research that contribute to improving the quality of care and delivery of healthcare services. The department accomplishes this mission by preparing professionals for careers as executives and managers in acute and ambulatory care and...
senior housing/assisted living organizations, as well as specialists in health informatics, healthcare risk management, and health policy.

The research and scholarly activities of the department contribute to basic and applied knowledge about the organization, management, financing, and performance of U.S. health systems and public health services; the development and management of health information systems; and the development and analysis of evidence-based U.S. health policy to foster innovation and public accountability and contribute to ensuring access to cost-effective, high-quality health services. The department works with consumers, stakeholders, students, faculty, alumni, research funders, and the community to ensure rigorous, relevant educational programs (including post-graduate professional development), service activities, and the development and timely dissemination of research. Part-time students are encouraged to take at least 6 credits per semester to promote timely completion of the program.

Faculty

Department Faculty

Professors
Alemi, Cuellar, Gerber, Kitsantas, Maddox (chair), Nichols (Center for Health Policy Research and Ethics, director)

Associate Professors
Anand, Eckenwiler, Giang, Gimm, Goldberg, Perlin, Wojtusiak (Center for Discovery Science and Health Informatics, director), Yang

Assistant Professors
Avramovic, Blair, Brown, Cantiello, Madison, Min, Shiver

Instructors
Henderson

Administrative Faculty
Johnson, Polk

Requirements & Policies

Requirements

Academic Advising

Each student is assigned an academic advisor who is a faculty member within their academic department or a professional academic advisor within the Office of Student Affairs (OSA). Academic advisor assignments are listed on the CHHS website (http://chhs.gmu.edu/students/academic-advising.cfm), and students are expected to meet with their advisor regularly (at least once each semester) to seek advice about academic schedules and program plans, internships, and career guidance. Students also should meet with their advisor if they are experiencing academic difficulty or personal challenges or if they are feeling overwhelmed.

All students are responsible for knowing the requirements of their major as specified in the university catalog for their catalog year; academic deadlines outlined in the semester academic calendar (http://registrar.gmu.edu/calendars); and university policies and procedures as stated in the catalog.

Students also should run their own degree-evaluation (http://registrar.gmu.edu/students/degree-evaluation) to identify graduation requirements and progress towards their degree. While academic advisors can give advice to students, students are responsible for the academic planning decisions they make. Academic advisors cannot be held responsible for mistakes made by students in selecting courses that may not count toward their degree and thus delay a desired graduation date.

Programs

- Health Administration, BS
- Health Informatics and Data Analytics Graduate Certificate
- Health Informatics, MS
- Health Information Technology Minor
- Health Policy, MS (title change pending SCHEV approval)
- Health Services Research, PhD
- Health Systems Management, MHA
- Health and Social Policy Minor
- Public Health Leadership and Management Graduate Certificate
- Quality Improvement and Outcomes Management in Health Care Systems Graduate Certificate
- Senior Housing Administration Minor

Health Administration, BS

Banner Code: HH-BS-HADM

Academic Advising

Website: chhs.gmu.edu/students/advising-hap.cfm

The BS in health administration prepares students to become managers in a variety of settings, including hospitals; clinics; community health, home care, long-term care, and managed care organizations; physician practices; information technology, medical technology and supply organizations; advocacy organizations and professional associations; the insurance industry; and consulting firms.

The program may be completed on a full- or part-time basis leading to completion of the objectives of the undergraduate BS program.

Concentrations are offered in health systems management, assisted living/senior housing administration, and health informatics.

Health Systems Management Concentration

The concentration in health systems management prepares graduates to serve in entry-level management, administrative and support positions in a variety of health-related organizations and settings.

Assisted Living/Senior Housing Administration Concentration

The concentration in assisted living/senior housing administration prepares graduates to serve in entry-level administrator and support positions within independent living, assisted living, and continuing care retirement communities.
Health Informatics Concentration

The concentration in health informatics prepares graduates in theory and methods for using information processing methods in healthcare organizations.

Admissions & Policies

Policies

Program Requirements
- A criminal background check is generally required of all students prior to beginning their internship.
- Students must fulfill all requirements for bachelor’s degrees, including the Mason Core (p. 135) requirements. For all policies governing bachelor’s degrees, see A.5.3.2 Requirements for Bachelor’s Degrees (p. 86).
- Students should enroll in HAP 201 Health Professions Careers and HAP 301 Health Care Delivery in the United States during their first semester in the program.
- HAP 498 Health Administration Internship (Mason Core) (p. 135) and HAP 465 Integration of Professional Skills and Issues (Mason Core) (p. 135) are to be completed during the student’s final semester. The final semester is defined as the final 15 academic credits of the academic schedule.
- Students must check with their advisor to ensure that all requirements have been met prior to graduation.

Minimum Grade Requirements
A minimum grade of C must be obtained in all major requirements (58 - 64 credits). In the health informatics concentration, a maximum of 6 credits of C grades in major requirements (64 credits) is permitted. Students in the health informatics concentration who earn more than 6 credits of C grades in the major requirements courses must either repeat one of the courses in which they earned a C and earn a C+ or higher or change programs or concentrations.

Requirements

Degree Requirements
Total credits: 120

Students must fulfill all requirements for bachelor’s degrees, including the Mason Core (p. 135) requirements.

Mason Core

Written Communication

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 101</td>
<td>Composition (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 302</td>
<td>Advanced Composition (Mason Core) (p. 135)</td>
<td>3</td>
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Oral Communication

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 101</td>
<td>Interpersonal and Group Interaction (Mason Core) (p. 135)</td>
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</tr>
</tbody>
</table>

Quantitative Reasoning

<table>
<thead>
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<th>Course</th>
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<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
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</tbody>
</table>

Information Technology

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Literature

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
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</thead>
<tbody>
<tr>
<td>Any Mason Core Literature course (p. 140)</td>
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<td>3</td>
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</tbody>
</table>

Arts

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Mason Core Arts course (p. 137)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Natural Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103 &amp; BIOL 104</td>
<td>Introductory Biology I (Mason Core) (p. 135) and Introductory Biology II (Mason Core) (p. 135)</td>
<td>8</td>
</tr>
<tr>
<td>BIOL 124 &amp; BIOL 125</td>
<td>Human Anatomy and Physiology and Human Anatomy and Physiology</td>
<td></td>
</tr>
</tbody>
</table>

Western Civilization/World History

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 100</td>
<td>History of Western Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or HIST 125</td>
<td>Introduction to World History (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Global Understanding

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any Mason Core Global Understanding course (p. 139)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 38

1 Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 for ENGH 101. Students must attain a minimum grade of C in ENGH 100 or ENGH 101, as well as in ENGH 302, to fulfill degree requirements.

2 Business-designated sections of ENGH 302 Advanced Composition (Mason Core) are recommended.

3 Health Informatics concentration students must attain a minimum grade of B in IT 104 to fulfill degree requirements. Students in the Assisted Living/Senior Housing Administration concentration or Health Systems Management concentration must attain a minimum grade of C to fulfill degree requirements. Transfer students may substitute IT 103.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 201</td>
<td>Health Professions Careers</td>
<td>3</td>
</tr>
<tr>
<td>HAP 202</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PSYC 231</td>
<td>Social Psychology (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HAP 290</td>
<td>Lifestyle Management</td>
<td></td>
</tr>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 9

1 HAP 201 is to be taken during the student’s first semester in the program.
## Concentration in Assisted Living/Senior Housing Administration (ASHA)

### Major Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
<td>3</td>
</tr>
<tr>
<td>GCH 300</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>HAP 309</td>
<td>Healthcare Accounting</td>
<td>3</td>
</tr>
<tr>
<td>HAP 310</td>
<td>Healthcare Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 312</td>
<td>Healthcare Law</td>
<td>3</td>
</tr>
<tr>
<td>HAP 360</td>
<td>Introduction to Health Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>HAP 392</td>
<td>Human Resources Management in Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>HAP 395</td>
<td>Health Care Finance</td>
<td>3</td>
</tr>
<tr>
<td>HAP 396</td>
<td>Strategic Health Management and Planning</td>
<td>3</td>
</tr>
<tr>
<td>HAP 403</td>
<td>Assisted Living/Senior Housing Management and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>HAP 404</td>
<td>Senior Housing Sales and Marketing</td>
<td>3</td>
</tr>
<tr>
<td>HAP 416</td>
<td>Leadership and Management of Health Systems I</td>
<td>3</td>
</tr>
<tr>
<td>HAP 417</td>
<td>Leadership and Management of Health Systems II</td>
<td>3</td>
</tr>
<tr>
<td>HAP 425</td>
<td>Health Economics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>HAP 465</td>
<td>Integration of Professional Skills and Issues (Mason Core)</td>
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<tr>
<td>HAP 489</td>
<td>Pre-Internship Seminar (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HAP 498</td>
<td>Health Administration Internship (Mason Core)</td>
<td>4</td>
</tr>
</tbody>
</table>

Select two from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 480</td>
<td>Health Maintenance and Health Aspects of Aging</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 422</td>
<td>Nutrition throughout the Life Cycle</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 435</td>
<td>Introduction to Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 418</td>
<td>Death, Dying, and Grieving</td>
<td>3</td>
</tr>
<tr>
<td>EDAT 410</td>
<td>Introduction to Assistive Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

### CHHS Electives

6 credits must include 200-level or above courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH courses</td>
<td>(p. 1579)</td>
</tr>
<tr>
<td>HAP courses</td>
<td>(p. 1607)</td>
</tr>
<tr>
<td>HHS courses</td>
<td>(p. 1621)</td>
</tr>
<tr>
<td>NURS courses</td>
<td>(p. 1773)</td>
</tr>
<tr>
<td>NUTR courses</td>
<td>(p. 1792)</td>
</tr>
<tr>
<td>RHBS courses</td>
<td>(p. 1898)</td>
</tr>
<tr>
<td>SOCW courses</td>
<td>(p. 1913)</td>
</tr>
</tbody>
</table>

Non-CHHS courses pre-approved for substitution by the concentration coordinator

### General Electives

Electives are at the student’s discretion

Total Credits: 73

1. HAP 301 is to be taken during the student’s first semester in the program.
2. HAP 465 may only be taken within the final 15 credits of the curriculum.
3. HAP 489 may only be taken in the semester immediately prior to HAP 498.
4. HAP 498 may only be taken within the final 15 credits of the curriculum. Students in HAP 498 complete an internship as identified and approved by the concentration coordinator during HAP 489. Under special circumstances and upon recommendation by the course instructors and the student’s advisor, students may be excused by the department chair from taking HAP 489 and HAP 498. Such students are required to take alternative courses that are pre-approved by the student’s advisor and worth at least 7 credits.

## Concentration in Health Informatics (HINF)

A maximum of 6 credits of C grades earned in the major requirements courses (64 credits) may be applied to the health informatics concentration. Students who earn more than 6 credits of C grades must either repeat one of the courses in which they earned a C and earn a C+ or higher or change programs or concentrations.

### Major Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HAP 308</td>
<td>Public Health Informatics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 309</td>
<td>Healthcare Accounting</td>
<td>3</td>
</tr>
<tr>
<td>HAP 312</td>
<td>Healthcare Law</td>
<td>3</td>
</tr>
<tr>
<td>HAP 318</td>
<td>Introduction to IT Methods for Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>HAP 360</td>
<td>Introduction to Health Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>HAP 361</td>
<td>Health Databases</td>
<td>3</td>
</tr>
<tr>
<td>or IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>HAP 430</td>
<td>Process Improvement in Healthcare Organizations</td>
<td>3</td>
</tr>
<tr>
<td>HAP 436</td>
<td>Electronic Health Data in Process Improvement</td>
<td>3</td>
</tr>
<tr>
<td>HAP 440</td>
<td>Mobile Health</td>
<td>3</td>
</tr>
<tr>
<td>HAP 445</td>
<td>Introduction to Health Services Research</td>
<td>3</td>
</tr>
<tr>
<td>HAP 459</td>
<td>Health Data Standards and Interoperability</td>
<td>3</td>
</tr>
<tr>
<td>HAP 460</td>
<td>Information Technology Project Management</td>
<td>3</td>
</tr>
<tr>
<td>HAP 461</td>
<td>Internet and Web Technology Applications for Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>HAP 462</td>
<td>Privacy and Security in Health Informatics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 464</td>
<td>Electronic Health Record Configuration and Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>HAP 465</td>
<td>Integration of Professional Skills and Issues (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HAP 467</td>
<td>Advanced Information Technology Project Management</td>
<td>3</td>
</tr>
</tbody>
</table>

### Additional Notes

1. HAP 301 is to be taken during the student’s first semester in the program.
2. HAP 465 may only be taken within the final 15 credits of the curriculum.
3. HAP 489 may only be taken in the semester immediately prior to HAP 498.
4. HAP 498 may only be taken within the final 15 credits of the curriculum. Students in HAP 498 complete an internship as identified and approved by the concentration coordinator during HAP 489. Under special circumstances and upon recommendation by the course instructors and the student’s advisor, students may be excused by the department chair from taking HAP 489 and HAP 498. Such students are required to take alternative courses that are pre-approved by the student’s advisor and worth at least 7 credits.
HAP 489 Pre-Internship Seminar (Mason Core) (p. 135) 3
HAP 498 Health Administration Internship (Mason Core) (p. 135) 4

Select one from the following:
- HAP 395 Health Care Finance
- HAP 425 Health Economics and Policy
- HAP 442 Introduction to Health Care Politics and Policy

General Electives
Electives must be approved by student’s advisor 9

Total Credits 73

1. HAP 301 is to be taken during the student's first semester in the program.
2. HAP 465 may only be taken within the final 15 credits of the curriculum.
3. HAP 489 may only be taken in the semester immediately prior to HAP 498.
4. HAP 498 may only be taken within the final 15 credits of the curriculum. Students in HAP 498 complete an internship as identified and approved by the concentration coordinator during HAP 489. Under special circumstances and upon recommendation by the course instructors and the student’s advisor, students may be excused by the department chair from taking HAP 489 and HAP 498. Such students are required to take alternative courses that are pre-approved by the student’s advisor and worth at least 7 credits.

Concentration in Health Systems Management (HSMG)

Major Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 300</td>
<td>Introduction to Public Health</td>
<td>3</td>
</tr>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HAP 309</td>
<td>Healthcare Accounting</td>
<td>3</td>
</tr>
<tr>
<td>HAP 310</td>
<td>Healthcare Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 312</td>
<td>Healthcare Law</td>
<td>3</td>
</tr>
<tr>
<td>HAP 360</td>
<td>Introduction to Health Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>HAP 392</td>
<td>Human Resources Management in Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>HAP 395</td>
<td>Health Care Finance</td>
<td>3</td>
</tr>
<tr>
<td>HAP 396</td>
<td>Strategic Health Management and Planning</td>
<td>3</td>
</tr>
<tr>
<td>HAP 410</td>
<td>Introduction to Health/Medical Practice Management</td>
<td>3</td>
</tr>
<tr>
<td>HAP 416</td>
<td>Leadership and Management of Health Systems I</td>
<td>3</td>
</tr>
<tr>
<td>HAP 417</td>
<td>Leadership and Management of Health Systems II</td>
<td>3</td>
</tr>
<tr>
<td>HAP 425</td>
<td>Health Economics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>HAP 430</td>
<td>Process Improvement in Healthcare Organizations</td>
<td>3</td>
</tr>
<tr>
<td>HAP 442</td>
<td>Introduction to Health Care Politics and Policy</td>
<td>3</td>
</tr>
<tr>
<td>HAP 445</td>
<td>Introduction to Health Services Research</td>
<td>3</td>
</tr>
</tbody>
</table>

HAP 465 Integration of Professional Skills and Issues (Mason Core) (p. 135) (fulfills synthesis and writing intensive requirements) 3
HAP 489 Pre-Internship Seminar (Mason Core) (p. 135) 3
HAP 498 Health Administration Internship (Mason Core) (p. 135) 4

CHHS Electives
6 credits must include 200-level or above courses from the following:
- GCH courses (p. 1579)
- HAP courses (p. 1607)
- HHS courses (p. 1621)
- NURS courses (p. 1773)
- NUTR courses (p. 1792)
- RHBS courses (p. 1898)
- SOCW courses (p. 1913)
- Non-CHHS courses pre-approved for substitution by the concentration coordinator

General Electives
Electives are at the student’s discretion. 9

Total Credits 73

1. HAP 301 is to be taken during the student's first semester in the program.
2. HAP 465 may only be taken within the final 15 credits of the curriculum.
3. HAP 489 may only be taken in the semester immediately prior to HAP 498.
4. HAP 498 may only be taken within the final 15 credits of the curriculum. Students in HAP 498 complete an internship as identified and approved by the concentration coordinator during HAP 489. Under special circumstances and upon recommendation by the course instructors and the student’s advisor, students may be excused by the department chair from taking HAP 489 and HAP 498. Such students are required to take alternative courses that are pre-approved by the student’s advisor and worth at least 7 credits.

Accelerated Master’s

Health Administration, BS/Health Informatics, Accelerated MS

Overview
Highly qualified undergraduates may be admitted to the bachelor’s/accelerated master’s program and obtain both a BS in Health Administration (Health Informatics Concentration) and an MS in Health Informatics in an accelerated time frame after satisfactory completion of 147-159 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89) for policies related to this option.

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see the AP.6 Graduate Policies (p. 87) section of the catalog.
Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Admissions (p. 66). For additional application requirements and information specific to the accelerated MS in Health Informatics, see Eligibility, Policies, and Deadlines on the departmental website.

Applicants must be enrolled in the BS in Health Administration, Health Informatics Concentration with an overall GPA of 3.25 and minimum GPA 3.5 in courses in the major. Applicants must have recommendations from two health informatics faculty.

Accelerated Option Requirements
Students complete six credits of graduate level courses in their senior year which may be applied towards BS degree. While undergraduate students, accelerated master’s students are able to apply two courses (6 credits) to both the Bachelor’s and Master's degrees. These courses are considered advanced standing for the MS in Health Informatics. A minimum grade of B must be earned to be eligible to count as advanced standing. The courses are selected by an MS program adviser.

After completion of the BS portion of the curriculum, students in the accelerated program have also the option to replace selected core courses in the MS program with more advanced graduate level courses. This is allowed if the student received at least B+ in corresponding undergraduate courses and if approved by the adviser.

Health Informatics and Data Analytics Graduate Certificate

Banner Code: HH-CERG-HIDA

Academic Advising
Website: chhs.gmu.edu/hap/health-informatics/certificate-health-informatics-and-data-analytics.cfm

This certificate prepares clinicians, health care managers, statisticians, epidemiologists, computer programmers, data analysts, and other professionals in analysis of complex health care data, including data extracted from electronic health records, claims data, and consumer generated data. Since electronic health records and related data repositories are becoming increasing more massive, the certificate emphasizes topics related to big data analysis. Data mining, propensity scoring, and other advanced analytic techniques covered in the certificate, can handle complex problems typically found in observational data: large, multidimensional and multi-type data sets, with many confounding issues and noise. These techniques can be computationally efficient on large scale analysis and intelligent in predicting an outcome.

This graduate certificate may be pursued on a full- or part-time basis.

Admissions & Policies

Admissions
Applicants must hold a bachelor's degree from a regionally-accredited institution and must have a minimum of a 3.0 GPA to be considered. Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 18

Students must complete all courses with a grade of B or better. The course content and syllabi are also available at the program website (http://chhs.gmu.edu/hap/health-informatics/certificate-health-informatics-and-data-analytics.cfm) and by contacting hap@gmu.edu.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 725</td>
<td>Statistical Process Control in Healthcare</td>
</tr>
<tr>
<td>HAP 700</td>
<td>Introduction to Health Informatics</td>
</tr>
<tr>
<td>HAP 709</td>
<td>Health Care Databases</td>
</tr>
<tr>
<td>HAP 719</td>
<td>Advanced Statistics in Health Services Research I</td>
</tr>
<tr>
<td>HAP 720</td>
<td>Health Data Integration</td>
</tr>
<tr>
<td>HAP 777</td>
<td>Health Data Visualization</td>
</tr>
<tr>
<td>HAP 780</td>
<td>Data Mining in Health Care</td>
</tr>
<tr>
<td>HAP 823</td>
<td>Comparative Effectiveness Analysis using Observational Data</td>
</tr>
</tbody>
</table>

Total Credits: 18

Health Informatics, MS

Banner Code: HH-MS-HINF

Academic Advising
Website: chhs.gmu.edu/students/coordinators.cfm#hap

The purpose of the degree is to provide students with a graduate education to advance careers as leaders and innovators in health informatics. The program combines healthcare, medical and information technology domains, and places particular emphasis on the interdisciplinary collaboration between these fields. We prepare health informatics professionals with knowledge of healthcare industry and technology solutions, in conjunction with practical skills needed in this dynamically evolving field. The program’s goal is to prepare graduates to be able to effectively analyze complex health data, manage evolving health information systems (ranging from evaluation of information needs to design, development, acquisition, implementation, operation and improvement) and support the increased adoption and use of electronic health records.

This 33-39 credit graduate degree program prepares students to become health information systems specialists, health data analysts, health
care managers and consultants. Graduates of the program may be employed in health information technology firms, health care/service organizations and their business partners, as well as public health entities. Students learn about emerging technologies likely to impact delivery of health services in the future. The program provides a basis for students who wish to continue their education toward a doctoral degree in health informatics or a related field. The program consists of three concentrations: Health Data Analytics, Health Informatics Management and Population Health Informatics.

Concentrations

Health Data Analytics Concentration
The Health Data Analytics Concentration provides students with deep understanding of health data, analytic methods, and data mining, as well as data science skills applied to clinical, administrative and consumer-generated health data.

Health Information Management Concentration
The Health Information Management Concentration provides students with knowledge and skills needed to manage evolving health information systems (ranging from evaluation of information needs to design, development, acquisition, implementation, operation and improvement) and support the increased adoption and use of electronic health records.

Population Health Informatics Concentration
The Population Health Informatics Concentration provides students with knowledge and skills needed to collect, analyze and manage population-level data, as well as understanding of electronic tools used in population health. Managing the health of populations requires the involvement of both organizations and individuals within a community and is viewed as a promising model to not only improve health outcomes but also reduce cost. The concentration content starts by addressing traditional public health information needs and then moves on to sophisticated business analytics and data governance to support the goals of accountable care organizations, integrated care networks, and value-based purchasing programs.

Admissions & Policies

Admissions

Requirements
Applicants must hold a BA or BS degree or equivalent from an accredited university or college. Although the field or major is not a criterion for admission, the applicants are expected to have taken basic-level computer science/technology, mathematics, and statistics, and be familiar with these fields. Students who do not meet these requirements may be required to take additional prerequisite courses. Clinicians are encouraged to apply. An undergraduate grade point average of 3.25 (on a 4.0 scale) or above is preferred.

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Furthermore, although experience is not required, applicants with at least 1 year of professional work experience in a medical or health-related organization OR 1 year of work experience in information technology in any sector are preferred.

Policies
For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Transfer of Credit
Students may transfer a maximum of 12 credits from graduate courses taken at other institutions or taken at Mason in non-degree status. Transfer credit is subject to university (p. 74) and college (p. 236) policies and must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek course advising through the department and should submit their application to the MS program in their first semester of study.

Students with Undergraduate Program in Health Informatics
Students coming from Health Informatics undergraduate programs may request substitution of selected courses with more advanced courses if they received at least B+ in equivalent undergraduate courses.

Requirements

Degree Requirements
Total credits: 33-39

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 618</td>
<td>Computational Tools in Health Informatics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 678</td>
<td>Introduction to the U.S. Health System</td>
<td>3</td>
</tr>
<tr>
<td>HAP 700</td>
<td>Introduction to Health Informatics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 701</td>
<td>Health Data: Vocabulary and Standards</td>
<td>3</td>
</tr>
<tr>
<td>HAP 709</td>
<td>Health Care Databases</td>
<td>3</td>
</tr>
<tr>
<td>HAP 752</td>
<td>Advanced Health Information Systems</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>12-18</strong></td>
</tr>
</tbody>
</table>

1. HAP 618 Computational Tools in Health Informatics may be waived for student with strong computing skills and/or a degree in computer science.

2. HAP 678 may be waived for student with strong health administration background.

Health Data Analytics Concentration (HDAN)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 725</td>
<td>Statistical Process Control in Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>HAP 719</td>
<td>Advanced Statistics in Health Services Research</td>
<td>3</td>
</tr>
<tr>
<td>HAP 780</td>
<td>Data Mining in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>HAP 823</td>
<td>Comparative Effectiveness Analysis using Observational Data</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective | 3

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 720</td>
<td>Health Data Integration</td>
</tr>
<tr>
<td>HAP 721</td>
<td>Project in Data Analysis</td>
</tr>
</tbody>
</table>
Health Informatics, MS

HAP 730  Health Care Decision Analysis
HAP 770  Medical Decision Making and Decision Support Systems
HAP 777  Health Data Visualization
HAP 880  Advanced Health Data Mining
HAP 819  Advanced Statistics in Health Services Research II

Total Credits 15

1 HAP 721 is a variable-credit course. Three credits must be completed to fulfill the elective requirement.

Health Informatics Management Concentration (HINM)

HAP 602  Statistics in Health Services Management 3
HAP 622  Healthcare Information Systems Analysis and Design 3
HAP 713  Project Management in Health Information Technology 3
or SWE 625  Software Project Management
HAP 745  Health Care Security Policy 3

Elective 3

Select one of the following:
HAP 601  E-Commerce and On-line Marketing for Health Services
HAP 621  Organization Behavior and Healthcare Leadership
HAP 645  Introduction to Health Services Research
HAP 647  Regulatory Requirements for Health Care Systems
HAP 686  Quality Improvement in Health Services
HAP 715  Health Economics
HAP 750  Legal Issues in Health Administration
HAP 762  Cost-Effectiveness for Health Care Management and Policy Decisions
HAP 770  Medical Decision Making and Decision Support Systems

Total Credits 15

Population Health Concentration (HIP)

HAP 717  Population Health Informatics 3
HAP 718  Consumer Health Informatics 3
GCH 712  Introduction to Epidemiology 3

Electives 6

Select two of the following:
GGS 650  Introduction to GIS Algorithms and Programming
HAP 730  Health Care Decision Analysis
HAP 735  Fundamentals of Patient Safety and Risk Management
HAP 780  Data Mining in Health Care

Total Credits 15

Practicum or Thesis
After completing coursework, and with permission of advisor, students choose between the Capstone Practicum and Master’s Thesis. Both options require two semesters to complete.

Select one option from the following:

Practicum Option
HAP 789  Pre-Capstone Professional Development Seminar 3

HAP 790  Capstone Practicum in Health Systems Management 3

Thesis Option
HAP 799  Master’s Thesis 6

Total Credits 6

Accelerated Master’s

Health Administration, BS/Health Informatics, Accelerated MS

Overview
Highly qualified undergraduates may be admitted to the bachelor’s/accelerated master’s program and obtain both a BS in Health Administration (Health Informatics Concentration) and an MS in Health Informatics in an accelerated time frame after satisfactory completion of 147-159 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89) for policies related to this option.

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see the AP.6 Graduate Policies (p. 87) section of the catalog.

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Admissions (p. 66). For additional application requirements and information specific to the accelerated MS in Health Informatics, see Eligibility, Policies, and Deadlines on the departmental website.

Applicants must be enrolled in the BS in Health Administration, Health Informatics Concentration with an overall GPA of 3.25 and minimum GPA 3.5 in courses in the major. Applicants must have recommendations from two health informatics faculty.

Accelerated Option Requirements
Students complete six credits of graduate level courses in their senior year which may be applied towards BS degree. While undergraduate students, accelerated master’s students are able to apply two courses (6 credits) to both the Bachelor’s and Master’s degrees. These courses are considered advanced standing for the MS in Health Informatics. A minimum grade of B must be earned to be eligible to count as advanced standing. The courses are selected by an MS program adviser.

After completion of the BS portion of the curriculum, students in the accelerated program have also the option to replace selected core courses in the MS program with more advanced graduate level courses. This is allowed if the student received at least B+ in corresponding undergraduate courses and if approved by the adviser.
Health Information Technology Minor

Banner Code: HIT

Academic Advising
Website: chhs.gmu.edu/students/advising-hap.cfm

The minor in Health Information Technology introduces students, in a non-technical context, to the utilization of health information management in the professional arena of health care management and policy. Students will examine the current and projected role of health information management in the delivery of health care and development of health policy and apply this information in a practical research endeavor.

Admissions & Policies

Policies
At least 12 credits must be unique to the minor and cannot be used to fulfill the program of study requirements of the student’s major, concentration, undergraduate certificate, or another minor. Students should be familiar with university-wide requirements for minors described in AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HAP 360</td>
<td>Introduction to Health Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>HAP 361</td>
<td>Health Databases</td>
<td>3</td>
</tr>
<tr>
<td>or IT 214</td>
<td>Database Fundamentals</td>
<td></td>
</tr>
<tr>
<td>HAP 459</td>
<td>Health Data Standards and Interoperability</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Electives
Select two from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 308</td>
<td>Public Health Informatics</td>
</tr>
<tr>
<td>HAP 436</td>
<td>Electronic Health Data in Process Improvement</td>
</tr>
<tr>
<td>HAP 440</td>
<td>Mobile Health</td>
</tr>
<tr>
<td>HAP 460</td>
<td>Information Technology Project Management</td>
</tr>
<tr>
<td>HAP 461</td>
<td>Internet and Web Technology Applications for Healthcare</td>
</tr>
<tr>
<td>HAP 464</td>
<td>Electronic Health Record Configuration and Data Analysis</td>
</tr>
<tr>
<td>HAP 467</td>
<td>Advanced Information Technology Project Management</td>
</tr>
</tbody>
</table>

Total Credits 6

Health Policy, MS (title change pending SCHEV approval)

Banner Code: HH-MS-HTHP

Academic Advising
Website: chhs.gmu.edu/students/coordinators.cfm#hap

Note: As of catalog publication in April, the title for this program (formerly known as Health and Medical Policy, MS) has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia.

The master’s program in health policy prepares students to become health policy decision-makers at the local, state, and national levels, to be consultants, to support the work of foundations, or to engage with public health and advocacy organizations in the US and abroad. Students graduate with the knowledge, skills, and abilities needed to assess health systems approaches; formulate new policies; and support policy development in health care financing, health and medical professional development, health systems innovation, and the allocation of scarce resources.

Students learn how health care is delivered and paid for, how well the health system performs from the individual and societal perspectives, and how formal and informal policy-making occurs.

Admissions & Policies

Admissions
Requirements
Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies
For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Transfer of Credit
Students may transfer a maximum of 12 credits from graduate courses taken at other institutions or taken at Mason in non-degree status. Transfer credit is subject to university (p. 74) and college (p. 236) policies and must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek course advising through the department and should submit their application to the MS program in their first semester of study.

Requirements

Degree Requirements
Total credits: 42
Core Courses

Health Delivery and Policy Issues
- HAP 640 Current Issues in Health Policy 3
- HAP 652 Essentials of Health Insurance and Managed Care 3
- HAP 715 Health Economics 3
- HAP 742 Health Policy Development and Analysis 3
- HAP 764 Health Policy and Government Payment Systems for Health Care Services 3

Public Policy Process
- PUBP 730 US Institutions and the Policy Process 3
- PUAD 615 Administrative Law 3
- PUAD 750 Federalism and Intergovernmental Relations 3

Policy Analysis
- HAP 645 Introduction to Health Services Research 3
- HAP 719 Advanced Statistics in Health Services Research I 3
- HAP 730 Health Care Decision Analysis 3
- or PUBP 713 Policy and Program Evaluation 3

Capstone
- HAP 793 Final Project in Applied Health Policy 3

Total Credits 36

Electives

Select six credits from the following: 6
Courses not listed below must be approved by the student’s advisor.
- HAP 621 Organization Behavior and Healthcare Leadership
- HAP 632 Grants Funding and Development
- HAP 647 Regulatory Requirements for Health Care Systems
- HAP 661 Policy Development and Analysis for Community Health Programs
- HAP 662 Health Policy for Elders and People with Disabilities
- HAP 686 Quality Improvement in Health Services
- HAP 703 Financial Management in Health Systems
- HAP 714 Ethical Issues in Health Administration and Policy
- HAP 745 Health Care Security Policy
- HAP 746 Health Policy Leadership
- HAP 750 Legal Issues in Health Administration
- GCH 600 Health Promotion Methods
- GCH 610 Health Behavior Theory
- GCH 611 Health Program Planning and Evaluation
- GCH 712 Introduction to Epidemiology
- BIOD 609 Biodefense Strategy
- BIOD 620 Global Health Security Policy
- PUAD 630 Emergency Planning and Preparedness
- PUAD 633 Hazard Mitigation Policy
- PUAD 635 Emergency Preparedness: Interagency Communication and Coordination

Health Services Research, PhD

Banner Code: HH-PHD-HSR

Alison Cuellar, PhD; Program Coordinator
Website: chhs.gmu.edu/students/coordinators.cfm#hap

The purpose of the PhD program in Health Services Research is to prepare graduates to be scholars, educators, researchers, and leaders in higher education, health care and service organizations, health care consulting firms, government and nonprofit organizations, and private businesses that support or regulate the health service industry. The degree has the following two specialized programs of study (concentrations):
- Health Systems and Policy
- Knowledge Discovery and Health Informatics

Admissions & Policies

Admissions

Requirements
Students must have a master’s degree or other advanced degree (i.e., MD, JD, PhD or equivalent) from a regionally-accredited institution before being admitted to the 72-credit PhD program.

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies

Reduction of Credit
Students who enter with a master’s or other advanced degree may have the credit requirement reduced by up to 30 credits (to a minimum of 42) for previous coursework that closely corresponds with doctoral program
requirements. The credit reduction decision will be made by the doctoral program coordinator and requires approval of the department chair. Requests for reduction of credit are reviewed only after acceptance to the doctoral program.

**Time Requirements**

Students must complete all requirements for the PhD in Health Services Research within 9 calendar years from the time of first enrollment as a doctoral student in the program or with provisional status. PhD students are expected to progress steadily toward their degree and to complete all coursework and the written exam in order to advance to candidacy within no more than 6 years.

## Requirements

### Degree Requirements

Total credits: 72

#### Core Courses

**Research and Computational Methods Domain**

- HAP 719 Advanced Statistics in Health Services Research I
- HAP 760 Philosophy of Science in Health Services Research
- HAP 819 Advanced Statistics in Health Services Research II
- HAP 835 Causal Inference in Health Services Research

**Knowledge Discovery and Health Informatics Domain**

- HAP 709 Health Care Databases
- HAP 720 Health Data Integration
- HAP 780 Data Mining in Health Care

**Health Systems and Policy Domain**

- HAP 715 Health Economics
- HAP 742 Health Policy Development and Analysis
- HAP 868 Advanced Research Seminar in Health Policy Analysis

Total Credits: 30

#### Concentration and Electives

Students take additional courses in one of two concentration domains: Knowledge Discovery and Health Informatics or Health Systems and Policy. Doctoral-level electives outside of CHHS or concentration-related content areas may be taken as approved by the student's academic advisor. A maximum of 6 credits of 600-level courses may be applied to the degree.

**Concentration in Knowledge Discovery and Health Informatics (KDHI)**

Thirty credits from the following:

- HAP 618 Computational Tools in Health Informatics
- HAP 701 Health Data: Vocabulary and Standards
- HAP 730 Health Care Decision Analysis
- HAP 745 Health Care Security Policy
- HAP 752 Advanced Health Information Systems
- HAP 770 Medical Decision Making and Decision Support Systems
- HAP 823 Comparative Effectiveness Analysis using Observational Data
- HAP 925 Advanced Methods in Qualitative Research for Health Care
- GCH 807 Measurement Theories and Applications in Health Care Research
- RHBS 720 Principles of Clinical Trials
- RHBS 816 Rehabilitation Efficacy and Effectiveness Research
- STAT 663 Statistical Graphics and Data Exploration I
- STAT 763 Statistical Graphics and Data Exploration II
- CSI 873 Computational Learning and Discovery

Other course(s) supporting the student's subject matter or research methods, as approved by the advisor

Total Credits: 30

**Concentration in Health Systems and Policy (HSYP)**

Thirty credits from the following:

- HAP 645 Introduction to Health Services Research
- HAP 661 Policy Development and Analysis for Community Health Programs
- HAP 662 Health Policy for Elders and People with Disabilities
- HAP 704 Contemporary Issues in Health Systems Management
- HAP 745 Health Care Security Policy
- HAP 746 Health Policy Leadership
- HAP 762 Cost-Effectiveness for Health Care Management and Policy Decisions
- HAP 766 Policy Implementation and Health System Management Dilemmas
- HAP 823 Comparative Effectiveness Analysis using Observational Data
- HAP 866 Politics of Influencing Health Care Policy
- HAP 925 Advanced Methods in Qualitative Research for Health Care
- GCH 807 Measurement Theories and Applications in Health Care Research
- RHBS 808 Outcomes Measurement
- RHBS 816 Rehabilitation Efficacy and Effectiveness Research

Other course(s) supporting the student's subject matter or research methods, as approved by the advisor

Total Credits: 30

### Comprehensive Exams

Two comprehensive examinations (one written and one either oral or computational) will determine whether the student has the necessary knowledge and skills to undertake dissertation work. (Note: A computational exam presents the student with a question that requires analysis of data in order to provide a comprehensive answer.) The
comprehensive exams must be taken within one year of completion of all coursework (except for dissertation sequence courses).

Students shall indicate by the end of the previous regular semester their intent to take the comprehensive exams. Students must have organized a dissertation committee with a chair approved by the HSR PhD Program Director. The dissertation committee will develop and evaluate the individual’s comprehensive exams on a pass/no-pass basis. Students must pass both exams to enter PhD candidacy. Students who fail to pass either of the comprehensive exams may attempt each exam again the following semester. No more than one additional attempt at the exams will be permitted. Students who do not pass both comprehensive exams after the maximum number of attempts will be dismissed from the program.

Written Comprehensive Exam
Members of the dissertation committee will utilize a written comprehensive examination to assess the student’s ability to apply theoretical concepts of research design and methods (including study design, data acquisition or collection, data management, analysis and interpretation) to relevant research questions in the student’s concentration and area of research.

Oral or Computational Comprehensive Exam
Members of the dissertation committee will utilize either an oral or a computational comprehensive examination to assess the student’s knowledge of theory and application pertaining to the content of the "field" and relevant subject matter, based upon the student’s concentration and areas of research.

Advancement to Candidacy
Students who pass the comprehensive exams and all core and concentration course requirements advance to candidacy. A student must advance to candidacy status before taking the dissertation courses.

Dissertation Sequence Courses
Complete at least 12 credits: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 998</td>
<td>Doctoral Dissertation Proposal</td>
</tr>
<tr>
<td>HAP 999</td>
<td>Doctoral Dissertation (at least 6 credits)</td>
</tr>
</tbody>
</table>

Dissertation
After advancement to candidacy, the HSR PhD student must complete an approved dissertation. The student must seek and obtain the approval of the HSR PhD Program Director on the selection of his/her Dissertation Chair and committee members. The committee must have at least three members, each of which must be a full-time member of the graduate faculty. The Chair must hold an appointment in the Department of Health Administration and Policy (HAP) and be approved by the Program Director. The second member of the dissertation committee must be a member of either the HAP Department or the College of Health and Human Services, and the third member of the committee must be from the College or other academic unit at George Mason University. A fourth member of the committee may be appointed, from another academic unit or from outside Mason, with the approval of the Program Director.

Within six months of passing the comprehensive examinations, the student must submit a draft dissertation proposal to the Dissertation Chair and committee. The proposal shall describe the proposed research as directed by the Chair and Committee. Failure to submit the proposal in a timely manner is grounds for academic probation. The proposal must provide a detailed literature review that provides the context and rationale for the research objectives, state the dissertation objective(s), and describe the proposed study design and analytic methods. The proposal must address the feasibility of completing the dissertation research and state the chair and members of the student’s dissertation committee (with signatures or other appropriate documentation through e-mail) and include a short rationale for the inclusion of each member. An oral proposal defense must be scheduled with dissertation committee members who have agreed to serve. During the oral proposal defense, the student will describe their proposed research and address questions by the committee members. At the oral defense, the Dissertation Committee determines approval or disapproval of the proposal. Committee disapproval is accompanied by written recommendations for improving the proposed research with expectations for resubmission.

**Health Systems Management, MHA**

**Banner Code:** HH-MHA-HSMG

**Academic Advising**

Website: chhs.gmu.edu/students/coordinators.cfm#hap

The Master of Health Administration (MHA) in Health Systems Management program prepares students with the knowledge and skills to work as leaders and executive-level managers in evolving health care organizations. The curriculum was developed in response to the demand for advanced health management preparation for a variety of health care and allied health professionals to be employed in hospitals, health systems, consulting and regulatory entities, medical practice groups, ambulatory clinics, managed care organizations, and government agencies in both the public and private sectors of health care.

The program of study offers state-of-the-art technical and humanistic skills so that graduates may serve as leaders, managers, and consultants in various settings. The curriculum integrates concepts from a variety of disciplines such as business management, economics, finance, philosophy, organizational behavior, marketing, information technology, social psychology, public policy, law, and ethics as they apply to the administration of health care organizations.

The interdisciplinary curriculum is designed to prepare graduates with an understanding of the larger sociopolitical, global health, and economic contexts in which the U.S. health system operates. It provides working professionals with leadership knowledge and managerial skills and abilities that contribute to improving the efficiency and effectiveness of health systems and alignment of decisions and resources to optimize organizational and health-related public policy goals. Students examine social imperatives for access to health services and the feasibility, need, and mechanisms of market factors. They create links and alignment between public and private sectors and among voluntary, market, and regulatory forces in the context of a variety of public policy frameworks. Students explore the design and management of seamless systems of care, information technology, and services that support the providers of health-related care and services over the life span. Using ethical principles, students explore approaches to improving access to care and services and the quality and safety of health systems and their integration to maximize quality of life and community health.
Admissions & Policies

Admissions

Requirements

Health care professionals with a baccalaureate degree and one to three years of recent experience in health or a related management or technology field are eligible to apply. Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66). Applications to the MHA program should be submitted via the Health Administration, Management & Policy Centralized Application Service (HAMPCAS) (https://hampcas.liaisoncas.com/applicant-ux/#/login). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Transfer of Credit

Students may transfer a maximum of 12 credits from graduate courses taken at other institutions or taken at Mason in non-degree status. Transfer credit is subject to university (p. 74) and college (p. 236) policies and must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek course advising through the department and should submit their application to the MHA program in their first semester of study.

Program Format

The program schedule is geared toward working professionals. The usual schedule for students involves part-time study, comprising two classes (6 credits) per semester. Classes are held primarily in evenings, with some Saturday daytime classes. Selected courses also are available via the Internet.

English Language Test Score Thresholds

International students whose scores on the English Language Tests are below the thresholds required by the program must take EAP 508 Graduate Communication in the Disciplines III (Credits: 4) in their first semester of study. International students required to complete EAP 508 Graduate Communication in the Disciplines III in their first semester of study.

<table>
<thead>
<tr>
<th>Test</th>
<th>Overall</th>
<th>Listening</th>
<th>Reading</th>
<th>Writing</th>
<th>Speaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOEFL IBT</td>
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<td>24</td>
<td>26</td>
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<tr>
<td>TOEFL PBT 610</td>
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</tr>
<tr>
<td>TOEFL CBT 253</td>
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<td>25</td>
<td>26</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>PTE 65+</td>
<td>Subsections</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>IELTS</td>
<td>7</td>
<td>6.5</td>
<td>7</td>
<td>6.5</td>
<td></td>
</tr>
</tbody>
</table>

Electives

Complete six credits of the following: 1 3-6

Select one health insurance course:

- HAP 652 Essentials of Health Insurance and Managed Care
- or HAP 764 Health Policy and Government Payment Systems for Health Care Services

Select one policy course:

- HAP 742 Health Policy Development and Analysis
- or HAP 746 Health Policy Leadership

Total Credits 3-6

International students required to complete EAP 508 will have a reduced elective requirement from 6 to 3 credits.

Requirements

Degree Requirements

Total credits: 46-47

The program of study comprises 46-47 credits: required courses (40-44 credits) and two electives (6 credits). International students whose scores on the English Language Tests are below the thresholds required by the program are required to take EAP 508 - Graduate Communication in the Disciplines III (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=308575) (Credits: 4) in their first semester of study and earn a grade of B (3.0) or higher. As a result, their elective requirement will be reduced from 6 to 3 credits. This will increase the degree requirements for these students from 46 to 47 credits.
Health and Social Policy Minor

Banner Code: HSP

Academic Advising
Website: chhs.gmu.edu/students/advising-hap.cfm

The minor in Health and Social Policy introduces students to the context and process for public policymaking in health care and social services. Students will examine the current environment for health and social policy, learn the basic elements of the public policymaking process, and apply this knowledge in a practical research endeavor. This minor is a joint program offered by the Department of Health Administration and Policy (p. 247) and the Department of Social Work (p. 271).

Admissions & Policies

Policies
Students should be familiar with university-wide requirements for minors described in AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students will take five (5) core courses and one (1) elective course in an area of health and social policy interest.

Required Courses

HAP 301 Health Care Delivery in the United States 3
HAP 312 Healthcare Law 3
or SOCW 400 Legal and Ethical Issues in Human Services 3
HAP 442 Introduction to Health Care Politics and Policy 3
GCH/SOCW 445 Social Determinants of Health 3
HAP 445 Introduction to Health Services Research 3
or SOCW 471 Research in Social Work 3

Total Credits 15

Elective
Select one from the following: 3

- HAP 290 Lifestyle Management
- HAP 310 Healthcare Ethics
- HAP 395 Health Care Finance
- SOCW 410 Alcohol and Substance Abuse: Policies and Programs
- SOCW 415 Child and Family Welfare
- SOCW 435 Introduction to Gerontology
- GCH 405 Global Health Interventions: History and Systems ¹

Total Credits 3

¹ GCH 405 requires a prerequisite course: GCH 205 Global Health (Mason Core) (p. 135)

Public Health Leadership and Management Graduate Certificate

Banner Code: HH-CERG-PHLM

Academic Advising
Website: chhs.gmu.edu/hap/health-administration/certificate-public-health-leadership-and-management.cfm

This certificate prepares students to apply the principles of public health leadership, stewardship and policy implementation to manage state and local health departments and various non-profit organizational and community health program initiatives. Courses explain leadership strategy, public health regulatory requirements, public program management tools and policy development skills necessary to function in public health systems in the United States. The certificate is ideal for clinicians and health care professionals who seek value-added career enhancement in public health programs and entities.

This graduate certificate may be pursued only on a part-time basis.

Admissions & Policies

Admissions
Applicants must have a bachelor’s degree with a minimum GPA of 3.00 and knowledge of the health care system. Applicants are preferred who are a current student in a graduate degree program, have an earned master’s degree, or have at least one year of experience in a health-related role or entity. No prior experience in public health administration or policy is needed. Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 18

Students must complete all courses with a minimum GPA of 3.00.

Required Courses

GCH 712 Introduction to Epidemiology 3
HAP 680 Applied Public Health Leadership and Management 3
HAP 715 Health Economics 3
**Quality Improvement and Outcomes Management in Health Care Systems Graduate Certificate**

**Banner Code:** HH-CERG-QIOM

**Academic Advising**

Website: chhs.gmu.edu/hap/health-administration/certificate-quality-improvement-and-outcomes-management-in-health-care-systems.cfm

This certificate prepares working clinicians and administrative support staff in health care organizations to implement quality-improvement initiatives and manage populations of patients to optimize efficiency and effectiveness of care and services. Participants acquire the knowledge and ability to work in interdisciplinary health care teams using the tools and techniques of statistical process control and selected methods and tools from operations research and quality improvement. In addition, they use information management technology and qualitative decision-making applications to identify opportunities for clinical and administrative improvement, support decision-making optimization, and improve health-service outcomes for identified populations.

This graduate certificate may be pursued only on a part-time basis.

**Admissions & Policies**

**Admissions**

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

**Policies**

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

**Certificate Requirements**

**Total credits:** 15-18

Candidates must have a minimum GPA of 3.00 in coursework, with no more than 3 credits with a grade of C, to earn the certificate.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 647</td>
<td>Regulatory Requirements for Health Care Systems</td>
</tr>
<tr>
<td>HAP 686</td>
<td>Quality Improvement in Health Services</td>
</tr>
<tr>
<td>HAP 730</td>
<td>Health Care Decision Analysis</td>
</tr>
</tbody>
</table>

**Select one from the following:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 601</td>
<td>Introduction to Biostatistics</td>
</tr>
<tr>
<td>HAP 602</td>
<td>Statistics in Health Services Research I</td>
</tr>
<tr>
<td>HHS 597</td>
<td>Approaches to Quantitative Data Analysis in Health Care Research</td>
</tr>
<tr>
<td>SOCW 671</td>
<td>Research Methods for Social Workers</td>
</tr>
</tbody>
</table>

**Total Credits**

3

**Elective**

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 709</td>
<td>Health Care Databases</td>
</tr>
<tr>
<td>HAP 719</td>
<td>Advanced Statistics in Health Services Research I</td>
</tr>
<tr>
<td>HAP 715</td>
<td>Health Economics</td>
</tr>
<tr>
<td>HAP 720</td>
<td>Health Data Integration</td>
</tr>
<tr>
<td>HAP 740</td>
<td>Management of Health Information Systems</td>
</tr>
<tr>
<td>SOCW 688</td>
<td>Program Evaluation for Social Workers</td>
</tr>
</tbody>
</table>

**Total Credits**

3

**Additional Coursework**

Required for students who do not already possess the requisite knowledge and skills. Decisions about this requirement are made by the department at the time of admission.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 678</td>
<td>Introduction to the U.S. Health System</td>
</tr>
</tbody>
</table>

1 Required for students without recent working experience in the U.S. health system.
Senior Housing Administration Minor

Banner Code: SHA

Academic Advising

Website: chhs.gmu.edu/students/advising-hap.cfm

The minor introduces students to the context and foundational knowledge required for administrative or managerial work within residential communities for older adults - including independent living, assisted living, Alzheimer’s/memory care, and continuing care retirement communities. Students will examine the current U.S. health care and senior housing environment, best practices in day-to-day management and marketing of senior housing communities, and have the opportunity to gain additional understanding of ethical, legal, and gerontological issues applicable to aging populations. Health Administration majors may pursue either the concentration in Senior Housing Administration or complete senior housing coursework to fulfill elective requirements for other concentrations in the degree.

Admissions & Policies

Admissions

The minor is available only to students outside of the Health Administration (p. 248) major.

Policies

At least 12 credits must be unique to the minor and cannot be used to fulfill the program of study requirements of the student's major, concentration, undergraduate certificate, or another minor. Students should be familiar with university-wide requirements for minors described in AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HAP 310</td>
<td>Healthcare Ethics</td>
<td>3</td>
</tr>
<tr>
<td>HAP 403</td>
<td>Assisted Living/Senior Housing Management and Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>HAP 404</td>
<td>Senior Housing Sales and Marketing</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Elective

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHS 432</td>
<td>Healthy Aging</td>
</tr>
<tr>
<td>GCH 480</td>
<td>Health Maintenance and Health Aspects of Aging</td>
</tr>
<tr>
<td>SOCW 435</td>
<td>Introduction to Gerontology</td>
</tr>
<tr>
<td>RHBS 420</td>
<td>Adult Health and Function</td>
</tr>
<tr>
<td>HAP 312</td>
<td>Healthcare Law</td>
</tr>
</tbody>
</table>

Department of Nutrition and Food Studies

Phone: 703-993-4628
Website: nfs.gmu.edu

Administration

- Lisa Pawloski, Chair

The Department of Nutrition and Food Studies (NUTR) is a department within the College of Health and Human Services (p. 235) (CHHS). The overarching mission of Nutrition and Food Studies is to inform students and the public about the role of food and nutrition in improving health and well-being among local and global populations through the integration of education, research and outreach. The educational mission is to provide undergraduate and graduate degrees and certificates in food and nutrition-related studies. The research mission is to promote, develop and support research programs that help define and address food and nutritional issues. The outreach mission is to increase the awareness of food and nutrition-related issues among local and global communities, support local and global food and nutrition initiatives, and enhance collaboration among individuals and organizations to improve nutrition and health-related outcomes. Part-time students are encouraged to take at least 6 credits per semester to promote timely completion of the program.

Faculty

Department Faculty

Professor

Pawloski (chair)

Associate Professor

Gewa

Assistant Professors

de Jonge, Gallo, LaCharite, Slavin, Wagner

Requirements & Policies

Requirements

Academic Advising

Each student is assigned an academic advisor who is a faculty member within their academic department or a professional academic advisor within the Office of Student Affairs (OSA). Academic advisor assignments are listed on the CHHS website (http://chhs.gmu.edu/students/academic-advising.cfm), and students are expected to meet with their advisor regularly (at least once each semester) to seek advice.
about academic schedules and program plans, internships, and career guidance. Students also should meet with their advisor if they are experiencing academic difficulty or personal challenges or if they are feeling overwhelmed.

All students are responsible for knowing the requirements of their major as specified in the university catalog for their catalog year; academic deadlines outlined in the semester academic calendar (http://registrar.gmu.edu/calendars); and university policies and procedures as stated in the catalog.

Students also should run their own degree-evaluation (http://registrar.gmu.edu/students/degree-evaluation) to identify graduation requirements and progress towards their degree. While academic advisors can give advice to students, students are responsible for the academic planning decisions they make. Academic advisors cannot be held responsible for mistakes made by students in selecting courses that may not count toward their degree and thus delay a desired graduation date.

### Programs

- Food Security Graduate Certificate
- Nutrition Graduate Certificate
- Nutrition Minor
- Nutrition Undergraduate Certificate
- Nutrition, MS

### Food Security Graduate Certificate

**Banner Code:** HH-CERG-FSEC

**Academic Advising**

Website: chhs.gmu.edu/nfs/graduate/certificate-food-security.cfm

The graduate certificate in food security provides knowledge and tools in the areas of nutrition, food studies, geography, and geoinformation science to prepare students for careers in food security and safety. The program includes courses in nutrition, food security, food safety, and GIS and remote sensing, and the program will give students insight into the determinants of food security in developing and industrialized countries, the roots of vulnerabilities of populations most at-risk, and programs involved in food security research and interventions worldwide.

The graduate certificate in food security may be pursued on a part-time or full-time basis.

### Admissions & Policies

#### Admissions

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, please refer to CHHS Admissions (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Certificate Requirements

**Total credits: 21**

Candidates must have 21 graduate credits and a minimum GPA of 3.00 in coursework applied to the certificate, with no more than 3 credits with a grade of C to earn the certificate.

#### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 608</td>
<td>Perspectives on Food Security</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 611</td>
<td>Food and Nutrition Security Policy</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 610</td>
<td>Food Safety and Defense</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 651</td>
<td>Nutrition Assessment, Monitoring and Surveillance</td>
<td>3</td>
</tr>
<tr>
<td>GGS 579</td>
<td>Remote Sensing</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>1</td>
</tr>
<tr>
<td>NUTR 630</td>
<td>Global Nutrition</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits** 18

1 Nutrition students must select this course.

2 Geography students must select this course.

#### Elective

Select three credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 560</td>
<td>Environmental Health</td>
<td></td>
</tr>
<tr>
<td>NUTR 630</td>
<td>Global Nutrition</td>
<td></td>
</tr>
<tr>
<td>BIOD 726</td>
<td>Food Security</td>
<td></td>
</tr>
<tr>
<td>GGS 581</td>
<td>World Food and Population</td>
<td></td>
</tr>
</tbody>
</table>

or other approved elective course

**Total Credits** 3

### Nutrition Graduate Certificate

**Banner Code:** HH-CERG-NUTR

**Academic Advising**

Website: chhs.gmu.edu/nfs/graduate/certificate-nutrition.cfm

This graduate certificate prepares students to apply nutrition principles and the latest scientific evidence and methods of nutrition to health practice and research among different populations. The certificate emphasizes understanding the role of nutrition in population health and well-being and the development of skills required in the practice, analysis, and interpretation of nutrition-related information and data among individuals and populations. Students will acquire competencies in the following areas:

- public health nutrition framework
- assessment and monitoring
This graduate certificate may be pursued on a part-time or full-time basis.

This certificate qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Nutrition_CERG/Gedt.html).

### Admissions & Policies

**Admissions**

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Previous undergraduate coursework in natural sciences, nursing, health science, and sociology is helpful.

**Policies**

A maximum of 3 credits in equivalent coursework taken at another college or university can be applied toward the certificate.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

#### Certificate Requirements

Total credits: 18

To earn the certificate, students must earn a minimum GPA of 3.00 in the following 18 credits of graduate coursework, with no more than 3 credits with a grade of C.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 630</td>
<td>Global Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 566</td>
<td>Nutrition and Weight Management</td>
<td>3</td>
</tr>
<tr>
<td>GCH 712</td>
<td>Introduction to Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 651</td>
<td>Nutrition Assessment, Monitoring and Surveillance</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

**Electives**

Select two from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 610</td>
<td>Health Behavior Theory</td>
</tr>
<tr>
<td>GCH 611</td>
<td>Health Program Planning and Evaluation</td>
</tr>
<tr>
<td>GCH 752</td>
<td>Nutritional Epidemiology</td>
</tr>
</tbody>
</table>

Total Credits 6

**Nutrition Minor**

**Banner Code:** NUTR

**Academic Advising**

Website: chhs.gmu.edu/students/advising-nutr.cfm

This minor is intended to increase knowledge of nutrition issues for students from all disciplines. Students pursuing degrees related to nutrition, health, and education may be interested in completing this minor.

Note: This minor is not equivalent to the registered dietitian license and does not provide a license to practice therapeutic nutrition.

### Admissions & Policies

**Policies**

To complete the minor, students are required to pass at least 15 credits of undergraduate coursework. At least 6 credits must be completed at Mason, and no more than 3 credits of C- or D in the minor are accepted.

Students should be familiar with university-wide requirements for minors described in AP.5.3.4 Minors (p. 86).

#### Requirements

**Minor Requirements**

Total credits: minimum 15

Students are required to take an introductory nutrition course such as NUTR 295 Introduction to Nutrition (Mason Core) (p. 135) before beginning coursework in this minor.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 420</td>
<td>Strategies for Nutrition Education ¹</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 421</td>
<td>Community Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 422</td>
<td>Nutrition throughout the Life Cycle</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 423</td>
<td>Nutrition and Chronic Illnesses</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

¹ NUTR 466 Nutrition and Weight Management: Obesity, Anorexia, and Bulimia can be used to substitute for either NUTR 420 or NUTR 421.

**Elective**

Select at least three credits from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 102</td>
<td>Introduction to Organic, Biochemical, Pharmacological, and Fuel Chemistry (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHEM 463</td>
<td>General Biochemistry I</td>
</tr>
<tr>
<td>NUTR 466</td>
<td>Nutrition and Weight Management: Obesity, Anorexia, and Bulimia</td>
</tr>
<tr>
<td>NUTR 583</td>
<td>Food and Culture</td>
</tr>
</tbody>
</table>

Total Credits 3-4
Nutrition Undergraduate Certificate

Banner Code: HH-CERB-NUTR

Academic Advising
Website: chhs.gmu.edu/students/advising-nutr.cfm

This certificate offers a variety of courses in nutrition for future and present health care professionals, researchers, and others who are commonly faced with community-related nutrition issues. The certificate is intended to help healthcare professionals and others who would like to increase their knowledge in nutrition.

Note: This certificate is not equivalent to the registered dietitian license and does not provide a license to practice therapeutic nutrition.

This undergraduate certificate may be pursued on a full or part-time basis.

Admissions & Policies

Admissions
Applicants need not have a bachelor’s degree, and applications are encouraged from all disciplines. Application must be made through CHHS.

Policies
Students should consult AP.5.3.5 Undergraduate Certificates (p. 86) for more information.

Certificate Requirements

Total credits: 24

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 360</td>
<td>Health and Environment</td>
</tr>
<tr>
<td>GCH 412</td>
<td>Fundamentals of Epidemiology</td>
</tr>
<tr>
<td>NUTR 295</td>
<td>Introduction to Nutrition (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>NUTR 420</td>
<td>Strategies for Nutrition Education 1</td>
</tr>
<tr>
<td>NUTR 421</td>
<td>Community Nutrition 1</td>
</tr>
<tr>
<td>NUTR 422</td>
<td>Nutrition throughout the Life Cycle</td>
</tr>
</tbody>
</table>

Total Credits 3-4

One Elective in General Nutrition
Select at least three credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 102</td>
<td>Introduction to Organic, Biochemical, Pharmacological, and Fuel Chemistry (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHEM 463</td>
<td>General Biochemistry I</td>
</tr>
<tr>
<td>GCH 205</td>
<td>Global Health (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GCH 411</td>
<td>Health Program Planning and Evaluation</td>
</tr>
<tr>
<td>NUTR 466</td>
<td>Nutrition and Weight Management: Obesity, Anorexia, and Bulimia</td>
</tr>
<tr>
<td>PSYC 231</td>
<td>Social Psychology (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 3-4

Nutrition, MS

Banner Code: HH-MS-NUTR

Academic Advising
Website: chhs.gmu.edu/students/coordinators.cfm#nfs

The master’s program in nutrition emphasizes a skill-set tailored to expanding nutrition-related needs. Through coursework, students learn to assess, evaluate, and intervene in the most current and relevant nutrition issues. The curriculum prepares graduates to work for agencies, businesses, and organizations that seek to improve nutrition at the local, national, and global level. This program also prepares students to engage in further study for research careers in nutrition.

Admissions & Policies

Admissions
Requirements
Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Policies
For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Transfer of Credit
Transfer credit is governed by university transfer of credit policy (p. 88) and the university requirements for master’s degrees (p. 91), and transfer credit must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek course advising through the department prior to taking a course and plan to
submit their application to the MS in Nutrition program in their first semester of study.

### Requirements

**Total credits:** 39

#### Nutrition Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 651</td>
<td>Nutrition Assessment, Monitoring and Surveillance</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 620</td>
<td>Nutrition Education</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 522</td>
<td>Nutrition Across the Lifespan</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 515</td>
<td>Fundamentals of Cooking</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 642</td>
<td>Macronutrients</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 644</td>
<td>Micronutrients</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 670</td>
<td>Nutrition Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 675</td>
<td>Nutrition Program Development, Interventions and Assessments</td>
<td>3</td>
</tr>
<tr>
<td>NUTR 626</td>
<td>Food Systems</td>
<td>3</td>
</tr>
<tr>
<td>GCH 601</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>or HAP 602</td>
<td>Statistics in Health Services Management</td>
<td></td>
</tr>
<tr>
<td>NUTR 583</td>
<td>Food and Culture</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits:** 30-33

1. Required only for students who will complete the Practicum Option

#### Elective

All electives must be approved by advisor.

**Select one from the following elective courses in any topic area.**

<table>
<thead>
<tr>
<th>Cultural Competency:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 530 Introduction to Wine and Beer</td>
</tr>
<tr>
<td>NUTR 630 Global Nutrition</td>
</tr>
<tr>
<td>ANTH 699 Contemporary Issues in Sociocultural Anthropology</td>
</tr>
</tbody>
</table>

**Nutrition Intervention, Programs, and Policy:**

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 566</td>
</tr>
<tr>
<td>NUTR 608</td>
</tr>
<tr>
<td>NUTR 610</td>
</tr>
<tr>
<td>NUTR 611</td>
</tr>
</tbody>
</table>

**Nutrition Research:**

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCH 752</td>
</tr>
<tr>
<td>GCH 804</td>
</tr>
<tr>
<td>GCH 805</td>
</tr>
<tr>
<td>HAP 719</td>
</tr>
<tr>
<td>RHBS 710</td>
</tr>
<tr>
<td>RHBS 711</td>
</tr>
</tbody>
</table>

**Total Credits:** 3

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### Capstone Experience

Students must complete either the Practicum or Thesis option.

#### Practicum Option

The practicum option entails a supervised practical application of previously studied theory through fieldwork. Students will be required to engage for a minimum of 200 contact hours per practicum in a nutrition-related organization under the guidance of a preceptor and a faculty advisor. Students must attend one seminar course, complete a project while working in the agency, and produce a formal report and presentation during the practicum. Students will enroll in the Pre-Practicum course (1 credit) the semester prior to conducting the practicum. In their final semester, students will enroll in the Nutrition Practicum (2 credits).

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 788</td>
</tr>
<tr>
<td>NUTR 790</td>
</tr>
</tbody>
</table>

**Total Credits:** 3

#### Thesis Option

The thesis option is a research project incorporating an original design to test a theory and resulting in a final written thesis. The topic must fall within one of the areas of faculty expertise within the department, including: food science, food studies, global nutrition, public health nutrition, nutrition policy, nutrition assessment, and chronic disease and nutrition. Students may register for the thesis only with approval from their advisor and after they have completed at least 18 credits of the program.

Students in the master’s thesis option are required to work with a committee of three faculty members. It is the responsibility of the student to form a committee at least 9 months before the desired graduation. The thesis director and at least one of the committee members must be members of the Department of Nutrition and Food Studies faculty, but the third member may or may not be from the Department. Students must take two thesis classes (6 credits total) while working on their thesis. Students must develop a proposal and have it approved by their committee and by the appropriate University committees, such as the Human Subjects Review Board, before undertaking the project. The thesis must conform to the format stated within Mason’s University Libraries guidelines.

**Six credits of**

<table>
<thead>
<tr>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 799</td>
</tr>
</tbody>
</table>

**Total Credits:** 6

---

### Department of Rehabilitation Science

Phone: 703-993-1950  
Website: rehabscience.gmu.edu

### Administration

- Andrew Guccione, Chair

Rehabilitation Science is an interdisciplinary field of study that seeks to understand the relationships among chronic illness, function, and disability and to improve the quality of life for those individuals who
live with a chronic condition. This field draws its body of knowledge from multiple disciplines spanning the physiological, health, and social sciences in order to approach the individual who lives with or is at risk of disability as a complete person with a full appreciation of the biopsychosocial environment in which that person functions.

The internationally recognized faculty mentor students through active involvement in their own funded research programs. Upon graduation, students are prepared for professional careers in academic, government, health care, and industrial environments. Part-time students within the PhD program are encouraged to take at least 6 credits per semester to promote timely completion of the program.

Faculty

Departmental Faculty

Professors
Guccione (chair)

Associate Professors
Keyser

Assistant Professors
Herrick, Wutzke

Assistant Research Professors
Chin, Collins

Requirements & Policies

Policies

Academic Advising
Each student is assigned an academic advisor who is a faculty member within their academic department or a professional academic advisor within the Office of Student Affairs (OSA). Academic advisor assignments are listed on the CHHS website (http://chhs.gmu.edu/students/academic-advising.cfm), and students are expected to meet with their advisor regularly (at least once each semester) to seek advice about academic schedules and program plans, internships, and career guidance. Students also should meet with their advisor if they are experiencing academic difficulty or personal challenges or if they are feeling overwhelmed.

All students are responsible for knowing the requirements of their major as specified in the university catalog for their catalog year; academic deadlines outlined in the semester academic calendar (http://registrar.gmu.edu/calendars); and university policies and procedures as stated in the catalog.

Students also should run their own degree-evaluation (http://registrar.gmu.edu/students/degree-evaluation) to identify graduation requirements and progress towards their degree. While academic advisors can give advice to students, students are responsible for the academic planning decisions they make. Academic advisors cannot be held responsible for mistakes made by students in selecting courses that may not count toward their degree and thus delay a desired graduation date.

Programs

• Rehabilitation Science Graduate Certificate
• Rehabilitation Science Minor
• Rehabilitation Science, BS
• Rehabilitation Science, PhD

Rehabilitation Science Graduate Certificate

Banner Code: HH-CERG-RHBS

Academic Advising
Website: chhs.gmu.edu/rehabscience/graduate/certificate-rehabilitation-science.cfm

This graduate certificate prepares students to apply research and statistical techniques to the study of the enabling–disabling process. The Institute of Medicine defines rehabilitation science as a field of study that encompasses basic and applied aspects of the health sciences, social sciences, and engineering. It is the melding of knowledge from several disciplines to understand the fundamental nature of the enabling–disabling process.

Students will acquire competencies in the following areas:

• rehabilitation and recovery framework
• research design and methodology
• statistics
• conduct of applied rehabilitation research

The department hosts information sessions on a regular basis for those interested in our academic programs. Visit the College of Health and Human Services website (http://chhs.gmu.edu) for details.

This graduate certificate may be pursued on a full or part-time basis.

Admissions & Policies

Admissions

Admission to this certificate requires a bachelor’s degree in a discipline related to health sciences from an accredited institution of higher education with a minimum GPA of 3.00 in the last 60 credits. Such fields include, but are not limited to:

• health science
• biostatistics
• biology
• nursing
• medicine
• physical therapy
• occupational therapy
• physiatry
• engineering
• psychology
Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). Applications are considered for the fall semester only. The application process is competitive. For application deadlines and detailed application requirements please refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm). Late applications will be considered on a space-available basis.

Policies
A maximum of 3 credits in equivalent coursework taken at another college or university may be applied toward the certificate.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Certificate Requirements
Total credits: 15
To earn the certificate, students must earn a minimum GPA of 3.00 in the 15 credits of coursework outlined below, with no more than 3 credits with a grade of C.

Required Courses
- RHBS 650 Foundations of Rehabilitation Science 3
- RHBS 710 Applied Physiology I 3
- RHBS 711 Applied Physiology II 3

Total Credits 9

Elective Courses
Select six credits from the following:
- RHBS 606 Clinical Exercise Physiology
- RHBS 610 Scientific Basis for Pain and Fatigue
- RHBS 620 Psychosocial Aspects of Rehabilitation
- RHBS 651 Research Design and Methods I
- RHBS 652 Research Design and Methods II
- RHBS 680 Behavior Change in Chronic Illness
- RHBS 702 Biobehavioral Aspects of Health
- RHBS 720 Principles of Clinical Trials
- RHBS 740 Applied Physiology: Cardiorespiratory
- RHBS 745 Metabolic Basis of Disability
- RHBS 746 Movement Control and Learning
- RHBS 750 Physiology of Clinical Exercise Interventions
- RHBS 754 Movement Disorders: Etiology, Assessment, and Analyses
- RHBS 761 Aging and Health Behavior
- RHBS 808 Outcomes Measurement
- RHBS 816 Rehabilitation Efficacy and Effectiveness Research

Select one from the following:
- RHBS 201 Introduction to Rehabilitation Science
- RHBS 340 Health, Disease and Dysfunction
- RHBS 345 Applied Biomechanics in Rehabilitation
- RHBS 375 Gait and Functional Movement Analysis
- RHBS 380 Neural Basis of Movement
- RHBS 390 Clinical Assessment of Functional Capacity
- RHBS 410 Physical Activity and Public Health
- RHBS 416 Clinical Movement Science II
- RHBS 418 Exercise Endocrinology
- RHBS 420 Adult Health and Function
- RHBS 450 Psychosocial Adaptation in Rehabilitation
- RHBS 455 Research in Rehabilitation Science

Total Credits 6

Admissions & Policies
Admissions
Students must have completed at least 30 credits of undergraduate coursework in order to enroll in the minor.

Policies
Students should be familiar with university-wide requirements for minors described in AP.5.3.4 Minors (p. 86).

Requirements
Minor Requirements
Total credits: 17
Students must earn a C- or better in each course of the 17-credit curriculum to successfully complete the minor.

Required Courses
- RHBS 270 Applied Human Anatomy and Physiology I 4
- RHBS 271 Applied Human Anatomy and Physiology II 4
- RHBS 350 Clinical Physiology and Human Performance 3
- RHBS 415 Clinical Movement Science I 3

Select one from the following:
- RHBS 201 Introduction to Rehabilitation Science
- RHBS 340 Health, Disease and Dysfunction
- RHBS 345 Applied Biomechanics in Rehabilitation
- RHBS 375 Gait and Functional Movement Analysis
- RHBS 380 Neural Basis of Movement
- RHBS 390 Clinical Assessment of Functional Capacity
- RHBS 410 Physical Activity and Public Health
- RHBS 416 Clinical Movement Science II
- RHBS 418 Exercise Endocrinology
- RHBS 420 Adult Health and Function
- RHBS 450 Psychosocial Adaptation in Rehabilitation
- RHBS 455 Research in Rehabilitation Science
Rehabilitation Science, BS

Banner Code: HH-BS-RHBS

Academic Advising
Website: chhs.gmu.edu/students/advising-rhbs.cfm

Rehabilitation Science is the field of study which integrates the knowledge related to restoring the functional capacity of a person to perform the activities of everyday life and the interaction of that person with the surrounding environment that either disables or enables the individual to participate fully in society. This knowledge is then translated into interventions aimed at improving human performance and quality of life.

This program, the first of its kind in the Commonwealth of Virginia, offers students a rigorous science-based educational foundation for rehabilitation-related careers upon graduation as well as a clear and distinctive pathway for admission to graduate programs that prepare rehabilitation clinicians and academic scientists.

Admissions & Policies

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements
Total credits: 120

Students must fulfill all requirements for bachelor’s degrees, including Mason Core (p. 135) requirements.

Mason Core and Required Courses

Written Communication
Approved Mason Core Written Communication courses (p. 135) 6

Oral Communication
Any Mason Core Oral Communication course (p. 136) 3

Quantitative Reasoning
STAT 250 Introductory Statistics I (Mason Core) (p. 135) 3

Information Technology
Any Mason Core Information Technology course (p. 136) 3-7

Arts
Any Mason Core Arts course (p. 137) 3

Global Understanding
Any Mason Core Global Understanding course (p. 139) 3

Literature
Any Mason Core Literature course (p. 140) 3

Natural Science
CHEM 211 General Chemistry I (Mason Core) (p. 135) 3
CHEM 213 General Chemistry Laboratory I (Mason Core) (p. 135) 1
CHEM 212 General Chemistry II (Mason Core) (p. 135) 3
CHEM 214 General Chemistry Laboratory II (Mason Core) (p. 135) 1
PHYS 243 College Physics (Mason Core) (p. 135) 3
PHYS 244 College Physics Lab (Mason Core) (p. 135) 1
PHYS 245 College Physics (Mason Core) (p. 135) 3
PHYS 246 College Physics Lab (Mason Core) (p. 135) 1

Social and Behavioral Sciences
Any Mason Core Social and Behavioral Sciences course (p. 142) 3

Western Civilization/Western History
Any Mason Core Western Civilization course (p. 143) 3

Total Credits 46-50

1 Rehabilitation Science students must complete all 16 credits. The Mason Core Natural Science requirement will be fulfilled with 7 credits from the list.

Core Rehabilitation Science Requirements
RHBS 201 Introduction to Rehabilitation Science 3
RHBS 270 Applied Human Anatomy and Physiology I 4
RHBS 271 Applied Human Anatomy and Physiology II 4
RHBS 350 Clinical Physiology and Human Performance 3
RHBS 375 Gait and Functional Movement Analysis 3
RHBS 390 Clinical Assessment of Functional Capacity 3
RHBS 415 Clinical Movement Science I 3
RHBS 450 Psychosocial Adaptation in Rehabilitation 3
KINE 380 Exercise Prescription and Programming for Special Populations 3
RHBS 499 Senior Capstone in Rehabilitation Science (Mason Core) (p. 135) 3

Total Credits 32

Restricted In-Major Electives
Complete 9 credits from the following: 9
RHBS 340 Health, Disease and Dysfunction
RHBS 380 Neural Basis of Movement
RHBS 410 Physical Activity and Public Health
RHBS 416 Clinical Movement Science II
RHBS 418 Exercise Endocrinology
RHBS 420 Adult Health and Function
RHBS 455 Research in Rehabilitation Science
RHBS 489 Introduction to Clinical Research
RHBS 490 RS: Clinical Research Internship
RHBS 491 Directed Research
Rehabilitation Science, PhD

Banner Code: HH-PHD-RHBS

Academic Advising
Website: chhs.gmu.edu/students/coordinators.cfm#rhbs

This interdisciplinary program educates students to understand the causes, course, and consequences of disability, and to perform integrated research on how to optimize human function and performance in daily life. This program prepares students in basic and translational science that address mechanisms, prevention and amelioration of disability. The objective of the program is to develop researchers and academics who, through their scholarship and original research, create new knowledge in rehabilitation science. Graduates of this program are prepared for professional careers in academic, governmental, and industrial research environments.

Admissions & Policies

Admissions

Admission Requirements
Applicants must hold a bachelor’s degree from a regionally accredited institution and have a minimum of a 3.0 GPA to be considered. Admission to the program is competitive, and a variety of criteria are evaluated in the admissions process, including the strength of the undergraduate record and any post-baccalaureate coursework, GRE scores, career goals statement, letters of recommendation, professional and/or volunteer experience, evidence of the ability to write and conduct research at the graduate level, and any additional evidence of potential success in the program. Applicants are encouraged to contact the department faculty prior to applying to discuss their interest. Preference will be given to full-time applicants, and interviews may be required by the faculty admissions committee. Information regarding CHHS application guidelines and requirements can be found at chhs.gmu.edu/admissions/graduate (http://chhs.gmu.edu/admissions/graduate). Meeting the minimum application criteria does not guarantee admission.

Applications are considered for the fall semester only. For application deadlines and detailed application requirements, please refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm). Late applications will be considered on a space-available basis. The online Application for Graduate Admissions can be found through the Office of Admissions (http://admissions.gmu.edu).

Policies

Transfer of Credit
Transfer credit is governed by AP.6.5.3 Transfer of Credit Policy (p. 88), AP.6.10 Requirements for Doctoral Degrees (p. 92), and must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek course advising through the department prior to taking a course and must submit their application to the PhD program in their first semester of study.

Reduction of Credit
Students must complete a minimum of 72 graduate credits. A maximum of 30 credits may be waived in the PhD program based on a previously earned graduate degree. Credit for prior graduate course work will be reviewed and awarded on a course-by-course basis.

Time Requirements
Students must complete all requirements for the PhD in Rehabilitation Science within 9 calendar years from the time of first enrollment as a doctoral student in the program or with provisional status. PhD students are expected to progress steadily toward their degree and to complete all course work and the written exam in order to advance to candidacy within no more than 6 years.

Program Requirements
To complete the PhD in Rehabilitation Science, students must:

• Complete the program of study outlined in the PhD curriculum.
• Pass the written comprehensive exam and the oral examination in the area of specialization.
• Pass the final oral dissertation defense and submit a doctoral dissertation approved by the doctoral dissertation committee and the Chair of the Department of Rehabilitation Science (the dissertation must be submitted in the approved format of the doctoral program).
• Complete application material for graduation in accordance with prevailing university policies.

Advancement to Candidacy
After successful completion of the written comprehensive examination and the oral examination in the area of specialization, the student will be advanced to candidacy and may seek approval of a dissertation proposal.

Degree Requirements

Total credits: 72

The PhD in Rehabilitation Science program consists of the following categories of courses:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>72</td>
</tr>
<tr>
<td>Foundation Courses</td>
<td>30</td>
</tr>
<tr>
<td>Specialization Courses</td>
<td>15</td>
</tr>
<tr>
<td>Electives</td>
<td>15</td>
</tr>
<tr>
<td>Dissertation Preparation and Completion Courses</td>
<td>12</td>
</tr>
<tr>
<td>General Electives</td>
<td>9</td>
</tr>
<tr>
<td>Total Credits</td>
<td>9</td>
</tr>
</tbody>
</table>

Foundational Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RHBS 606</td>
<td>Clinical Exercise Physiology</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 620</td>
<td>Psychosocial Aspects of Rehabilitation</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 650</td>
<td>Foundations of Rehabilitation Science</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 651</td>
<td>Research Design and Methods I</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 652</td>
<td>Research Design and Methods II</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 710</td>
<td>Applied Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 711</td>
<td>Applied Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>RHBS 720</td>
<td>Principles of Clinical Trials</td>
<td>3</td>
</tr>
</tbody>
</table>
RHBS 746 Movement Control and Learning 3
RHBS 816 Rehabilitation Efficacy and Effectiveness Research 3

Total Credits 30

Specialization Courses
Specializations include:

• Human Movement and Function
• Clinical Exercise and Applied Physiology

Students select courses with the approval of their advisors. At least 9 credits must be taken in RHBS courses.

Complete 15 credits of specialization courses 15
Specialization courses offered through the department are:

RHBS 610 Scientific Basis for Pain and Fatigue
RHBS 680 Behavior Change in Chronic Illness
RHBS 702 Biobehavioral Aspects of Health
RHBS 740 Applied Physiology: Cardiorespiratory
RHBS 745 Metabolic Basis of Disability
RHBS 750 Physiology of Clinical Exercise Interventions
RHBS 754 Movement Disorders: Etiology, Assessment, and Analyses
RHBS 761 Aging and Health Behavior
RHBS 772 Applied Biomechanics in Rehabilitation
RHBS 776 Movement Analysis of Function
RHBS 808 Outcomes Measurement
RHBS 850 Teaching Practicum

Electives
Students will complete 15 hours of elective course work, in consultation with their advisors.

Dissertation Preparation and Completion Courses
Candidates must complete a minimum of 12 credits combined of doctoral proposal (RHBS 998) and doctoral dissertation research (RHBS 999).

Complete at least 12 credits of the following: 12

RHBS 998 Doctoral Dissertation Proposal 1
RHBS 999 Dissertation Research 2

1 Initial registration in RHBS 998 requires at least three hours.
2 At least three hours of RHBS 999 is required per semester until degree requirements are completed.

Undergraduate
The mission of the BSW Program is to prepare entry-level generalist social work professionals who will demonstrate ethical leadership in innovative multidisciplinary practice, social reform, and research in diverse communities. Students are provided a range of opportunities to develop a broad knowledge and skills base consistent with the systems and strengths perspectives. They are expected to practice using core social work values and to examine and resolve ethical dilemmas. Classroom and field experiences prepare students to be competent in the use of relevant new technologies and in culturally sensitive, generalist social work practice.

Graduate
The MSW Program seeks to prepare social workers for advanced professional practice who are innovative leaders bringing superior management, interpersonal, technological, research, and communication skills to the human service delivery system. Through a concentration in either social change or clinical practice, graduates will be prepared to empower individuals, strengthen families and communities, stimulate positive change through advocacy and social and political action, and help meet local, national, and global challenges. The MSW Program builds upon a foundation of generalist social work knowledge and skills that integrates micro and macro theory and practice and emphasizes empowerment and systems transformation. This foundation equips students to enhance human well-being and to promote social and economic justice through ethical professional practice with culturally diverse individuals, families, groups, organizations, and communities.

Field Placement
The Department of Social Work will make reasonable efforts to work with a student to secure an appropriate field placement, but it does not guarantee a placement. A student with a criminal history may find it difficult to obtain a field placement or employment in a human service agency depending on the specific charge. It is possible that a student with a criminal background may not be able to be placed in a field practicum or complete their degree program. The Criminal Background Policy is available on the Social Work Department website. (http://chhs.gmu.edu/socialwork)

Program Completion
Part-time students are encouraged to take at least 6 credits per semester to promote timely completion of the program.

Faculty

Department Faculty
Professors
Ritchie, Rome, Rose, Wolf-Branigin (chair)

Associate Professors
Cleaveland, Davis, Ihara, Matto, Tompkins (assistant dean for undergraduate studies)

Assistant Professors
Dugger, Inoue, Kirsch, Lee, Tsai, Waithaka

Instructors
Cornejo, Cuffee, Prudden

Department of Social Work
Phone: 703-993-4247
Website: chhs.gmu.edu/socialwork/

Administration

• Michael Wolf-Branigin, Chair
Each student is assigned an academic advisor who is a faculty member within their academic department or a professional academic advisor within the Office of Student Affairs (OSA). Academic advisor assignments are listed on the CHHS website (http://chhs.gmu.edu/students/academic-advising.cfm), and students are expected to meet with their advisor regularly (at least once each semester) to seek advice about academic schedules and program plans, internships, and career guidance. Students also should meet with their advisor if they are experiencing academic difficulty or personal challenges or if they are feeling overwhelmed.

All students are responsible for knowing the requirements of their major as specified in the university catalog for their catalog year; academic deadlines outlined in the semester academic calendar (http://registrar.gmu.edu/calendars); and university policies and procedures (p. 74).

Students also should run their own degree-evaluation (http://registrar.gmu.edu/students/degree-evaluation) to identify graduation requirements and progress towards their degree. While academic advisors can give advice to students, students are responsible for the academic planning decisions they make. Academic advisors cannot be held responsible for mistakes made by students in selecting courses that may not count toward their degree and thus delay a desired graduation date.

### Programs

- Aging Studies Minor
- Gerontology Graduate Certificate
- Social Work Minor
- Social Work, BSW
- Social Work, MSW

### Aging Studies Minor

**Banner Code:** AGES

**Academic Advising**

Website: chhs.gmu.edu/students/advising-sw.cfm

This minor combines theoretical and applied coursework in aging with the student’s undergraduate curriculum in any department of the university. Because aging studies is by definition multidisciplinary, students are required to take coursework outside their major field.

### Gerontology Graduate Certificate

**Banner Code:** HH-CERG-GERO

**Academic Advising**

Website: masononline.gmu.edu/programs/gerontology-graduate-certificate/

This graduate certificate combines theoretical and applied coursework in aging with the student’s graduate curriculum in any department. Because gerontology is by definition multidisciplinary, students are required to take coursework outside their major field.

This graduate certificate may be pursued on a part-time or full-time basis.

### Admissions & Policies

#### Policies

Students should be familiar with university-wide requirements for minors described in AP.5.3.4 Minors (p. 86).

#### Requirements

### Gerontology Graduate Certificate

**Total credits: 15**

#### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 435</td>
<td>Introduction to Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>HHS 432</td>
<td>Healthy Aging</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
<td>3</td>
</tr>
<tr>
<td>HHS 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 12

#### Elective

Select one from the following: 3

- GCH 480 Health Maintenance and Health Aspects of Aging
- PSYC 418 Death, Dying, and Grieving
- Other aging-related course as approved by the program coordinator

**Total Credits** 3
Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements
Certificate Requirements
Total credits: 15
To earn the certificate, students must earn a minimum GPA of 3.00 in the 15 credits of coursework outlined below, with no more than 3 credits with a grade of C.

Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHS 646</td>
<td>Social Gerontology</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 689</td>
<td>Clinical Practice with Older Adults</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 655</td>
<td>Aging Programs and Policies</td>
<td>3</td>
</tr>
<tr>
<td>or HAP 662</td>
<td>Health Policy for Elders and People with Disabilities</td>
<td></td>
</tr>
<tr>
<td>HHS 648</td>
<td>Aging and Health</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Elective
Select one from the following:
- HAP 662 Health Policy for Elders and People with Disabilities
- SOCW 655 Aging Programs and Policies
- RHBS 761 Aging and Health Behavior
- PSYC 614 The Psychology of Aging
- An independent study course that focuses on research and gerontology

Total Credits 3

Social Work Minor
Banner Code: SOCW

Academic Advising
Website: chhs.gmu.edu/students/advising-sw.cfm

This minor requires 15 credits and provides students with conceptual, theoretical, and practical knowledge related to the field of social work at the individual, family, group, community, and societal levels.

Note: Social work practice courses and internship experiences are only open to social work majors.

Admissions & Policies

Policies
Students should be familiar with university-wide requirements for minors described in AP.5.3.4 Minors (p. 86).

Requirements
Minor Requirements
Total credits: 15
All courses for the minor must be completed with a minimum GPA of 2.00.

Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 200</td>
<td>Introduction to Social Work</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 375</td>
<td>Human Behavior and the Family Life</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 380</td>
<td>Changing Social Policies and Systems</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Electives
Select two from the following:
- SOCW 312 Knowledge Building for Helping Professionals
- SOCW 390 Analytic Methods for Social Work Research
- SOCW 400 Legal and Ethical Issues in Human Services
- SOCW 410 Alcohol and Substance Abuse: Policies and Programs
- SOCW 415 Child and Family Welfare
- SOCW 435 Introduction to Gerontology
- SOCW 445 Social Determinants of Health
- SOCW 475 Selected Topics in Social Work Policy
- SOCW 483 Selected Approaches to Social Work Intervention

Total Credits 6

Note:
The following courses are not open to students enrolled in this minor. See an advisor in the social work program for more information.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 311</td>
<td>Building Professional Social Work Skills</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 357</td>
<td>Methods of Social Work Intervention I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 358</td>
<td>Methods of Social Work Intervention II</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 361</td>
<td>Methods of Social Work Intervention I:</td>
<td>2</td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCW 362</td>
<td>Methods of Social Work Intervention II:</td>
<td>2</td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCW 471</td>
<td>Research in Social Work</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 472</td>
<td>RS: Integrative Methods in Social Action</td>
<td>3</td>
</tr>
<tr>
<td>and Social Change (Mason Core) (p. 135)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCW 495</td>
<td>Field Practicum and Seminar I</td>
<td>5</td>
</tr>
<tr>
<td>SOCW 496</td>
<td>Field Practicum and Seminar II</td>
<td>5</td>
</tr>
</tbody>
</table>

Social Work, BSW
Banner Code: HH-BSW-SOCW

Academic Advising
Admissions & Policies

Admissions

Admission Requirements
To be admitted to the social work program, a student must have

1. completed at least 45 credits with a GPA of 2.50 or higher;
2. completed or be registered in:
   - BIOL 103 Introductory Biology I (Mason Core) (p. 135) 4
   - ENGH 101 Composition (Mason Core) (p. 135) 3
   - SOCI 101 Introductory Sociology (Mason Core) (p. 135) 3
   - PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135) 3
3. earned at least a C in:
   - SOCW 200 Introduction to Social Work 3
   - SOCW 357 Methods of Social Work Intervention I 3
   - SOCW 361 Methods of Social Work Intervention I: Laboratory 2

   And at least two of the following courses:
   - SOCW 311 Building Professional Social Work Skills 3
   - SOCW 312 Knowledge Building for Helping Professionals 3
   - SOCW 375 Human Behavior and the Family Life Course (Mason Core) (p. 135) 3
   - SOCW 380 Changing Social Policies and Systems 3
   - SOCW 390 Analytic Methods for Social Work Research 3
4. be enrolled in all other required 300-level SOCW courses; and
5. submitted an application for the social work major and the senior field practicum by the deadline stated on the BSW admissions website (http://chhs.gmu.edu/bsw/admissions.cfm).

The student’s application for admission to the social work major is reviewed for action by social work faculty members. A personal interview may be required.

There is no admission to the social work program in the summer. Students who have not met all criteria for admission to the major will not be considered for admission until the next academic year.

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Program Requirements
To earn a bachelor’s degree in social work, students must earn a grade of C or above in all Social Work classes applied to the major and must achieve a GPA of 2.50 overall. Class attendance is required in all Social Work courses. Before beginning SOCW 495 Field Practicum and Seminar I, students must successfully complete all required 200- and 300-level courses with a grade of C or above.

The Social Work faculty evaluates student performance periodically and may require students to withdraw from the program when, in their judgment, performance is not satisfactory. The decision is based on the quality of academic and field performance, as well as on personal fitness for the profession of social work. Students have the right to appeal.

A student with a criminal history may find it difficult to obtain a field placement or employment in a human service agency depending on the specific charge. It is possible that a student with a criminal background may not be able to be placed in a field practicum or complete their degree program. The Criminal Background Policy is available on the Social Work Department website (http://chhs.gmu.edu/socialwork).

Immunization and Fees
All students who are enrolled in a course that requires a field placement (SOCW 495 Field Practicum and Seminar I and SOCW 496 Field Practicum and Seminar II) must have an annual tuberculosis screening (PPD). In addition, students must complete the entire hepatitis B immunization series in accordance with current U.S. Public Health Service recommendations. The cost of immunizations is the responsibility of the student. The majority of agencies used for field placements require fingerprinting, a criminal background check (may be more extensive than the university requirement), and a child protective services check. Any cost related to these requirements is the responsibility of the student.

Writing Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in the 300 level or above. Students majoring in social work fulfill this requirement by successfully completing SOCW 471 Research in Social Work.

Requirements

Degree Requirements
Total credits: 120

Mason Core

Written Communication
ENGH 101 Composition (Mason Core) (p. 135) 3
ENGH 302 Advanced Composition (Mason Core) 3

Oral Communication
Any Mason Core Oral Communication course (p. 136) 3

Quantitative Reasoning
Any Mason Core Quantitative Reasoning course (p. 136) 3

Information Technology
Any Mason Core Information Technology course (p. 136) 3

Literature
Any Mason Core Literature course (p. 140) 3

Arts
Any Mason Core Arts course (p. 137) 3

Natural Science
BIOL 103 Introductory Biology I (Mason Core) 4

One 3 or 4 credit approved Mason Core Natural Science course 3-4

Western Civilization
HIST 100 History of Western Civilization (Mason Core) (p. 135) 3

or HIST 125 Introduction to World History (Mason Core) (p. 135) 3

Global Understanding
Any Mason Core Global Understanding course (p. 139) 3

Total Credits 34-39

Required Courses

Psychology
PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135) 3

Sociology
SOCI 101 Introductory Sociology (Mason Core) (p. 135) 3

Statistics
Select one from the following: 3-4

SOCW 390 Analytic Methods for Social Work Research
SOCW 313 Statistics for the Behavioral Sciences (Mason Core) (p. 135)
PSYC 300 Statistics in Psychology
STAT 250 Introductory Statistics I (Mason Core) (p. 135)

Total Credits 9-10

Social Work Major
SOCW 200 Introduction to Social Work 3
SOCW 311 Building Professional Social Work Skills 3
SOCW 312 Knowledge Building for Helping Professionals 3
SOCW 357 Methods of Social Work Intervention I 3
SOCW 361 Methods of Social Work Intervention I: Laboratory 2
SOCW 358 Methods of Social Work Intervention II 3
SOCW 362 Methods of Social Work Intervention II: Laboratory 2

SOCW 375 Human Behavior and the Family Life Course (Mason Core) (p. 135) 3
SOCW 380 Changing Social Policies and Systems 3
SOCW 471 Research in Social Work (fulfills writing intensive requirement) 3
SOCW 472 RS: Integrative Methods in Social Action and Social Change (Mason Core) (p. 135) 3
SOCW 495 Field Practicum and Seminar I 5
SOCW 496 Field Practicum and Seminar II 5

Total Credits 41

Electives
Select 34-36 credits of electives 34-36

Total Credits 34-36

1 Six credits must be in social work (p. 1913) at the 400- or 500-level, not including courses listed above; SOCW 499 Independent Study in Social Work may be used to satisfy an additional 1 to 3 credits toward general electives.

Notes
SOCW 110 Global Perspectives on Human Rights is open to all students, but it does not count toward social work degree requirements.

SOCW 357 Methods of Social Work Intervention I and SOCW 361 Methods of Social Work Intervention I: Laboratory (only offered in the fall semester) are prerequisites to SOCW 358 Methods of Social Work Intervention II and SOCW 362 Methods of Social Work Intervention II: Laboratory (only offered in the spring semester). Graduation may be delayed if courses are not taken in proper sequence.

Selected Social Work electives are offered each semester on a rotating basis.

Social Work, MSW

Banner Code: HH-MSW-SOCW

Academic Advising
Website: chhs.gmu.edu/students/coordinators.cfm#sw

This program opened its doors in fall 2002 and was fully accredited by the Council on Social Work Education in spring 2006. The MSW program prepares students for advanced practice in social work. Following completion of a generalist year of study, students complete a specialized concentration in social change or clinical practice. All social work students are expected to abide by the Code of Ethics of the National Association of Social Workers. No academic credit toward field experience or coursework is given based on previous work or life experience.

MSW courses are offered during the day and evening hours. Students must be available morning, afternoon, and evening two days a week to attend classes. Additionally, students are required to successfully complete 1,050 hours of supervised field practicum in agencies approved by the Department of Social Work: 450 hours during the foundation year and 600 hours during the concentration year. Field placements generally require availability during regular daytime hours. The Department of Social Work will make reasonable efforts to work with a student to secure an appropriate field placement, but it does not guarantee a placement.
The MSW program may be completed in a two-, three-, or four-year plan of study. All courses are sequenced and must be taken in the order designated. Students should meet with their academic advisor to ensure timely completion of all degree requirements.

Admissions & Policies

Admissions

Requirements
Applicants must meet the admission standards and application requirements specified in the Admissions (p. 66) and apply using the online Application for Graduate Admission (http://admissions.gmu.edu). The application process is competitive, and applications are considered for the fall semester only. In addition to holding an undergraduate degree from a regionally accredited college or university, applicants must have a minimum of 30 undergraduate credits in the liberal arts to include at least 3 credits in each of the following: English composition, history or government, social sciences, and statistics. For application deadlines and detailed application requirements, please refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

Requirements for MSW students with Advanced Standing
Students with a BSW degree who demonstrate superior academic achievement and excellence in social work practice will be considered for advanced standing. Advanced standing students begin the MSW Program in the summer and upon successfully completing SOCW 670, move directly into the concentration year. Advanced standing students must successfully complete 600 hours of supervised field practicum in agencies approved by the Department of Social Work.

All other academic policies for the advanced standing program are identical to those for the regular MSW Program.

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). The application process is competitive, and applications are considered for the fall admissions cycle only, with advanced standing students beginning courses in the summer. In addition to holding a BSW in Social Work earned within the past five years from a program accredited by the Council on Social Work Education, applicants must have a minimum of 30 undergraduate credits in the liberal arts to include at least 3 credits in each of the following: English composition, history or government, social sciences, and statistics. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

To graduate with the MSW degree, advanced standing students must successfully complete the foundation course (SOCW 670) in the summer prior to beginning the concentration year and complete the courses for one concentration.

Policies

Transfer of Credit
Students who began MSW programs at another CSWE-accredited MSW program may transfer a maximum of 29 graduate credits into the MSW program, with the exception of SOCW 670 and the concentration year courses: SOCW 630, SOCW 640, SOCW 645, SOCW 674, SOCW 684, SOCW 685, SOCW 687, SOCW 692, SOCW 693, SOCW 694, SOCW 695, and SOCW 697. Transfer credit is subject to university and college policies and must be approved by the program director and the dean. Students must note on the MSW Departmental Form and MSW Application Checklist that they are applying as transfer students.

Non-Degree Students
Admission to the MSW program is offered once a year for the fall semester only. Non-degree students may apply through the Office of Admissions (http://admissions.gmu.edu/nonDegree) and be admitted in the fall and spring and, as space allows, enroll in classes as appropriate. Please contact the program director for more information.

Program Requirements
Students must earn a grade of B- or above in each course and must achieve a GPA of 3.0 over all courses applied to the degree. A prerequisite must be satisfied with a B- or better before registering for the next course in a sequence. A course in which the student earns a C may be repeated once. No more than 6 total credits of C may be repeated overall.

Social Work faculty members evaluate each student's performance periodically and may terminate the student from the program when, in their judgment, performance is not satisfactory. The decision is based on the quality of academic and field performance, as well as on personal fitness for the profession of social work. The student has the right to appeal.

A student with a criminal history may find it difficult to obtain a field placement or employment in a human service agency depending on the specific charge. It is possible that a student with a criminal background may not be able to be placed in a field practicum or complete their degree program. The Criminal Background Policy is available on the Social Work Department website (http://chhs.gmu.edu/socialwork).

Insurance Coverage
Students engaged in internships are covered for liability under the Commonwealth of Virginia's Self-Insured Liability Insurance Plan and covered for medical malpractice under the Medical Malpractice Insurance Plan, as established by the Department of General Services, Division of Risk Management. Only practicum activities that have been determined by the field instructor to be part of the course are covered. Students are encouraged to obtain professional liability coverage through the National Association of Social Workers, although this additional coverage is optional.

Immunizations
All students who are enrolled in a course that requires a field placement (SOCW 672, SOCW 673, SOCW 692, SOCW 693, SOCW 694, SOCW 695) must have an annual tuberculosis screening (PPD). In addition, students must complete the entire Hepatitis B immunization series in accordance with current U.S. Public Health Service recommendations. Any cost related to these requirements is the responsibility of the student. Students can register for fall classes prior to the completion of the immunizations, but documentation of completion must be submitted to the MSW administrative assistant in the Social Work Department office no later than October 1. Immunizations are program requirements and must be completed by the student even if they are not required by the agency.
# Requirements

## Degree Requirements

Total credits: 60

In order to graduate with the MSW degree, students must successfully complete the foundation courses and the courses for one concentration. Before beginning Concentration Courses, students must complete all Foundation Courses.

### Foundation Courses

| Course   | Title                                                      | Credits |
|----------|------------------------------------------------============|---------|
| SOCW 623 | Human Behavior and Social Systems I                       | 3       |
| SOCW 624 | Human Behavior and Social Systems II                      | 3       |
| SOCW 651 | Social Policies, Programs, and Services                   | 3       |
| SOCW 652 | Influencing Social Policy                                 | 3       |
| SOCW 657 | Direct Social Work Practice I                             | 3       |
| SOCW 658 | Direct Social Work Practice II                            | 3       |
| SOCW 670 | Social Work Program Planning, Communications, and Technology | 3       |
| SOCW 671 | Research Methods for Social Workers                       | 3       |
| SOCW 672 | Generalist Field Practicum and Seminar I                  | 3       |
| SOCW 673 | Generalist Field Practicum and Seminar II                 | 3       |

Total Credits: 30

### Concentration in Clinical Practice (CLNP)

#### Core Courses

| Course   | Title                                                      | Credits |
|----------|------------------------------------------------============|---------|
| SOCW 640 | Advanced Clinical Practice                                | 3       |
| SOCW 645 | Community-Centered Clinical Practice                      | 3       |
| SOCW 674 | Psychopathology                                           | 3       |
| SOCW 688 | Program Evaluation for Social Workers                     | 3       |
| SOCW 692 | Specialist Clinical Field Practicum and Seminar I         | 3       |
| SOCW 693 | Specialist Clinical Field Practicum and Seminar II        | 3       |

Total Credits: 18

#### Advanced Clinical Practice Courses

Select two from the following:

- SOCW 630 Forensic Social Work Practice
- SOCW 664 Art Therapy and Social Work
- SOCW 675 Selected Topics in Clinical Practice
- SOCW 677 Family Therapy
- SOCW 678 Trauma and Recovery
- SOCW 679 Military Social Work
- SOCW 682 Substance Abuse Interventions
- SOCW 689 Clinical Practice with Older Adults

Total Credits: 6

#### Advanced Policy Courses

Select two from the following:

- SOCW 653 Immigration Policy
- SOCW 654 Social Policy for Children and Youth
- SOCW 655 Aging Programs and Policies
- SOCW 663 Global Human Rights Policy
- SOCW 665 Integrated Behavioral Health Policy
- SOCW 666 Select Topics in Social Work and Social Change

Total Credits: 6

### Elective

Select one from either the list below or the Advanced Clinical Practice courses or the Advanced Policy courses listed previously:

- SOCW 675 Selected Topics in Clinical Practice
- SOCW 676 Select Topics in Social Work and Social Change
- SOCW 684 Social Work and the Law
- SOCW 685 Organizational Leadership for Social Workers
- SOCW 687 Empowering Communities for Change
- SOCW 697 Thesis Project Seminar

Total Credits: 3

### Concentration in Social Change (SOCC)

#### Core Courses

| Course   | Title                                                      | Credits |
|----------|------------------------------------------------============|---------|
| SOCW 684 | Social Work and the Law                                    | 3       |
| SOCW 685 | Organizational Leadership for Social Workers               | 3       |
| SOCW 687 | Empowering Communities for Change                          | 3       |
| SOCW 688 | Program Evaluation for Social Workers                      | 3       |
| SOCW 694 | Specialist Social Change Field Practicum and Seminar I     | 3       |
| SOCW 695 | Specialist Social Change Field Practicum and Seminar II    | 3       |

Total Credits: 18

#### Advanced Policy Courses

Select two from the following:

- SOCW 653 Immigration Policy
- SOCW 654 Social Policy for Children and Youth
- SOCW 655 Aging Programs and Policies
- SOCW 663 Global Human Rights Policy
- SOCW 665 Integrated Behavioral Health Policy
- SOCW 666 Select Topics in Social Work and Social Change

Total Credits: 6

#### Electives

Select two from either the list below or the Advanced Clinical Practice courses or the Advanced Policy courses listed previously:

- SOCW 630 Forensic Social Work Practice
- SOCW 664 Art Therapy and Social Work
- SOCW 674 Psychopathology
- SOCW 675 Selected Topics in Clinical Practice
- SOCW 676 Select Topics in Social Work and Social Change
- SOCW 677 Family Therapy
- SOCW 678 Trauma and Recovery
- SOCW 679 Military Social Work
- SOCW 684 Social Work and the Law
- SOCW 685 Organizational Leadership for Social Workers
- SOCW 687 Empowering Communities for Change

Total Credits: 3
## MSW for Students with Advanced Standing

In order to graduate with the MSW degree, advanced standing students must successfully complete the foundation course (SOCW 670) in the summer prior to beginning the concentration year and the courses for one concentration.

### Foundation Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 670</td>
<td>Social Work Program Planning, Communications, and Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

### Concentration in Clinical Practice (CLNP)

#### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 640</td>
<td>Advanced Clinical Practice</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 645</td>
<td>Community-Centered Clinical Practice</td>
<td>3</td>
</tr>
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<td>SOCW 674</td>
<td>Psychopathology</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 688</td>
<td>Program Evaluation for Social Workers</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 692</td>
<td>Specialist Clinical Field Practicum and Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 693</td>
<td>Specialist Clinical Field Practicum and Seminar II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

### Advanced Clinical Practice Courses

Select two of the following:

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<tbody>
<tr>
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<td>Military Social Work</td>
</tr>
<tr>
<td>SOCW 682</td>
<td>Substance Abuse Interventions</td>
</tr>
<tr>
<td>SOCW 689</td>
<td>Clinical Practice with Older Adults</td>
</tr>
</tbody>
</table>

Total Credits: 6

### Advanced Policy Courses

Select two from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>SOCW 653</td>
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<tr>
<td>SOCW 654</td>
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</tr>
<tr>
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<td>Aging Programs and Policies</td>
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<tr>
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<td>Global Human Rights Policy</td>
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<tr>
<td>SOCW 665</td>
<td>Integrated Behavioral Health Policy</td>
</tr>
<tr>
<td>SOCW 676</td>
<td>Selected Topics in Social Work and Social Change</td>
</tr>
</tbody>
</table>

Total Credits: 6

### Elective

Select one from either the list below or the Advanced Clinical Practice courses or the Advanced Policy courses listed previously:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 675</td>
<td>Selected Topics in Clinical Practice</td>
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<td>SOCW 684</td>
<td>Social Work and the Law</td>
</tr>
<tr>
<td>SOCW 685</td>
<td>Organizational Leadership for Social Workers</td>
</tr>
<tr>
<td>SOCW 687</td>
<td>Empowering Communities for Change</td>
</tr>
<tr>
<td>SOCW 697</td>
<td>Thesis Project Seminar</td>
</tr>
</tbody>
</table>

Total Credits: 3

### Concentration in Social Change (SOCC)

#### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 684</td>
<td>Social Work and the Law</td>
<td>3</td>
</tr>
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<tr>
<td>SOCW 688</td>
<td>Program Evaluation for Social Workers</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 694</td>
<td>Specialist Social Change Field Practicum and Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 695</td>
<td>Specialist Social Change Field Practicum and Seminar II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

### Advanced Policy Courses

Select two from the following:

<table>
<thead>
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<th>Title</th>
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<tbody>
<tr>
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<td>SOCW 654</td>
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</tr>
<tr>
<td>SOCW 655</td>
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<tr>
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<td>Global Human Rights Policy</td>
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<tr>
<td>SOCW 665</td>
<td>Integrated Behavioral Health Policy</td>
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<td>SOCW 676</td>
<td>Selected Topics in Social Work and Social Change</td>
</tr>
</tbody>
</table>

Total Credits: 6

### Electives

Select two from either the list below or the Advanced Clinical Practice courses or the Advanced Policy courses listed previously:

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
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<td>Military Social Work</td>
</tr>
<tr>
<td>SOCW 682</td>
<td>Substance Abuse Interventions</td>
</tr>
</tbody>
</table>

Total Credits: 3
Social Work Courses

Total credits: 78

MSW-MS Degree Requirements

Total Credits 78

Dual Degree Options

Conflict Analysis and Resolution, MS and Social Work, MSW Dual Degree

The Department of Social Work (p. 271) and the School for Conflict Analysis and Resolution (p. 882) have joined forces to offer a three year dual-degree program. Students can earn both an MSW (p. 275) and an MS in Conflict Analysis and Resolution (p. 897) while taking advantage of the diversity of the Washington, D.C., metropolitan area and the university’s proximity to the nation’s capital. This is the only dual-degree program of its kind.

Admission Requirements

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and apply using the online Application for Graduate Admission (http://admissions.gmu.edu). The application process is competitive, and applications are considered for the fall semester only.

Students interested in the 3-year dual degree program submit one online Application for Graduate Admission (http://admissions.gmu.edu), select the MSW in Social Work (p. 275) as a primary program, and submit all application support materials to the Office of Graduate Admission in the College of Health and Human Services. Applicants should communicate their interest in completing the dual degree program in their essays, and recommendations should address the dual program interest. Students must be admitted to both programs in the same semester (fall only) to be admitted to the dual degree program.

For application deadlines and detailed application requirements please refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm). Interested students should consult the MSW program website (http://chhs.gmu.edu/msw), the MSW program (p. 275), and the MSW program director for additional information prior to applying.

Transfer of Credit

Transfer credit is governed AP.6.5.3 Transfer of Credit (p. 88) and AP.6 Graduate Policies (p. 87). Transfer credits must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek course advising through the department prior to taking a course and plan to submit their application to the dual degree program as soon as possible.

Please refer to the Transfer of Credit policy for the MSW in Social Work (p. 276) for departmental policy governing courses taken at another institution and the maximum number of credits allowed.

MSW-MS Degree Requirements

Total credits: 78

Social Work Courses

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>SOCW 623</td>
<td>Human Behavior and Social Systems I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 624</td>
<td>Human Behavior and Social Systems II</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 651</td>
<td>Social Policies, Programs, and Services</td>
<td>3</td>
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</tbody>
</table>

SOCW 652 Influencing Social Policy 3
SOCW 657 Direct Social Work Practice I 3
SOCW 658 Direct Social Work Practice II 3
SOCW 670 Social Work Program Planning, Communications, and Technology 3
SOCW 672 Generalist Field Practicum and Seminar I 3
SOCW 673 Generalist Field Practicum and Seminar II 3
SOCW 687 Empowering Communities for Change 3
SOCW 688 Program Evaluation for Social Workers 3
SOCW 689 Clinical Practice with Older Adults 3
CONF 660 Conflict Assessment and Program Evaluation 3

Total Credits 30-33

1 Students complete only one of SOCW 688 or CONF 660.

Social Change Concentration (SOCC)

<table>
<thead>
<tr>
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</table>

Select two courses from the following. At least one course must be an Advanced Policy Course.

Advanced Policy

<table>
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<td>Integrated Behavioral Health Policy</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 676</td>
<td>Selected Topics in Social Work and Social Change</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Course Options

<table>
<thead>
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<th>Credits</th>
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<td>SOCW 679</td>
<td>Military Social Work</td>
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<td>SOCW 682</td>
<td>Substance Abuse Interventions</td>
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<tr>
<td>SOCW 689</td>
<td>Clinical Practice with Older Adults</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 697</td>
<td>Thesis Project Seminar</td>
<td>3</td>
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</table>

Total Credits 18

Clinical Practice Concentration (CLNP)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 640</td>
<td>Advanced Clinical Practice</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 674</td>
<td>Psychopathology</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 692</td>
<td>Specialist Clinical Field Practicum and Seminar I</td>
<td>3</td>
</tr>
</tbody>
</table>
Select two courses from the following. At least one course must be an Advanced Policy Course.

**Advanced Policy**
- SOCW 653 Immigrant Policy
- SOCW 654 Social Policy for Children and Youth
- SOCW 655 Aging Programs and Policies
- SOCW 663 Global Human Rights Policy
- SOCW 665 Integrated Behavioral Health Policy
- SOCW 676 Selected Topics in Social Work and Social Change

**Additional Course Options**
- SOCW 664 Art Therapy and Social Work
- SOCW 665 Selected Topics in Clinical Practice
- SOCW 677 Family Therapy
- SOCW 678 Trauma and Recovery
- SOCW 679 Military Social Work
- SOCW 682 Substance Abuse Interventions
- SOCW 689 Clinical Practice with Older Adults

**Total Credits** 18

**Conflict Analysis and Resolution Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CONF 600</td>
<td>Foundations of Conflict Analysis and Resolution</td>
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<td>CONF 610</td>
<td>Conflict Inquiry</td>
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<td>CONF 657</td>
<td>Facilitation Skills</td>
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<tr>
<td>CONF 625</td>
<td>Engaging Conflict</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 15

1. CONF 657 Facilitation Skills should be completed before a student takes CONF 625 Engaging Conflict.

**Electives**

Select 12 credits of CONF Electives with approval from S-CAR (p. 1345)

**Total Credits** 12

---

**School of Nursing**

Phone: 703-993-1901 (Undergrad) 703-993-1947 (Master’s) 703-993-1961 (Doctoral)
Website: nursing.gmu.edu

**Administration**

- Carol Urban, Director

The School of Nursing is a teaching/learning organization with a national and international academic reputation, grounded in sound general education. It develops and supports a diverse faculty who are visionary and competent practitioners, scholars, and researchers, excellent in teaching in academic and practice settings, and responsive to the needs of students and the community. Specifically, the nursing programs prepare graduates to function as providers, coordinators, and managers of care and for leadership, advanced practice, and nurse scholar roles, as well as members of the nursing profession. Graduates of the School of Nursing are prepared to function as interdisciplinary health professionals and citizens who provide leadership, care, and service to the community. The School promotes health and well-being through its programs and centers, engaging in scholarly activities and research with the aim of maximum health for all people. Part-time students are encouraged to take at least 6 credits per semester to promote timely completion of the program.
Students also should run their own degree-evaluation (http://registrar.gmu.edu/students/degree-evaluation) to identify graduation requirements and progress towards their degree. While academic advisors can give advice to students, students are responsible for the academic planning decisions they make. Academic advisors cannot be held responsible for mistakes made by students in selecting courses that may not count toward their degree and thus delay a desired graduation date.

Programs

- Nursing Education Graduate Certificate
- Nursing, BSN
- Nursing, DNP
- Nursing, MSN
- Nursing, PhD
- Psychiatric Mental Health Nurse Practitioner Graduate Certificate

Nursing Education Graduate Certificate

Banner Code: HH-CERG-NUED

Academic Advising
Website: chhs.gmu.edu/nursing/msn/certificate-nursing-education.cfm

This program combines foundation courses in education with courses in the principles and practices of nursing education. It prepares students to function in nursing educational roles in academic and nonacademic settings.

The graduate certificate in nursing education may be pursued only on a part-time basis.

Admissions & Policies

Admissions

Applicants must hold a master’s degree in nursing. Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and apply using the Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). Acceptance to the nursing program is contingent upon admission to the university. The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, please refer to the CHHS Admissions (http://chhs.gmu.edu/admissions) website.

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Certificate Requirements

Total credits: 15

Candidates must have 15 graduate credits and a minimum GPA of 3.00 in course work, with no more than 3 credits with a grade of C to earn the certificate.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 716</td>
<td>Principles of Assessment and Evaluation in Nursing Education</td>
<td>3</td>
</tr>
<tr>
<td>NURS 726</td>
<td>Perspectives in Nursing Education</td>
<td>3</td>
</tr>
<tr>
<td>NURS 727</td>
<td>Application of Nursing Education Principles to Curriculum and Program Development</td>
<td>3</td>
</tr>
<tr>
<td>NURS 728</td>
<td>Practicum and Seminar in Nursing Education I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 729</td>
<td>Practicum and Seminar in Nursing Education II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Notes:
Students who qualify for a 3-credit practicum because of their educational experience may choose the remaining 3 credits from courses designated by the graduate nursing program.

Nursing, BSN

Banner Code: HH-BSN-NURS

Academic Advising
Website: chhs.gmu.edu/students/advising-nursing.cfm

This program prepares students to deliver superior nursing care and provide leadership in nursing in the increasingly complex and challenging field of modern health care. Graduates are in demand as professional nurses in hospitals, long-term care facilities, and community health and other health care agencies. The program emphasizes health promotion and disease prevention, capitalizing on early detection of potential health problems, health maintenance in ambulatory and acute-care agencies, and preparation for the managerial responsibilities of nursing.

The School of Nursing offers three pathways to complete the BSN, all of which lead to completion of the objectives of the undergraduate program. The traditional pathway is a two-year curriculum following the completion of the Mason Core and prerequisite requirements. An accelerated RN-to-BSN pathway for students holding current registered nurse (RN) licenses may be completed in one year (full-time) following completion of the Mason Core and prerequisite requirements. The accelerated, second degree pathway is a 12-month curriculum for students holding a baccalaureate degree outside of nursing. The traditional and accelerated pathways in nursing must be completed on a full-time basis.
junior standing. Students admitted in the traditional and accelerated, second degree pathways will enter the program in the fall of their junior year and at that point are considered nursing majors. Students admitted to the RN-to-BSN pathway may enter in the fall or spring semester.

Application to the BSN program is a process involving two applications: the George Mason University Undergraduate Application and the BSN Departmental Application. (Currently enrolled Mason students need only apply using the BSN Departmental Application.) Acceptance to the nursing program is contingent upon admission to the university, but admission to the university does not guarantee admission to the nursing program. Application to the BSN major is a competitive admission process. Prospective applicants are responsible to meet all BSN admission requirements at the time of application. Meeting the minimum requirements does not guarantee admission into the nursing program—it only allows an application to be considered. Students who are interested in pursuing a major in nursing are strongly encouraged to attend an information session provided by the CHHS Office of Student Affairs for advising prior to applying to the nursing major.

Attendance at the first meeting of all nursing courses (lectures, on-campus laboratories, and agency laboratories) is mandatory.

Traditional BSN Pathway Requirements
To be eligible to apply for the traditional BSN program, applicants must have achieved a minimum GPA of 3.00 in the designated nursing prerequisite coursework and must have earned a C or better in each of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 124</td>
<td>Human Anatomy and Physiology</td>
</tr>
<tr>
<td>BIOL 125</td>
<td>Human Anatomy and Physiology</td>
</tr>
<tr>
<td>BIOL 246</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
</tr>
</tbody>
</table>

Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 295</td>
<td>Introduction to Nutrition (Mason Core)</td>
</tr>
</tbody>
</table>

Applicants must have completed two of the three science prerequisite courses (anatomy and physiology I, anatomy and physiology II, and microbiology) by the submission date of the BSN Departmental Application. Coursework in anatomy and physiology and microbiology cannot be more than five years old by the time of BSN enrollment. Additional eligibility requirements include a grade of C or better in all Mason Core courses and electives.

Application to the BSN program is a process involving two applications: the George Mason University Undergraduate Application and the BSN Departmental Application. (Currently-ensrolled Mason students need only apply using the BSN Departmental Application.) Acceptance to the nursing program is contingent upon admission to the university. Admission to the university does not guarantee admission to the nursing program. See the CHHS undergraduate admissions website (http://chhs.gmu.edu/admissions/undergraduate) for the latest information on applications and deadlines.

Application to the BSN major is a competitive admission process. Meeting the minimum requirements does not guarantee admission into the nursing program— it only allows an application to be considered in the review process.

The traditional BSN pathway is a full-time program beginning in the fall semester and is completed in two years (four semesters).

Accelerated, Second Degree BSN Pathway Requirements
The Accelerated, Second Degree BSN Pathway is designed for applicants already holding a bachelor's degree who are interested in pursuing an undergraduate degree in nursing. This full-time accelerated program begins in the fall semester and is completed in 12 months.

Applicants must have a baccalaureate degree from an accredited college or university and must have earned a minimum cumulative GPA of 2.85 in their first degree. The non-nursing baccalaureate degree must be completed by the end of the spring semester of the year a student desires to be considered for fall admission.

Applicants to the second degree pathway must have achieved a minimum GPA of 3.00 in the designated nursing prerequisite coursework and must have earned a C or better in each of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 124</td>
<td>Human Anatomy and Physiology</td>
</tr>
<tr>
<td>BIOL 125</td>
<td>Human Anatomy and Physiology</td>
</tr>
<tr>
<td>BIOL 246</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
</tr>
</tbody>
</table>

Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 295</td>
<td>Introduction to Nutrition (Mason Core)</td>
</tr>
</tbody>
</table>

Applicants must have completed two of the three science prerequisite courses (anatomy and physiology I, anatomy and physiology II, and microbiology) by the submission date of the BSN Departmental Application. Course work in anatomy and physiology and microbiology cannot be more than five years old by the time of BSN enrollment.

Application to the BSN program is a process involving two applications: the George Mason University Undergraduate Application and the BSN Departmental Application. (Currently enrolled Mason students need only apply using the BSN Departmental Application.) Acceptance to the nursing program is contingent upon admission to the university. Admission to the university does not guarantee admission to the nursing program. See the CHHS undergraduate admissions website (http://chhs.gmu.edu/admissions/undergraduate) for the latest information on applications and deadlines.

Application to the BSN major is a competitive admission process. Meeting the minimum requirements does not guarantee admission into the nursing program - it only allows an application to be considered in the review process.
RN-to-BSN Pathway Requirements

The Accelerated RN-to-BSN Pathway allows RNs to progress quickly through the program while meeting the objectives of the undergraduate curriculum. On completion of the Mason Core (p. 135) requirements and designated nursing prerequisites, RN students can complete the BSN in two semesters of full-time study. The program can also be completed on a part-time basis.

RN students must satisfy all Mason Core (p. 135) requirements and designated nursing prerequisites. For some students, the Mason Core (p. 135) requirements (except ENGH 302 Advanced Composition (Mason Core) (p. 135)) may be met by completing the Associate's degree (i.e., AA – Associate of Arts, AS – Associate of Science, or AAS – Associate of Arts and Science) from the Virginia community college system with a qualifying GPA and specific admissions criteria. The Associate of Applied Science (AAS degree) does not waive Mason Core requirements. Contact Mason's general Office of Admissions for more information and see the Guaranteed Admission Agreement (http://admissions.gmu.edu/transfer/gaa.aasp) for details. RN-licensed students enrolled in the RN-to-BSN pathway are required to submit a copy of their current state-based/US license prior to the first day of class. RN-licensed students must maintain current licensure throughout the academic program.

Application to the BSN program is a process involving two applications: the George Mason University Undergraduate Application and the BSN Departmental Application. (Currently enrolled Mason students need only apply using the BSN Departmental Application.) Acceptance to the nursing program is contingent upon admission to the university. Admission to the university does not guarantee admission to the nursing program. See the CHHS undergraduate admissions website (http://chhs.gmu.edu/admissions/undergraduate) for the latest information on applications and deadlines.

Students admitted with a prior bachelor's degree are required to complete at least 30 hours at Mason beyond the first degree. Students should meet with their academic advisor to review degree requirements.

Application to the BSN major is a competitive admission process. Meeting the minimum requirements does not guarantee admission into the nursing program - it only allows an application to be considered in the review process.

Mason Veterans Program in Nursing and Co-enrollment in Nursing Program

The Mason Veterans Program in Nursing and Co-enrollment in Nursing Program allow students to complete a Bachelor of Science in Nursing (BSN) degree online while concurrently enrolled in an Associate of Applied Science nursing degree (AAS Nursing) program at a partner community college. Nursing classes in the CEP are offered online in seven-week and full-semester formats.

Students take the NCLEX (National Council Licensure Examination) after completing their AAS in nursing while enrolled in Mason's BSN program. After a student passes the NCLEX and upon successful completion of NURS 336, students are awarded 33 nursing transfer credits toward their BSN degree. Students complete Mason's BSN program the semester following graduation with the AAS degree.

Application Process

Admission to the Mason Veterans Program in Nursing or Co-enrollment in Nursing Program involves two applications: the George Mason University Undergraduate Application (https://www2.gmu.edu/admissions-aid/apply-now) and the BSN Departmental Application. The BSN Departmental Application, instructions, and deadlines are available online (https://chhs.gmu.edu/nursing/admissions/bsn-overview.cfm). Please use the Transfer Search Engine (http://admissions.gmu.edu/transfer/transferCreditSearch.asp) to check course equivalency.

Eligibility Guidelines

To be eligible to apply for the Co-enrollment in Nursing Program, applicants must:

- Receive admission to Mason
- Provide a copy of a letter of admission to a pre-licensure nursing program at a partner community college
- Provide proof of enrollment in a partner community college AAS-Nursing program (i.e., copy of an unofficial transcript)
- Have completed all Mason nursing prerequisite courses at any regionally accredited institution with a grade of C (not C-) or better in EACH course prior to the beginning of the CEP
- Mason Core and elective courses may be completed at any regionally accredited institution and can still be in progress at the time of admission. These courses must be completed with a grade of C (not C-) or better in EACH course prior to completing the CEP. ENGH 302 must be completed at Mason.
- Earn a cumulative GPA of 3.0 at partner community college institution
- Submit an online BSN departmental application and non-refundable fee through online payment system by the deadlines. See the CHHS undergraduate admissions website (http://chhs.gmu.edu/admissions/undergraduate) for the latest information on applications and deadlines.

In addition, to be eligible to apply for the Mason Veterans Nursing Program, applicants must be a veteran of the US military.

Policies

Degree Requirements

Students must fulfill all requirements for bachelor's degrees, including the Mason Core (p. 135) requirements. For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Writing Intensive Requirement

Mason requires all students to complete at least one 300- or 400-level "writing intensive" course as designated by their department. Students majoring in nursing fulfill this requirement by successfully completing NURS 465.

Academic Grade Standards

The passing grade is a C+ or above in undergraduate nursing didactic courses in the School of Nursing. A grade of satisfactory (S) is the passing grade for NURS 310 and NURS 312. After admission to junior-year standing and to the nursing program, a student who earns a grade of C or below must repeat the course and earn a grade of a C+ or above in that course. This will alter or halt further progression in the nursing program and affect the expected graduation date. A student may repeat only one nursing course, one time. A student who fails to earn a grade of C+ or above in the repeated course is terminated from the BSN nursing program. In addition, earning a grade of C or below in a second nursing course results in termination from the BSN nursing program. Termination from any one of the nursing undergraduate pathways constitutes termination from the undergraduate (BSN) nursing major in the School of Nursing.
Because of the sequential nature of the nursing curriculum, students are not allowed to progress to the next semester of nursing course work while a grade of "IN" (incomplete) remains on their academic record. A passing grade must be recorded before beginning the next semester’s courses. Academic dismissal is governed by university policy (p. 84).

**Professional Conduct Policy**

All students in the School of Nursing are expected to adhere to the Professional Conduct Policy (p. 236) of the College of Health and Human Services.

**Appeal Process**

Although faculty members in the nursing program are generally the best judges of a student’s professional performance, there may be times when a student believes a grade is unfair. Students in the School of Nursing wishing to appeal a grade are expected to follow the Mason guidelines for grade appeals (p. 82).

**NCLEX Readiness Preparation and Testing**

Throughout the BSN program, all students, with the exception of RN-to-BSN students, participate in preparation for the NCLEX-RN licensing exam through opportunities provided during nursing courses. These opportunities are included as integrated components of select courses and include practice NCLEX-style exams and content-specific testing. A final cumulative assessment exam is given toward the end of the program to provide the student with guidance about their chance for success on the licensing exam. A final course in critical thinking and test-taking strategies is required in the senior year, and remediation in select content areas may be required as a component of this course.

**Special Requirements**

Fees and expenses related to the nursing program include: skills laboratory fee, standardized testing and course materials, uniforms, stethoscope, name pin, books, CPR certification, health forms, health insurance, immunizations, and criminal background check fees. The availability of personal transportation to and from clinical agencies is required of all students. For a summary of all current fees and estimated expenses, see the School of Nursing website (https://chhs.gmu.edu/nursing).

All BSN students are required to obtain a health clearance and complete the immunizations required by Mason as listed in the Student Health Services section of the Mason catalog. In addition, the BSN program has additional health and immunization requirements to meet the requirements of its clinical agency partners. See the Undergraduate Program, School of Nursing website for the most current information. Students are not allowed into any clinical setting without the completed immunization series as prescribed by Mason or the School of Nursing and may have an offer of admission withdrawn for inability to meet these requirements. The School of Nursing reviews health records and reserves the right to refuse admission or continued enrollment to any student who is unable to comply with these requirements.

All students must have CPR certification before entering the first clinical nursing course and maintain it through the remainder of the program. All students are required to have an active Mason e-mail account.

No student or faculty member will be discriminated against or denied admission to the nursing program for the sole reason that the student or faculty member has been exposed to, infected with, or diagnosed with HIV or HBV. All students are expected to practice Universal Precautions with all clients, and failure to do so will result in termination from the nursing major. In the event that a student is exposed to body fluids of a client during a clinical experience or practicum, procedures and appropriate reports are completed according to institutional and nursing policies. Information related to exposure or infection is confidential, and dissemination of such information is based on the need-to-know criteria that apply in health care situations. HIPAA and FERPA regulations apply. A complete and detailed HIV/HBV policy is available in the CHHS Office of Student Affairs.

RN-licensed students enrolled in the RN-to-BSN pathway are required to submit a copy of their current license prior to the first day of class. RN-licensed students must maintain current licensure throughout the academic program.

**Requirements**

**Degree Requirements**

Total credits: 120

**Mason Core**

**Written Communication**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 101</td>
<td>Composition (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 302</td>
<td>Advanced Composition (Mason Core)</td>
<td>3 (p. 135)</td>
</tr>
</tbody>
</table>

**Oral Communication**

Any Mason Core Oral Communication course. (p. 136) 3

**Information Technology**

Any Mason Core Information Technology course (p. 136) 3

**Literature**

Any Mason Core Literature course (p. 140) 3

**Arts**

Any Mason Core Arts course (p. 137) 3

**Western Civilization**

Any Mason Core Western Civilization course (p. 143) 3

**Global Understanding**

Any Mason Core Global Understanding course (p. 139) 3

The recommended course is GCH 205 Global Health

**Social and Behavioral Sciences**

Any Mason Core Social and Behavioral Sciences course (p. 142) 3

The recommended course is PSYC 100 Basic Concepts in Psychology

Total Credits 27

---

1 Non-native speakers of English with limited proficiency in the language may substitute ENGH 100 for ENGH 101. Students must attain a minimum grade of C in ENGH 100 or ENGH 101, as well as in ENGH 302, to fulfill degree requirements.
Designated Nursing Prerequisites

Anatomy and Physiology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 124</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 125</td>
<td>Human Anatomy and Physiology</td>
<td>4</td>
</tr>
</tbody>
</table>

Microbiology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 246</td>
<td>Introductory Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 305</td>
<td>Biology of Microorganisms</td>
<td></td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

Bioethics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 309</td>
<td>Bioethics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135) (or a statistics course in another discipline with the approval of the advisor)</td>
<td></td>
</tr>
</tbody>
</table>

Human Lifespan Development

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any 3-credit human lifespan development course or equivalent as approved by advisor (PSYC 211 is recommended)</td>
<td>3</td>
</tr>
</tbody>
</table>

Nutrition

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 295</td>
<td>Introduction to Nutrition (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 24

1. Fulfills Mason Core Natural Science (p. 141) requirement for students in this degree program.
2. STAT 250 fulfills the quantitative reasoning Mason Core requirement. If STAT 250 is not taken, an approved Mason Core Quantitative Reasoning (p. 136) course is required.
3. Other nutrition transfer courses may meet this requirement as approved by the advisor.

Electives

Students will complete 7 credits of electives. A course in sociology or anthropology is recommended.

Total Credits 7

Traditional BSN Major, Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 312</td>
<td>Basic Nursing Care of Adults</td>
<td>4</td>
</tr>
<tr>
<td>NURS 330</td>
<td>Nursing Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>NURS 334</td>
<td>Nursing as a Health Profession and Discipline</td>
<td>3</td>
</tr>
<tr>
<td>NURS 337</td>
<td>Application of Nursing Fundamental Technologies</td>
<td>1</td>
</tr>
<tr>
<td>NURS 343</td>
<td>Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 344</td>
<td>Intermediate Nursing Technologies</td>
<td>1</td>
</tr>
<tr>
<td>NURS 347</td>
<td>Adult Pathophysiology and Nursing Care</td>
<td>2</td>
</tr>
<tr>
<td>NURS 348</td>
<td>Maternal-Newborn Physiology, Pathophysiology, and Nursing Care</td>
<td>2</td>
</tr>
<tr>
<td>NURS 349</td>
<td>Pediatric Pathophysiology and Nursing Care</td>
<td>2</td>
</tr>
<tr>
<td>NURS 358</td>
<td>Health Promotion and Disease Prevention in Maternal/Infant Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 359</td>
<td>Health Promotion and Disease Prevention in Pediatric Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 388</td>
<td>Problem-Based Clinical Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>NURS 410</td>
<td>Nursing Care of Clients with Pathological Conditions</td>
<td>3</td>
</tr>
<tr>
<td>NURS 425</td>
<td>Comprehensive Health Assessment</td>
<td>3</td>
</tr>
<tr>
<td>NURS 436</td>
<td>Leadership and Management of Health Care</td>
<td>3</td>
</tr>
<tr>
<td>NURS 451</td>
<td>Advanced Clinical Preceptorship</td>
<td>5</td>
</tr>
<tr>
<td>NURS 453</td>
<td>Research in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 455</td>
<td>Advanced Technologies in Nursing</td>
<td>1</td>
</tr>
<tr>
<td>NURS 465</td>
<td>Examination and Integration of Professional and Health Care Issues (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>NURS 466</td>
<td>Community Health Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 467</td>
<td>Clinical in Community Health Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 468</td>
<td>Psychiatric and Mental Health Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 469</td>
<td>Clinical in Psychiatric and Mental Health Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NURS 488</td>
<td>Inquiry-Based Clinical Seminar</td>
<td>2</td>
</tr>
<tr>
<td>NURS 491</td>
<td>Critical Thinking and Analysis of Test Taking Strategies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 62

Accelerated, Second Degree BSN Pathway (SEC)

Students who are eligible for an alternative pathway to the BSN must meet the nursing course requirements for the pathway to which they have been admitted rather than those for the traditional BSN pathway. Candidates for the degree must present at least 120 credits via:

- Mason Core (p. 135) requirements, to be satisfied by the initial degree and fulfilled through transfer credit.
- Designated nursing prerequisites
- Concentration requirements below

Concentration Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 305</td>
<td>Application of Basic Nursing Techniques</td>
<td>1</td>
</tr>
<tr>
<td>NURS 309</td>
<td>Introduction to Basic Nursing Care</td>
<td>3</td>
</tr>
<tr>
<td>NURS 310</td>
<td>Application of Basic Nursing Care</td>
<td>4</td>
</tr>
<tr>
<td>NURS 319</td>
<td>Pathophysiological Basis for Nursing Care of Individuals and Small Groups</td>
<td>4</td>
</tr>
<tr>
<td>NURS 334</td>
<td>Nursing as a Health Profession and Discipline</td>
<td>3</td>
</tr>
<tr>
<td>NURS 343</td>
<td>Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 350</td>
<td>Application of Nursing Care for Individuals and Small Groups</td>
<td>4</td>
</tr>
<tr>
<td>NURS 351</td>
<td>Application of Intermediate Nursing Technologies</td>
<td>1</td>
</tr>
<tr>
<td>NURS 419</td>
<td>Pathophysiological Basis for Nursing Care of Individuals and Small Groups II</td>
<td>3</td>
</tr>
<tr>
<td>NURS 425</td>
<td>Comprehensive Health Assessment</td>
<td>3</td>
</tr>
<tr>
<td>NURS 427</td>
<td>Advanced Technologies for the Accelerated Pathway</td>
<td>1</td>
</tr>
<tr>
<td>NURS 428</td>
<td>Community Health Clinical for the Accelerated Pathway</td>
<td>2</td>
</tr>
<tr>
<td>NURS 429</td>
<td>Preceptorship for the Accelerated Pathway</td>
<td>3</td>
</tr>
</tbody>
</table>
NURS 436  Leadership and Management of Health Care  3
NURS 440  Community Health and Epidemiology  3
NURS 453  Research in Nursing  3
NURS 465  Examination and Integration of Professional and Health Care Issues (Mason Core) (p. 135)  3

Total Credits 47

Accelerated RN-to-BSN Pathway (RN)
Candidates for the degree must present at least 120 credits. A minimum of 30 credits must be earned at Mason to fulfill requirements for graduation. These include:

Mason Core and general electives 57
Concentration-specific requirements 24
ENGH 302  Advanced Composition (Mason Core) (p. 135) 3
Electives earned at Mason 3
“Credit by Exam” 33

Total Credits 120

For some students, the Mason Core requirements (except ENGH 302 Advanced Composition (Mason Core) (p. 135)) may be met by completing the Associate’s degree (i.e., AA – Associate of Arts, AS – Associate of Science, or AA&S – Associate of Arts and Science) from an approved Virginia community college with a qualifying GPA and specific admissions criteria. The Associate of Applied Science (AAS degree) does not waive the Mason Core requirements. Contact Mason’s general Office of Admissions for more information and see the Guaranteed Admission Agreement (http://admissions.gmu.edu/transfer/gaa.asp) for details.

RN-to-BSN Pathway, Required Courses
ENGH 302  Advanced Composition (Mason Core) (p. 135) 3
NURS 336  Concepts in Professional Nursing as a Discipline 3
NURS 425  Comprehensive Health Assessment 3
NURS 436  Leadership and Management of Health Care 3
NURS 440  Community Health and Epidemiology 3
NURS 434  Vulnerable Populations 3
NURS 453  Research in Nursing 3
NURS 457  Introduction to Nursing Informatics 3
NURS 465  Examination and Integration of Professional and Health Care Issues (Mason Core) (p. 135) 3
Elective 3

Total Credits 30

1 Students must complete ENGH 302 Advanced Composition (Mason Core) (p. 135), listed above under Mason Core requirements. Only students holding a previous baccalaureate degree are not required to take ENGH 302 Advanced Composition (Mason Core) (p. 135).

Credit by Exam 33

Nursing, DNP
Banner Code: HH-DNP-NURS
Academic Advising
Website: chhs.gmu.edu/students/coordinators.cfm#nurs

The Doctor of Nursing Practice (DNP) program is approved by the Virginia State Board of Nursing and accredited by the Commission on Collegiate Nursing Education. The nurse practitioner concentrations have been approved by the state boards of nursing and medicine in Virginia.

The Doctor of Nursing Practice (DNP) is the terminal practice degree in the profession. The objective of the program is to prepare graduates for the highest level of nursing practice. Emphasis will be placed on evaluating and applying the evidence that supports practice, understanding and creating practice delivery systems based on patient outcomes, and assuming leadership roles in practice settings. In the curriculum, five concentrations are available. The concentrations are configured into two foci as recommended by the American Academy of Colleges of Nursing Essentials of Doctor of Nursing Practice (the guidance document for DNP programs). The two foci are:

1. care of individuals with three concentrations, Family Nurse Practitioner, Adult-Gerontology Nurse Practitioner, and Psychiatric Mental Health Nurse Practitioner; and
2. care of aggregates with Advanced Clinical Nursing and Administration in Nursing concentrations.

The degree will draw on expertise from throughout CHHS in such areas as health economics, health policy, and epidemiology. Graduates of the program will be able to assume many roles in the health care system, including direct patient care, clinical nursing faculty, practice management, and policy development.

Admissions & Policies
Admissions Requirements
Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). Applicants for the BSN to DNP curriculum must be graduates of accredited baccalaureate (BSN) programs in nursing. Applicants for the MSN to DNP curriculum must have a master’s degree in nursing. All applicants must submit a copy of their current state-based/US license and show evidence of at least one year of experience as an RN prior to admission. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).
Policies

Transfers Between Programs or Concentrations
Students may not transfer between programs or concentrations. If a student wishes to be considered for another nursing program or concentration, a completed application to that program or concentration must be submitted using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). Applicants will be considered for admission with all other applicants for that program or concentration, with no guarantee of acceptance. If accepted, please be aware that more than half of the credits earned for the new degree must be taken after acceptance to the new nursing program or concentration.

Transfer of Credit
Students may transfer a maximum of 9 credits into the DNP program from graduate courses taken at other institutions or taken at Mason in non-degree status, including courses offered through the college’s Academic Outreach program. Transfer credit is governed by university transfer of graduate credit policy and the university requirements for doctoral degrees, and transfer credit must be approved by the program director and the dean. Students who enroll initially through non-degree studies or the Academic Outreach program should seek course advising through the department and should submit their application to the DNP program as soon as possible after beginning in their study in non-degree status.

Reduction of Credit
Students who come into the MSN to DNP program will complete 72 credits, including up to 30 hours of relevant graduate credit awarded for past master’s-level courses.

Time Requirements
The projected length of the program for full-time BSN to DNP students is four calendar years, which could stretch to eight academic years for part-time students. Full-time MSN to DNP students can complete the program in two academic years, while part-time students may require three academic years. BSN to DNP students will have a maximum of eight years and MSN to DNP students will have a maximum of six years to complete the program.

Academic Termination
Academic termination is governed by university policy described in AP.6.6.2 Academic Termination (p. 89). Additionally, a failing grade of F in a practicum course may result in termination from the program. Any graduate course in which a student earns a C grade or below must be repeated.

Grading
Throughout the semester, students are assessed on how well they have met curricular outcomes. Consistent with the university, the DNP in Nursing program does not provide a D grade. Final grades for all DNP in Nursing courses are submitted to the university as letter grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
<th>Graduate Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
<td>Passing</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>Passing</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
<td>Failing</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
<td>Failing</td>
</tr>
</tbody>
</table>

A graduate course in which a grade of C or below is earned must be repeated to earn a grade of B or better, and a course may be repeated only once. Graduate students (both master’s and doctoral) may repeat no more than two courses in their total program of study.

Curriculum
The BSN to DNP curriculum is comprised of 72 credits. Students who enter the MSN to DNP program will also complete 72 credits, including up to 30 hours of relevant graduate credit awarded for past master’s-level courses. A minimum of 1000 practice hours is required in the DNP program. The 1,000 hours of precepted/mentored clinical practice are distributed among introductory (500- to 700-numbered courses) and upper-level (800- to 900-numbered courses) graduate courses. Students receive one hour of credit for 45 hours of precepted/mentored clinical practice that is part of the course work. BSN to DNP students will include the 1,000 hours in their course work. MSN to DNP students can transfer in up to 800 hours (depending on the number of hours they accrued during their master’s program). The number of clinical hours a student is awarded on admission is based on transcripts and course descriptions. Faculty will review clinical credits earned as part of the master’s degree to determine the number of clinical hours awarded. Variable hours in the clinical practicums (NURS 921 and NURS 922) will assure a minimum total of 1,000 clinical hours prior to DNP graduation.

Students will pursue one of two emphases:
1. Advanced nursing care of individuals
2. Advanced nursing care of aggregates

Students will integrate knowledge from core and concentration courses into development and implementation of their practice inquiry project.

The curriculum will allow students with diverse nursing academic and clinical backgrounds the flexibility to enter a program of study tailored to their future professional goals. The final project will be an evidence-based translational research project (practice inquiry project). This project is designed for students to address a real-life professional issue with potential for actual implementation to improve practice and outcomes. The goal of the DNP program is to maximize the strength and credentials of each student through faculty advisement. Students will be assigned to a faculty advisor whose interest and expertise will support the development of an individual practice inquiry project at the culmination of course work. All students are required to have an active Mason e-mail account.

Requirements

Degree Requirements
Total credits: 72

BSN to DNP Curriculum
Core courses and advanced practice core courses and competency courses must be completed in the first two years of full-time study or four years of part-time study. These foundational courses prepare the student to develop and implement the practice inquiry project (DNP Project) in the final two semesters of study.

Level I Core Courses
NURS 665 Theoretical and Ethical Foundations Related to Nursing 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 688</td>
<td>Organization of Nursing and Health Care Delivery Systems</td>
<td>3</td>
</tr>
<tr>
<td>NURS 757</td>
<td>Nursing Research and Biostatistics I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 758</td>
<td>Nursing Research and Biostatistics II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

### Level II Core Essentials Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 643</td>
<td>Community-Oriented Primary Care</td>
<td>3</td>
</tr>
<tr>
<td>NURS 715</td>
<td>Nursing Informatics Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>NURS 808</td>
<td>Translating Nursing and Health Care Research into Evidence-Based Policy</td>
<td>3</td>
</tr>
<tr>
<td>NURS 870</td>
<td>Nursing and Health Care Administration I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 883</td>
<td>Evidence-Based Practice in Nursing and Healthcare</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>16</td>
</tr>
</tbody>
</table>

### Advanced Practice Competency Courses

Complete requirements of one concentration.

#### Concentrations in Advanced Nursing Care of Aggregates

#### Concentration in Advanced Clinical Nursing (NUAC)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Six credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 740</td>
<td>Clinical Nurse Specialist Internship</td>
<td>2</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NURS 769</td>
<td>Physiology and Pathophysiology in Advanced Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 773</td>
<td>Clinical Applications of Theory in Advanced Clinical Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 775</td>
<td>Advanced Specialty Practice I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 776</td>
<td>Development of Advanced Practice Nursing Role</td>
<td>3</td>
</tr>
<tr>
<td>NURS 778</td>
<td>Advanced Specialty Practice II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Four credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 921</td>
<td>Clinical Practicum I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Five credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 922</td>
<td>Clinical Practicum II</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>36</td>
</tr>
</tbody>
</table>

#### Concentration in Nursing Administration (NUAD)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 654</td>
<td>Nursing Administration Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>NURS 763</td>
<td>Administrative Theory in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 765</td>
<td>Practicum in Nursing Administration I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 766</td>
<td>Administrative Strategies in Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 768</td>
<td>Practicum in Nursing Administration II</td>
<td>3</td>
</tr>
<tr>
<td>NURS 871</td>
<td>Nursing and Health Care Administration II</td>
<td>2</td>
</tr>
<tr>
<td>NURS 874</td>
<td>Internship in Health Care Administration/Policy/Education</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Electives toward career goal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Five credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 921</td>
<td>Clinical Practicum I</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Five credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 922</td>
<td>Clinical Practicum II</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>36</td>
</tr>
</tbody>
</table>

#### Concentrations in Advanced Nursing Care of Individuals

#### Concentration in Adult-Gerontology Nurse Practitioner (AGNP)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NURS 769</td>
<td>Physiology and Pathophysiology in Advanced Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 713</td>
<td>Decision Making and Pharmacologic Management in Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 787</td>
<td>Adult Gerontology Primary Care I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 786</td>
<td>Adult Gerontology Primary Care Practicum I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 789</td>
<td>Adult Gerontology Primary Care II</td>
<td>3</td>
</tr>
<tr>
<td>NURS 788</td>
<td>Adult Gerontology Primary Care Practicum II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 791</td>
<td>Adult Gerontology Primary Care III</td>
<td>4</td>
</tr>
<tr>
<td>NURS 790</td>
<td>Adult Gerontology Primary Care Practicum III</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Three credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 921</td>
<td>Clinical Practicum I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Two credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 922</td>
<td>Clinical Practicum II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>36</td>
</tr>
</tbody>
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#### Concentration in Family Nurse Practitioner (FNUP)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NURS 769</td>
<td>Physiology and Pathophysiology in Advanced Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 713</td>
<td>Decision Making and Pharmacologic Management in Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 738</td>
<td>Family Primary Care I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 742</td>
<td>Family Primary Care Practicum I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 739</td>
<td>Family Primary Care II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 744</td>
<td>Family Primary Care Practicum II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 741</td>
<td>Family Primary Care III</td>
<td>3</td>
</tr>
<tr>
<td>NURS 749</td>
<td>Family Primary Care Practicum III</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Three credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 921</td>
<td>Clinical Practicum I</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Two credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 922</td>
<td>Clinical Practicum II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>36</td>
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</tbody>
</table>

#### Concentration in Psychiatric Mental Health Nurse Practitioner (PMHN)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Electives toward career goal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Five credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 921</td>
<td>Clinical Practicum I</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Five credits of</td>
<td></td>
</tr>
<tr>
<td>NURS 922</td>
<td>Clinical Practicum II</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>36</td>
</tr>
</tbody>
</table>

1. All electives must be approved by advisor prior to the start of the course.

1. Electives toward career goal are required to earn 5 credits.
Practice Inquiry Project Courses

The final step in completion of the degree is the implementation of a practice inquiry project (DNP project). The proposal for this project must be prepared with ample time for submission to the Human Subjects Review Board at George Mason University. The student will identify one School of Nursing faculty member to serve as an advisor for the project. Consistent with the AACN DNP Essentials, the guidance document for DNP programs, the practice inquiry project must demonstrate the core competencies of finance, policy, technology, and health care delivery systems, as well as utilization of evidence to enhance practice outcomes.

NURS 980 Practice Inquiry I 4
NURS 981 Practice Inquiry II 4
Total Credits 8

Electives

If needed, elective courses should be taken to complete the required 42 program credits. All electives must be approved by the advisor prior to the start of the course.

Nursing, MSN

Banner Code: HH-MSN-NURS

Academic Advising

Website: chhs.gmu.edu/students/coordinators.cfm#nurs

The Master of Science in Nursing (MSN) program is approved by the Virginia State Board of Nursing and accredited by the Commission on Collegiate Nursing Education. The program prepares nurses for a variety of leadership and practice roles in the health care system. The adult gerontology and family nurse practitioner primary care concentrations have been approved by the state boards of nursing and medicine in Virginia. The nursing administration concentration prepares nurses to be leaders in health care organizations. The nurse educator concentration prepares graduates for educational positions in health care organizations.

Admissions & Policies

Admissions Requirements

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must
apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). Applicants must be graduates of an accredited baccalaureate (BSN) program in nursing, except for the applicants to the RN-to-MSN program. In addition, applicants must have an active state-based/US license as a registered nurse (RN), a current CPR card, and documented work experience as an RN. The application process is competitive, and applications are considered for the fall and spring semesters. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

**Policies**

**Transfers Between Programs or Concentrations**

Students may not transfer between programs or concentrations. If a student wishes to be considered for another nursing program or concentration, a completed application to that program or concentration must be submitted using the online Application for Graduate Admission (http://admissions.gmu.edu). The applicant must have permission from their academic advisor before they will be allowed to initiate this process. Applicants will be considered for admission with all other applicants for that program or concentration, with no guarantee of acceptance. If accepted, more than half of the credits earned for the new degree must be taken after acceptance to the new nursing program or concentration.

**Transfer of Credit**

Students may transfer a maximum of 9 credits into the MSN program from other institutions or taken at Mason in non-degree status, including graduate courses offered through the CHHS Academic Outreach program. Transfer credit is subject to university policies found in AP 6.5.3 Transfer of Credit (p. 88) and college policies and must be approved by the program director and the dean/director of the School of Nursing. Students who enroll initially through non-degree studies or the Academic Outreach program should seek course advising through the School of Nursing and should submit their application to the MSN program in their first semester of study.

**Special Requirements**

Additional fees and expenses related to the nursing graduate program may include: laboratory fee, standardized testing and course materials, name pin, books, CPR certification, health forms, health insurance, immunizations, and criminal background check fees. **All students must provide their own personal transportation to and from clinical agencies.** For a summary of all current fees and estimated expenses, see the School of Nursing website.

All MSN students are required to obtain a health clearance and complete the immunizations required by George Mason University as listed in the Student Health Services (p. 108) section of the catalog. Additional health and immunization requirements are imposed by clinical agency partners. See the Graduate Program, School of Nursing website (http://chhs.gmu.edu/nursing) for the most current information. **Students are not allowed into any clinical setting without the completed immunization series as prescribed by Mason’s School of Nursing.** The School of Nursing will refuse admission or continued enrollment to any student who is unable to comply with these requirements. No student will attend practicum courses unless all the requirements for CPR, health exams, immunizations, and criminal background checks are met. Students must be in the process of completing a hepatitis B immunization series when they enroll for their first practicum course.

All students must have CPR certification before entering their first course and maintain it through the remainder of the program. The American Heart Association Basic Life Support - Health Care Provider is required. Any cost incurred is the responsibility of the student.

No student or faculty member will be discriminated against or denied admission to the nursing program for the sole reason that the student or faculty member has been exposed to, infected with, or diagnosed with HIV or HBV. All students are expected to practice Universal Precautions with all clients, and failure to do so will result in termination from the nursing major. In the event that a student is exposed to body fluids of a client during a clinical experience or practicum, procedures and appropriate reports are completed according to institutional and nursing policies. Information related to exposure or infection is confidential, and dissemination of such information is based on the need-to-know criteria that apply in health care situations. HIPAA and FERPA regulations apply. A complete and detailed HIV/HBV policy is available in the CHHS Office of Student Affairs.

MSN students are required to submit a copy of their current RN license prior to the first day of class and must maintain licensure throughout the academic program.

**Professional Conduct**

All students in the School of Nursing are expected to adhere to the Professional Conduct Policy (p. 236) of the College of Health and Human Services.

**Appeal Process**

Although faculty members in the nursing program are generally the best judges of a student’s professional performance, some students may feel that the faculty member’s judgment is unfair. Students in the School of Nursing wishing to appeal a grade are expected to follow the Mason guidelines for grade appeals, found in AP 3.9 Grade Appeals (p. 82).

**Honor System and Code**

The School of Nursing supports academic integrity and follows the standards and procedures as described in the University catalog and available online (http://oai.gmu.edu).

**Academic Termination**

Academic termination is governed by university policy described in AP.6.6.2 Academic Termination (p. 89). Additionally, a failing grade of “F” in a practicum course may result in termination from the program. Any graduate course in which a student earns a C grade or below must be repeated.

**Grading**

Throughout the semester, students are assessed on how well they have met curricular outcomes. Consistent with the university, the MSN in Nursing program does not provide a D grade. Final grades for all MSN in Nursing courses are submitted to the university as letter grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
<th>Graduate Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
<td>Passing</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>Passing</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
<td>Failing</td>
</tr>
</tbody>
</table>
A graduate course in which a grade of C or below is earned must be repeated to earn a grade of B or better, and a course may be repeated only once. Graduate students (both master’s and doctoral) may repeat no more than two courses in their total program of study.

Curriculum
The master’s program in nursing requires 39 to 49 graduate credits. Of these, a 15-credit core consists of coursework in the theoretical and ethical foundations of nursing, nursing research and biostatistics, nursing informatics, and the organization of nursing and health care delivery systems. The remaining 24-34 credits are satisfied by completing one of the concentrations:

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Administration</td>
<td>24</td>
</tr>
<tr>
<td>Advanced Clinical Nursing</td>
<td>27-30</td>
</tr>
<tr>
<td>Nurse Educator</td>
<td>26</td>
</tr>
<tr>
<td>Adult Gerontology Nurse Practitioner</td>
<td>34</td>
</tr>
<tr>
<td>Family Nurse Practitioner</td>
<td>34</td>
</tr>
</tbody>
</table>

Actual practicum course hours may exceed those listed in the catalog. Actual practicum hours will meet the requirements for certification purposes. Requirements in the catalog reflect the minimum number of credits or practicum hours.

Requirements

Degree Requirements
Total credits: 39-49

Students must complete all Level I courses and the requirements for one concentration.

**MSN Level I Core Courses (Required of all students)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 665</td>
<td>Theoretical and Ethical Foundations Related to Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 715</td>
<td>Nursing Informatics Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>NURS 757</td>
<td>Nursing Research and Biostatistics I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 758</td>
<td>Nursing Research and Biostatistics II</td>
<td>3</td>
</tr>
<tr>
<td>NURS 688</td>
<td>Organization of Nursing and Health Care Delivery Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

**Concentration in Adult Gerontology Nurse Practitioner in Primary Care (AGNP)**

**Level II Courses Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 643</td>
<td>Community-Oriented Primary Care</td>
<td>3</td>
</tr>
<tr>
<td>NURS 713</td>
<td>Decision Making and Pharmacologic Management in Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NURS 769</td>
<td>Physiology and Pathophysiology in Advanced Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 787</td>
<td>Adult Gerontology Primary Care I</td>
<td>2</td>
</tr>
</tbody>
</table>

**Concentration in Advanced Clinical Nursing (NUAC)**

**Level II Courses Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NURS 769</td>
<td>Physiology and Pathophysiology in Advanced Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 773</td>
<td>Clinical Applications of Theory in Advanced Clinical Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NURS 775</td>
<td>Advanced Specialty Practice I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 776</td>
<td>Development of Advanced Practice Nursing Role</td>
<td>3</td>
</tr>
<tr>
<td>NURS 778</td>
<td>Advanced Specialty Practice II</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Courses**

Select six credits of cognates in area of expertise 6

Total Credits 27

1 Students may take NURS 740 Clinical Nurse Specialist Internship for 3 elective credits.

**Clinical Nurse Specialist Emphasis**

Students in the advanced clinical nursing concentration who opt for the clinical nurse specialist emphasis must accrue 500 clinical hours by completing NURS 740. The course may be repeated once if necessary to accrue 500 hours (for a total of 6 credits).

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 740</td>
<td>Clinical Nurse Specialist Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentration in Family Nurse Practitioner in Primary Care (FNUP)**

**Level II Courses Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 643</td>
<td>Community-Oriented Primary Care</td>
<td>3</td>
</tr>
<tr>
<td>NURS 713</td>
<td>Decision Making and Pharmacologic Management in Practice</td>
<td>3</td>
</tr>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NURS 769</td>
<td>Physiology and Pathophysiology in Advanced Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 738</td>
<td>Family Primary Care I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 742</td>
<td>Family Primary Care Practicum I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 739</td>
<td>Family Primary Care II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 744</td>
<td>Family Primary Care Practicum II</td>
<td>4</td>
</tr>
<tr>
<td>NURS 741</td>
<td>Family Primary Care III</td>
<td>3</td>
</tr>
</tbody>
</table>
NURS 749 Family Primary Care Practicum III  4
Total Credits  34

**Concentration in Nursing Administration (NUAD)**

**Required Courses**
- NURS 763 Administrative Theory in Nursing 3
- NURS 765 Practicum in Nursing Administration I 3
- NURS 766 Administrative Strategies in Nursing 3
- NURS 768 Practicum in Nursing Administration II 3

**Nursing Administration Support Courses**

**Financial Management:**
- NURS 654 Nursing Administration Financial Management 3
  or HAP 703 Financial Management in Health Systems 3

**Management/Organizational Theory:**
- HAP 621 Organization Behavior and Healthcare Leadership 3

Select six credits from Nursing or related discipline electives 6

Total Credits  24

**Nurse Educator Concentration (NURE)**

**Level II Courses Core**
- NURS 714 Health Assessment in Clinical Practice 2
- NURS 716 Principles of Assessment and Evaluation in Nursing Education 3
- NURS 761 Pharmacotherapeutics 3
- NURS 769 Physiology and Pathophysiology in Advanced Practice 3

**Required Courses**
- NURS 726 Perspectives in Nursing Education 3
- NURS 727 Application of Nursing Education Principles to Curriculum and Program Development 3
- NURS 728 Practicum and Seminar in Nursing Education I 3
- NURS 729 Practicum and Seminar in Nursing Education II 3

**Elective Courses**
Select three credits in Nursing or related disciplines. 3

Total Credits  26

**RN-to-MSN Pathway**

This pathway allows RNs who have completed the Mason Core requirements (as listed in the undergraduate RN-to-MSN Pathway described in the Nursing, BSN program) and have demonstrated substantial involvement in professional nursing within the past two years to earn the MSN degree. Students entering a concentration through this pathway must meet all the requirements for admission to that concentration.

In addition to fulfilling admission requirements for degree status at Mason, applicants must:

1. Hold a current state-based/US license to practice nursing.
2. Be graduates of an accredited nursing program.
3. Have earned a 3.00 GPA in

4. Demonstrate involvement in professional nursing within the past two years as an RN in clinical practice.

Students in the RN-to-MSN pathway are required to take the following bridge course:

- NURS 440 Community Health and Epidemiology 3

After completion of the bridge course, students choose one of the concentrations and meet all requirements of the graduate program.

**Nursing, PhD**

**Banner Code:** HH-PHD-NURS

**Academic Advising**
Website: chhs.gmu.edu/students/coordinators.cfm#nurs

The PhD in Nursing program builds on the MSN degree and requires a total of 78 credit hours of work (a minimum of 48 credit hours beyond the master's). The objective of the program is to prepare nursing scholars who will pursue intellectual inquiry and conduct research for the purpose of extending knowledge to contribute to the health of all populations. Graduates of the program conduct independent and collaborative research, advance nursing science, and provide leadership to the nursing profession.

**Admissions & Policies**

**Admissions**

**Requirements**
Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and must apply using the online Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). Nursing PhD applicants must hold a master’s degree in nursing from an accredited program equivalent to 30 credits or a master’s degree in a related health field with a baccalaureate degree in nursing. Applicants also must hold a valid, current nursing license in a U.S. state or territory; waivers for international applicants will be determined by the assistant dean for doctoral programs. Applicants must have a 3.00 GPA or higher on a 4.00 scale in their master’s program. Applicants also must have completed a graduate-level course in statistics in the past two years with a final grade of 3.00 or higher or will be required to complete NURS 757 Nursing Research and Biostatistics I before beginning PhD coursework. The application process is competitive, and applications are considered for the fall semester only. For application deadlines and detailed application requirements, refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm).

**Policies**

**Reduction of Credit**
Students must have a master’s degree before being admitted to the PhD in Nursing program. Up to 30 hours of relevant graduate credit may be
awarded for past master’s-level courses, and students will complete the minimum of 48 additional credits following the curriculum below.

**Transfer of Credit**

Students may transfer a maximum of 9 credits into the program from graduate courses taken at other institutions or taken at Mason in non-degree status, including courses offered through the college’s Academic Outreach program. Transfer credit is governed by university transfer of graduate credit policy and the university requirements for doctoral degrees, which can be found in AP.6 Graduate Policies (p. 87). Transfer credit must be approved by the assistant dean for the doctoral division of the School of Nursing. Students who intend to apply to the PhD program and enroll initially through non-degree studies or the Academic Outreach program should seek course advising through the assistant dean for the doctoral division and apply to the PhD program as soon as possible.

**Program Requirements**

To complete the PhD in Nursing, students must:

- Complete the program of study outlined in the PhD curriculum.
- Pass a written doctoral candidacy comprehensive examination after completing all PhD course requirements, except NURS 998 Doctoral Dissertation Proposal and NURS 999 Doctoral Dissertation.
- Pass the final oral dissertation proposal defense and submit a doctoral dissertation proposal approved by the dissertation committee.
- Pass the final oral dissertation defense and submit a doctoral dissertation. Consistent with university graduate academic policy, final approval of the dissertation must be given by the doctoral dissertation committee, the assistant dean for the doctoral division of the School of Nursing, the director of the School of Nursing, and the dean of the college. The dissertation is submitted in the approved format to University Libraries.
- Complete application material for graduation in accordance with prevailing Mason policies.

**Grading**

Throughout the semester, students are assessed on how well they have met curricular outcomes. Consistent with the university, the PhD in Nursing program does not provide a D grade. Final grades for all PhD in Nursing courses are submitted to the university as letter grades.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Quality Points</th>
<th>Graduate Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.00</td>
<td>Passing</td>
</tr>
<tr>
<td>B</td>
<td>3.00</td>
<td>Passing</td>
</tr>
<tr>
<td>C</td>
<td>2.00</td>
<td>Failing</td>
</tr>
<tr>
<td>F</td>
<td>0.00</td>
<td>Failing</td>
</tr>
</tbody>
</table>

**Time Requirements**

Students must complete all requirements for the PhD in Nursing within 9 calendar years from the time of first enrollment as a doctoral student in the program or with provisional status. PhD students are expected to progress steadily toward their degree and to complete all coursework and the written comprehensive examination in order to advance to candidacy within no more than 6 years from first enrollment.

**Academic Termination**

A degree-seeking PhD in Nursing student is terminated from the program after earning unsatisfactory grades (below a 3.00) in two courses. Any core course in which a student earns a grade below a 3.00 must be repeated and may prevent the student from progressing any further in coursework; a core course may be repeated only once. A student may not repeat more than one course. Any cognate course in which a student earns a grade below 3.00 will not be counted towards the 9 credits needed to meet the cognate requirement for the PhD in Nursing. A student may also be terminated from the program due to a finding of violation of the university Honor Code (p. 99) or after demonstrating a significant lack of progress as determined by the assistant dean for the doctoral division.

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**Requirements**

**Degree Requirements**

Total credits: 78

The PhD in Nursing program of study is based on the student’s interests and career goals and on the expertise of the faculty. A student develops his/her program of research through core coursework, cognate courses, and dissertation research.

**Scientific Base/Research Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 804</td>
<td>Advanced Quantitative Data Analysis for Healthcare Research I</td>
<td>3</td>
</tr>
<tr>
<td>NURS 805</td>
<td>Advanced Quantitative Data Analysis for Healthcare Research II</td>
<td>3</td>
</tr>
<tr>
<td>HHS 810</td>
<td>Systematic Reviews of Healthcare Research</td>
<td>3</td>
</tr>
<tr>
<td>NURS 814</td>
<td>Theory and Design in Health Science</td>
<td>3</td>
</tr>
<tr>
<td>HHS 818</td>
<td>Advanced Ethics of Healthcare Research</td>
<td>3</td>
</tr>
<tr>
<td>HHS 825</td>
<td>Conducting and Publishing Healthcare Research</td>
<td>3</td>
</tr>
<tr>
<td>NURS 860</td>
<td>Measurement Theories in Healthcare Research</td>
<td>3</td>
</tr>
<tr>
<td>NURS 920</td>
<td>Qualitative Research in Nursing and Health Care</td>
<td>3</td>
</tr>
<tr>
<td>NURS 930</td>
<td>Quantitative Methods in Nursing and Health Care</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

27

**Cognate Courses**

Students must complete a cohesive set of existing doctoral-level cognate courses designed with their advisor or the assistant dean for the doctoral division to contribute to their program of research.

Complete nine credits of cognate courses

**Total Credits**

9

**Dissertation**

The final requirement for the PhD degree in nursing is submission of an acceptable dissertation. The dissertation will be a report of an original, independent research project completed by the student and approved by the dissertation committee. During the process of writing the dissertation proposal, students must initially register for a minimum of 3 credits of NURS 998 Doctoral Dissertation Proposal; the student may repeat NURS 998 for variable credit (1-3 credits) until the proposal is successfully defended. The student must then register for at least 3 credits of NURS 999 Doctoral Dissertation per semester until the required
12 credits of NURS 998 and/or NURS 999 have been completed and the dissertation is completed.

**Advancement to Candidacy**

The student must complete all coursework, pass the comprehensive examination to advance to candidacy for the doctoral degree. The assistant dean for the doctoral division of the School of Nursing will approve the student’s program of study and recommend advancement to candidacy to the director of the School of Nursing, who will render final approval for candidacy. A student who is unsuccessful in passing the comprehensive examination will be provided only one additional opportunity to sit for the examination after completing a remediation plan approved by the assistant dean for the doctoral division. A student who fails the comprehensive examination a second time will be terminated from the program.

**Dissertation Committee**

With the advice of the assistant dean for the doctoral division of the School of Nursing, and approval of the director of the School of Nursing, the student will select a dissertation committee, composed of at least 3 members of the graduate faculty (as defined by the university), who will direct the dissertation research. The committee will be composed of a chair from the School of Nursing, a second member from the SON, and a third member from a Mason academic unit other than the SON. A fourth member of the committee may be appointed based on the unique needs of the dissertation research and is not required to have graduate faculty status.

**Dissertation Proposal and Research**

**Dissertation Proposal**

The student must initially enroll in 3 credits of NURS 998 Doctoral Dissertation Proposal, and, in consultation with the dissertation committee, write an acceptable dissertation proposal. If an acceptable proposal cannot be completed within the first semester the student is registered for the course, the student may continue working on the proposal under the direction of the committee, registering for at least one credit of NURS 998 each semester until the proposal is approved.

**Dissertation Research**

The dissertation will be a written report of original research in a content area of significance to the discipline of Nursing. As defined by the university, the dissertation demonstrates the candidate’s mastery of subject matter, methodologies, and conceptual foundations in their chosen field of study. The PhD in Nursing program requires that the dissertation meet the guidelines and content as specified by the University Library and also include at least two publishable manuscripts as approved by the dissertation committee. Once the student has successfully defended his/her dissertation proposal before the dissertation committee, the student may begin registering for NURS 999 Doctoral Dissertation. The student must register for at least 3 credits of NURS 999 per semester until the required 12 credits of NURS 998 and/or NURS 999 has been completed and the dissertation has been defended and officially submitted to the Library. Students who defend in the summer semester must be registered for at least three credits of NURS 999 for that summer semester.

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1 Students must enroll for 3 credits the first time NURS 998 Doctoral Dissertation Proposal is taken.
2 Students must register for at least 3 credits of NURS 999 per semester.

**Final Defense of the Dissertation**

After the dissertation committee gives preliminary approval of the dissertation, the chair and assistant dean for the doctoral division of the School of Nursing to schedule a final public defense of the dissertation. A copy of the dissertation must be provided to the assistant dean for the doctoral division at least two weeks before the scheduled final dissertation defense. At the close of the defense, the committee makes a final judgment regarding approval of the dissertation. The dissertation must also be approved by the assistant dean for the doctoral division and director of the School of Nursing.

**Additional Requirements**

The student, with the approval of the chair and the assistant dean for the doctoral division of the School of Nursing is responsible for completing the application for graduation and submitting the final dissertation to the University Library by the appropriate deadlines. Failure to meet the required deadlines will result in the student not graduating during the intended semester.

**Psychiatric Mental Health Nurse Practitioner Graduate Certificate**

**Banner Code:** HH-CERG-PMHN

**Academic Advising**

Website: chhs.gmu.edu/nursing/msn/certificate-family-psychiatric-mental-health-nurse-practitioner.cfm

This certificate prepares students for the Psychiatric Mental Health Nurse Practitioner (PMHNP) role through formal study in the theory and practice of advanced practice psychiatric nursing in a variety of practice settings within the healthcare delivery system. Graduates will be eligible for prescriptive authority and will have the potential to perform a variety of mental health services including medication management and psychotherapy. Course and practice content focus on the assessment and management of serious mental illness.

This graduate certificate may be pursued on a full-time or part-time basis.

**Certification and Role**

Graduates of this post-master’s certificate are eligible to sit for the Psychiatric Mental Health Nurse Practitioner national certification examination given by the American Nurses Credentialing Center.

**Admissions & Policies**

**Admissions**

Applicants must hold a master’s degree in nursing. Applicants must meet the admission standards and application requirements specified in the Graduate Admissions (p. 66) section of the catalog and apply using the Application for Graduate Admission (https://www2.gmu.edu/admissions-aid). Acceptance to the nursing program is contingent upon admission to the university. The application process is competitive, and applications are considered for the fall semester only. For application deadlines and...
Certificate Requirements
Total credits: 23

Candidates must complete 23 graduate credits with a minimum GPA of 3.00 in course work and no more than 3 credits with a grade of C to earn the certificate.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 632</td>
<td>Pathogenesis of Mental Disorders</td>
<td>3</td>
</tr>
<tr>
<td>NURS 633</td>
<td>Individual Psychotherapy</td>
<td>3</td>
</tr>
<tr>
<td>NURS 634</td>
<td>Group, Family and Couple Psychotherapy</td>
<td>1</td>
</tr>
<tr>
<td>NURS 743</td>
<td>Clinical Psychopharmacology</td>
<td>3</td>
</tr>
<tr>
<td>NURS 782</td>
<td>Psychiatric Nurse Practitioner Practicum I</td>
<td>4</td>
</tr>
<tr>
<td>NURS 783</td>
<td>Psychiatric Nurse Practitioner Seminar I</td>
<td>2</td>
</tr>
<tr>
<td>NURS 784</td>
<td>Psychiatric Nurse Practitioner Practicum II</td>
<td>5</td>
</tr>
<tr>
<td>NURS 785</td>
<td>Psychiatric Nurse Practitioner Seminar II</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 23

Additional Coursework for Certification

Applicants who are not already certified as a nurse practitioner will be required to complete the following courses to sit for certification upon graduation:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 714</td>
<td>Health Assessment in Clinical Practice</td>
<td>2</td>
</tr>
<tr>
<td>NURS 724</td>
<td>Health Assessment Practicum</td>
<td>1</td>
</tr>
<tr>
<td>NURS 761</td>
<td>Pharmacotherapeutics</td>
<td>3</td>
</tr>
<tr>
<td>NURS 769</td>
<td>Physiology and Pathophysiology in Advanced Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9
credit must be approved in advance by the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu) and the appropriate paperwork filed with the Office of the University Registrar.

Students must fulfill all other master’s degree requirements. For more information see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

The college offers accelerated master’s degrees in these disciplines:

- Anthropology
- Art History
- Economics
- English with a concentration in linguistics
- Global Affairs
- History
- Foreign Languages with a concentration in Spanish
- Foreign Languages with a concentration in Spanish/Bilingual-Multicultural Education
- Interdisciplinary Studies with a concentration in energy and sustainability
- Interdisciplinary Studies with a concentration in folklore studies
- Interdisciplinary Studies with a concentration in religion, culture, and values
- Interdisciplinary Studies with a concentration in social justice and human rights
- Interdisciplinary Studies with a concentration in women and gender studies
- Middle East and Islamic Studies
- Philosophy
- Psychology with a concentration in cognitive and behavioral neuroscience
- Sociology

Minors and Interdisciplinary Minors

The College of Humanities and Social Sciences has 60 minors, some of which are offered jointly with other units in the university. Minors require between 15 and 21 credits, and all but 8 of those credits usually can be used simultaneously to fill other requirements. The college encourages all students to declare a minor, if they can. A minor can complement the major, enhance career preparation, allow students to develop a secondary area of expertise, or give them a chance to explore a passion.

The college offers two types of minors: disciplinary and interdisciplinary. The coursework for disciplinary minors comes mainly from a single discipline. Disciplinary minors are offered by one of the 10 departments in the college.

Interdisciplinary minors require course work from two or more disciplines and are administered by interdepartmental faculty groups, often including faculty from across the university.

All minors in the college are available to students in any major in the university. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Disciplinary Minors

- Arabic
- Anthropology
- Art History
- Chinese
- Clinical Psychology
- Communication
- Criminology, Law and Society
- Developmental Psychology
- Economic Systems Design
- Economics
- English
- Forensic Psychology
- French
- German Studies
- Health Communication
- Health Psychology
- History
- Industrial/Organizational Psychology
- Intelligence Analysis
- Italian Studies
- Journalism
- Judaic Studies
- Korean Studies
- Latin
- Linguistics
- Philosophy
- Philosophy and Law
- Professional Experience in Communication
- Psychology
- Religious Studies
- Russian
- Sociology
- Spanish
- Teaching English as a Second Language
- Writing and Rhetoric

Interdisciplinary Minors

- African and African American Studies
- Ancient Mediterranean Art and Archaeology
- Asia-Pacific and Northeast Asian Studies
- Conservation Studies (offered jointly with the College of Science)
- Childhood Studies
- Classical Studies
- Film and Media Studies
- Folklore and Mythology
- Global Affairs
- Immigration Studies
- Islamic Studies
- Japanese Studies
- Latin American Studies
- Leadership
- Middle East Studies
- Multimedia
- Native American and Indigenous Studies
- Nonprofit Studies
- Political Communication (offered jointly with the Schar School of Policy and Government)
- Political Philosophy
Policies for All Students

The requirements for each academic program offered by the college are described in the sections for the sponsoring departments and programs. All students are subject to the policies stated in Academic Policies (p. 74). Additional policies and procedures for students in the college are presented in this section.

Mason uses only Mason e-mail accounts to communicate with enrolled students. Students should activate their Mason e-mail account, use it to communicate with their department and other administrative units, and check it regularly for important information.

Registration and Degree Audit

Students are responsible for correctly registering for courses and paying all tuition and fees by the official university registration and payment deadlines. Instructors do not have the authority to add students to courses, and students may not sit in on classes for which they are not registered. All students should verify the accuracy of their enrollment before the end of the drop period and should check Patriot Web (https://patriotweb.gmu.edu) to verify that they are registered for the classes that they think they are.

All students are responsible for reviewing their own transcripts and degree audits regularly to ensure that they are correct and that they are on track to meet all their requirements.

Withdrawal

Students are responsible for all courses in which they remain officially enrolled once the drop period has ended. Instructors do not have the authority to withdraw students from classes. Withdrawals after the published deadlines require the approval of the relevant dean (undergraduate academic affairs or graduate academic affairs) and are allowed only for full semesters at a time (a withdrawal from all enrolled courses). Withdrawals are only permitted for non-academic reasons; no withdrawals can be approved for academic reasons. When submitting a withdrawal request, students must provide verifiable, third-party documentation for the reason for the withdrawal. Requests for withdrawals should be submitted as early in the semester as possible; withdrawal requests submitted after the last day of classes are rarely approved.

Grade Appeals

Grade appeals should be made to the department or program following the process specified in AP.6.9 Grade Appeals (p. 82). If they are resolved within the department or program, that unit is the final level of appeal. The departmental decision may be appealed to the dean only on the basis of procedural irregularity. Undergraduate students should address such appeals through the Office of Undergraduate Academic Affairs and graduate students through the Office of Graduate Academic Affairs. If the grade appeal is not resolved within the department or program, the chair makes a recommendation to the dean, who makes the final determination. The decision of the dean is not subject to review or further appeal.

Formal Complaints

Formal complaints should be made in writing to the associate dean.

Accommodations for Students with Disabilities

Students with documented disabilities should contact the Office of Disability Services (http://ods.gmu.edu) to open a file and learn more about accommodations that may be available to them.

Policies for Undergraduate Students

The college offers 17 bachelor of arts (BA) degrees, 5 bachelor of science (BS) degrees, a bachelor of fine arts in creative writing (BFA), and a bachelor of individualized study (BIS) degree.

All students must complete 120 credits, of which at least 45 must be in upper-level courses (numbered 300 and above). At least one course at the 300 or 400 level must be designated "writing intensive."

Students should consult the Mason Core (p. 135) and College Requirements for information concerning the ways they can fulfill Mason Core and college requirements for undergraduate degrees. Transfer students are encouraged to meet with their academic advisor prior to registering for classes to review their transcripts and course equivalencies. In some cases, students may need to earn more than 120 credits to complete all of their requirements.

The college cooperates with the School for Conflict Analysis and Resolution (SCAR) to provide courses from various disciplines in the college toward a BA, BS, and minor in conflict analysis and resolution. More information about SCAR undergraduate degree programs can be found in the School for Conflict Analysis and Resolution (p. 982).

Questions about Academic Policies for Undergraduates

Students with questions about exceptions to academic policies and about college requirements should contact the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu) (703-993-8725; chssdean@gmu.edu).

Additional policy information and forms are available online from the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Academic Load

Students should review university policies regarding academic load in AP.1.2 Academic Load (p. 74).

In order to be considered for an overload, students must fulfill all of the following criteria:

- Be in good academic standing
- Have completed the prior semester with no course grades below "C" and with a minimum term GPA of 2.50
- Have a cumulative GPA of 2.50 or higher
- Have demonstrated the ability to handle an increased and demanding coursework while maintaining high performance in a previous semester at Mason
• Have no remaining incompletes (INs) from a previous semester

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

**Excluded Courses and Credits**

Students are encouraged to take advantage of the many excellent courses available at Mason to broaden their educational experience or strengthen their background; however, some credits earned may not satisfy any degree requirements. Only MLSC courses at the 400-level can be used for credit for a degree in the college; credit for other MLSC courses may not be used toward a CHSS degree. At most 3 credits of 100-level RECR coursework may be taken to satisfy the degree requirements of any CHSS major, and these courses will be applied toward a student's general electives. Whenever there is uncertainty, students must consult with an academic advisor in their department.

Qualifying CLEP credits may apply to a degree in the College of Humanities and Social Science if those credits were awarded and reported prior to matriculation at Mason. After matriculation, students are limited to taking and applying credits for the CLEP exam in "Information Systems & Computer Applications". Students with a qualifying score on this exam will be awarded credit for IT 104T. Students receiving credit for IT 104T must still meet the university Information Technology ethics requirement (see Mason Core (p. 135)). Credit for other CLEP exams awarded after matriculation may not be applied to a degree in the College of Humanities and Social Sciences.

**University Consortium**

Students should review university policies regarding the University Consortium under AP.1.4 Special Registration Procedures (p. 74) in the Academic Policies section. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstances. All consortium registration requests must be submitted to the dean's office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

**Permission to Study at Another Regionally Accredited U.S. Institution**

Once enrolled in degree status at Mason, students with fewer than 60 hours of transfer coursework (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education) may take up to 8 hours of coursework in CHSS disciplines at another institution. Students with 60 or more hours of transfer coursework are not permitted to take additional coursework in CHSS disciplines at another institution. A student may seek permission for additional hours beyond these limits for summer registration if his/her permanent residence is more than 50 miles from the George Mason University Fairfax campus. See AP.1.4.2 Permission to Study Elsewhere (p. 76) for additional information.

In addition to the university cumulative GPA requirement of 2.00, CHSS students requesting course elsewhere permission must have a previous semester GPA of 2.00 or higher.

**Study Abroad**

In order to be considered for study through Mason Study Abroad (http://masonabroad.gmu.edu), students must plan well in advance and receive prior, written permission from the dean. Students must also meet all of the following criteria:

• Meet all eligibility requirements for their program as specified by Mason Study Abroad (http://masonabroad.gmu.edu) including course prerequisites and minimum GPA
• Must have a minimum cumulative GPA of 2.50 after prior semester grades post to record
• Have completed the necessary forms and have obtained all required signatures and course equivalencies

Students in danger of probation, suspension, or dismissal should plan very carefully before requesting to study abroad. Students with a cumulative GPA below 2.50 (after grades from prior term are posted to transcript) will not be permitted to study abroad.

**Leave of Absence**

All undergraduate students who are planning an absence from George Mason University must submit a formal request for Leave of Absence to the Office of the University Registrar. See AP.1.8 Undergraduate Leave of Absence (p. 78) for full university policy.

**Reserve Graduate Credit**

Approval to register for reserve graduate credit (earned credit held in reserve to apply later toward a graduate degree) is given only to Mason seniors within 15 credits of completing undergraduate study who have successfully completed all course prerequisites. In addition, this privilege is normally extended only to seniors who have completed at least 12 credits at the university, have a cumulative GPA of 3.00 or better, and have a major in the department offering the course. Approval for reserve graduate credit is limited to 6 credits and does not imply approval for admission into a Mason graduate program or that credit earned will be accepted at another graduate school.

**Withdrawals**

Students should review AP.1.5 Withdrawal (p. 78) for more information. Courses for which a withdrawal is approved receive a grade of "W."

Students should be aware of the potential consequences of withdrawing on their academic standing. Though credits graded "W" do not affect a student's GPA, they do count towards the total attempted hours. The total attempted hours and cumulative GPA together determine a student’s academic standing. These are explained in AP.5.2 Academic Standing (p. 84).

**Academic Clemency**

Students should review the university policies in AP.5.2.9 Academic Clemency (p. 85).

To be considered for clemency, students must meet all of the following criteria:

• Be absent from George Mason for a minimum of three consecutive calendar years
• Provide a detailed explanation for why they were unsuccessful in those courses and how they have made changes to ensure their academic progress upon their return
• Submit their request within 12 months of the first day of the re-enrollment term
• Complete at least 6 credits during their first 12 months back at George Mason
• Earn a minimum GPA of 2.50 each semester back prior to making the clemency request with no individual grade below 2.00

If the last three minimum academic requirements are not met, clemency will not be allowed under any circumstances.

Appeals Process
Students may appeal departmental decisions concerning academic actions to the Office of Undergraduate Academic Affairs. They may appeal decisions of the Office of Undergraduate Academic Affairs to the Dean's Council, a committee composed of college deans and faculty members. Students may appeal decisions of the Dean's Council to the Student Policies and Appeals Committee, a standing committee elected by the college faculty. These levels of appeal are subject to the limits below concerning the final level of appeal for each type of academic action. Students who feel that the college appeal process was conducted unfairly may appeal to the Provost's Office as specified in Appeals of Academic Procedures (p. 96).

The grade appeal process is discussed above.

Departments set the requirements for the majors and minors that they administer. Substitutions and waivers of these requirements require the approval of the Office of Undergraduate Academic Affairs. When a department denies a substitution or waiver of a requirement, the denial may be appealed to the Office of Undergraduate Academic Affairs on the basis of procedural irregularity only. That office is the final level of appeal.

The Dean's Council is the final level of appeal for course overloads, consortium registration, study elsewhere, and withdrawals after the drop deadline within the semester. Appeals of these decisions may be made to the Student Policies and Appeals Committee on the basis of procedural irregularity only, and the committee is the final level of appeal on procedural grounds.

Student Policies and Appeals Committee is the final level of appeal for college-level requirements, retroactive actions (adds, withdrawals, and graduation), and return from suspension and dismissal. This committee is the final level of approval.

There is no waiver or appeal of satisfactory performance standards (minimum grades or grade point average (GPA)) that have been set by the department or program faculty for the courses in their major or minor.

Students should file all appeals in a timely manner, usually within the semester in which the original decision is rendered, but no later than the final day of classes of the following semester.

Teacher Licensure
Students who plan to seek teacher licensure and become K–12 teachers should consult College of Education and Human Development (p. 154) and attend an information session early in their undergraduate career. For more information, call 703-993-2892, e-mail cehdgrad@gmu.edu, or see the College of Education and Human Development webpage (http://gse.gmu.edu).

Second Bachelor's Degree
Students should review Application for a Second Bachelor's Degree (p. 63) and AP.5.3.3 Second Bachelor's Degrees (p. 86) for more information. Students pursuing a second bachelor's degree concurrently with their first bachelor's degree at Mason must meet all the college-level requirements if they differ from the requirements in the college of their first major.

Students pursuing a second bachelor's degree in the college after already having received one or more bachelor's degrees are considered to have met all of the Mason Core requirements. Students pursuing a bachelor of science degree do not have additional college-level requirements. Students pursuing a bachelor of arts degree in the college must complete these additional college-level requirements: one additional 3-credits course each in philosophy or religious studies, in social and behavioral science, and in non-western culture (for a total of 9 credits). They must also demonstrate proficiency in a foreign language through the intermediate level. For more information about college-level requirements see Mason Core (p. 135) and College Requirements.

Minors
Students may elect to take a minor in addition to their major field of study. For policies governing all minors, AP.5.3.4 Minors (p. 86). Students interested in earning a minor should complete the appropriate section of the Change/Declaration of Academic Program form and submit it to the Office of the University Registrar. See All about Minors (http://chss.gmu.edu/minors) for more information.

College-Level Requirements for Undergraduate Students
Bachelor of Arts
The BA degree provides students with a breadth of knowledge as well as the necessary skills to make in-depth study of a major truly meaningful. In addition to the Mason Core program, students pursuing a BA degree must complete the course work below. Except where expressly prohibited, a course used to fulfill a college-level requirement may also be used simultaneously to satisfy other requirements (Mason Core requirements or requirements for the major).

• Philosophy or religious studies: 3 credits fulfilled by any course in philosophy or religious studies (PHIL, RELI) except for PHIL 323 Classical Western Political Theory, PHIL 324 Modern Western Political Theory, PHIL 327 Contemporary Western Political Theory, PHIL 393 Humanities College to Career, PHIL 460 Senior Seminar in Philosophy, Politics, and Economics. PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature requirement.

• Social and behavioral science: 3 credits in addition to the university-wide requirement in social and behavioral science for a total of 6 credits. The two courses used to fulfill the combined college and university requirements must be from different disciplines in the social and behavioral sciences. This requirement may be fulfilled by completing any course in ANTH, CRIM, ECON, GOVT, HIST (except HIST 100 History of Western Civilization (Mason Core) (p. 135) or HIST 125 Introduction to World History (Mason Core) (p. 135)), LING, PSYC, or SOCI and these courses in GGS: GGS 101 Major World Regions (Mason Core) (p. 135)

George Mason University
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
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<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
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<td>GGS 301</td>
<td>Political Geography</td>
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<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core)</td>
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<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
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<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
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<td>GGS 306</td>
<td>Urban Geography</td>
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<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
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<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
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<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
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<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
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<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
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<td>GGS 380</td>
<td>Geography of Virginia</td>
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<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
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<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core)</td>
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<td>ANTH 314</td>
<td>Zombies</td>
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<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core)</td>
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<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
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<td>Peoples and Cultures of Selected Regions: Non-Western</td>
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<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
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<td>ANTH 381</td>
<td>Medical Anthropology</td>
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<td>ANTH 383</td>
<td>Cities of the Global South</td>
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<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
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<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
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<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
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<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
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<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
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<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
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<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
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<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
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<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
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<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
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<td>ARTH 384</td>
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<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
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<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
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<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
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<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
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<td>CHIN 325</td>
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<td>DANC 118</td>
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<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
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- Foreign language: intermediate-level proficiency in one foreign language. This requirement may be fulfilled by completing a course in a foreign language numbered 202, 209, or 210 (p. 414) (or higher level courses taught in the language) or achieving a satisfactory score on an approved proficiency test. A three course sequence in American Sign Language (EDSE 115 American Sign Language (ASL), EDSE 116 American Sign Language (ASL) II, and EDSE 219 American Sign Language (ASL) III) will also meet the foreign language requirement. Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

- Non-Western culture: 3 credits of an approved course in the study of a non-Western culture in addition to the course used to fulfill the Mason Core requirement in global understanding. A course used to fulfill the Mason Core global understanding requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).
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<td>HIST 462</td>
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<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core)</td>
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<td>Topics in Japanese Literature (Mason Core)</td>
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<td>Korean Popular Culture in a Global World</td>
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<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
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<td>RELI 272</td>
<td>Islam</td>
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<td>Hinduism (Mason Core)</td>
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<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
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<td>Buddhism (Mason Core)</td>
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<td>RELI 337</td>
<td>Mysticism: East and West</td>
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<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
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<td>Islamic Thought (Mason Core)</td>
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<td>RELI 375</td>
<td>Qur'an and Hadith</td>
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<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
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<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
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<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core)</td>
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<td>RUSS 353</td>
<td>Russian Civilization (Mason Core)</td>
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<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core)</td>
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</tbody>
</table>

Requirements for each major are listed in the departmental sections.

**Bachelor of Science**

The BS degree provides students with a more intensive approach to the core technical questions of their majors. This curriculum has a reduced number of courses in humanities and social sciences in comparison with the BA degree to allow students to achieve greater depth in their majors. Students in Humanities and Social Sciences pursuing a BS must complete the Mason Core program. Requirements for each major are listed in the departmental sections.

**Transfer Students**

Admitted and enrolled transfer students who have completed an AA, AS, or AA&S degree from the Virginia Community College System (VCCS) and have been offered admission to Mason by the Office of Admissions may be eligible for a waiver of all George Mason University’s lower level Mason Core requirements in accordance with the Guaranteed Admission Agreement. Students eligible for this waiver are still required by the university to complete ENGH 302 Advanced Composition (Mason Core) (p. 135) and a synthesis course. Transfer students who have been offered admission under the terms of the Guaranteed Admission Agreement and are pursuing a degree in this college are considered to have met all college requirements except for proficiency in a foreign language (required of BA students).
Policies for Graduate Students

The college offers 14 master’s degrees, plus a master of arts in interdisciplinary studies (MAIS), a master of fine arts in creative writing (MFA), and 9 doctoral degrees.

Graduate Admission

Admission decisions are made by the faculty committee of the respective graduate program. Denial of admission is not subject to appeal. Applicants denied admission to a program are not permitted to enroll in courses in that program.

If an applicant is offered graduate admission, the college reserves the right to withdraw that offer of admission if:

- During his or her academic studies, the admitted applicant has a significant drop in academic performance or fails to graduate with a degree prior to the first day of classes for the term admitted.
- There has been a misrepresentation in the application process.
- Prior to the first day of classes for the term admitted, the college learns that the admitted applicant has engaged in behavior that indicates a serious lack of judgment or integrity, irrespective of the outcome of any disciplinary process related to such behavior.
- For students admitted to an accelerated master’s program, the student does not maintain satisfactory progress in his or her undergraduate program, does not receive a minimum grade of 3.00 in the graduate classes taken as an undergraduate, or otherwise does not meet the conditions specified on the application and admission letter.

The university further reserves the right to require the applicant to provide additional information (and/or authorization for the release of information) about any such matter.

Provisional Admission

Students provisionally admitted to their graduate degree program are not eligible to enroll in consortium course work or study at another institution until the conditions of the provisional contract have been met. Provisionally admitted students are also not eligible to participate in any study aboard programs until the conditions of the provisional contract have been met. Transfer of credit requests for course work taken in non-degree status at Mason or from another institution prior to admission will not be considered until the provisional contract has been fulfilled.

Academic Load

Graduate students can enroll in up to 12 credits of course work each semester. Non-degree students can enroll in up to 10 credits of course work each semester.

Non-degree Enrollment

Applicants who have been denied admission to a graduate certificate, master’s or doctoral program are not permitted to take graduate courses in that discipline as a non-degree student.

Graduate non-degree students may enroll in 500-, 600-, and 700-level courses. In exceptional cases graduate non-degree students in the College of Humanities and Social Sciences may request to enroll in an 800-level course if they have an appropriate academic or professional background and have the written permission of the course instructor, director of the graduate program offering the course, and the graduate dean.

University Consortium

Students should review university policies regarding the University Consortium AP.1.4 Special Registration Procedures (p. 74).

Eligible students may enroll in courses at any of the institutions in the Consortium of Universities in the Washington Metropolitan area. Students are limited to one consortium course per semester, with a career maximum of 6 credits. To register for a consortium course, students must have an overall GPA of at least 3.00 and be in good academic standing. Students with grades of IN on their record or who earned grades of C or F in the most recent semester are not eligible to register for a consortium course. Students who have received a grade less than 3.00 in a consortium course are not permitted to enroll in additional consortium courses. Newly admitted graduate students are not permitted to enroll in consortium courses during their first semester of graduate study. Students who wish to enroll in consortium courses during their second semester of study must wait until the grades for the previous semester have been posted.

Transfer of Credit

To be eligible for transfer, credits must have been earned at an accredited graduate degree-granting institution (and applicable to a graduate degree at that institution) or at Mason while in non-degree status. Courses accepted for transfer credit must have been completed within six years of the admission term and with a minimum grade of 3.00. Courses with grades of P or S are not accepted for transfer unless the official transcript indicates that the grade is equivalent to a 3.00 (B) or better. Some programs have more stringent standards on transfer of credit; students should contact their graduate program for specific information.

Reduction of Credit

Doctoral and master’s students in the college may request a reduction of credit based on a previously conferred graduate degree. Not all master’s programs in the college permit reduction of credit and some programs limit the number of credits that can be reduced. Further details and related restrictions can be found in AP.6.5.2 Reduction of Credits (p. 88).

Credit from Other Institutions

Students must obtain all approvals, including course equivalencies, prior to enrolling in any course work at another institution. All appropriate paperwork must be submitted to the Office of the University Registrar by the last day to add during the academic term the course meets. Students enrolling in courses at other institutions with different drop/add timetables must still abide by Mason’s drop/add deadlines in terms of acquiring necessary approvals.

Dissertation Committee

The college follows university policies regarding dissertation committees. See AP.6.10.5 Dissertation Committee (p. 93).

Dissertation (999) Registration

Doctoral students must be advanced to candidacy before they may enroll in 999. Students must register for 999 before the add deadline published in the Academic Calendar by the Office of the University Registrar (http://registrar.gmu.edu). Once doctoral students begin registering for 999, they must enroll in at least 3 credits of 999 each semester (excluding summers) until they have completed the total number of dissertation credits required on their individual program of study. Once enrolled in 999, all doctoral students must maintain continuous enrollment in 999 until they deposit their approved dissertation in the University Library. If they have completed the number of dissertation credits required on
their program of study, they may maintain continuous enrollment by registering for only 1 credit of 999. Please see AP.6.10.6 Dissertation Registration (998, 999) (p. 93).

Time Limit for Doctoral Students
Total time to degree will not exceed nine (9) calendar years from the time of first enrollment as a doctoral degree-seeking student in a program of the college. Doctoral students are expected to progress steadily toward their degree and to advance to candidacy within no more than six (6) years.

Students who do not meet published time limits because of compelling circumstances may petition their program and the graduate dean for a single extension of one calendar year at any point during their program. If such an extension is granted, the total time limit for completion of the degree will not exceed ten (10) years. Requests for extension of time limits should explain the extenuating circumstances that prevented timely completion of the degree and a timeline for completing the remaining work within the limits of the extension. The request should include a letter from the student's graduate program director indicating program support for the extension and confirmation that the work can be completed within the limits of the extension.

Please see AP.6.10.1 Time Limit (p. 93).

Graduate Appeals of Termination
All graduate students should be familiar with the university polices on termination as stated in AP.6.6.2 Academic Termination (p. 89). Students who meet the criteria for termination may submit a written appeal to the Office of Graduate Academic Affairs. Appeals should include all relevant information on the basis for appeal, as well as any appropriate documentation. Appeals of termination are reviewed at the beginning of each semester by a faculty committee. The ruling of that committee represents the final decision of the college.

Department of Communication
Phone: 703-993-1090
Website: communication.gmu.edu

Undergraduate Programs
The department offers a BA in communication, which prepares students for future graduate study or professional positions in such fields as human relations and organizational communication, media and journalism, political communication, and public relations.

Students majoring in communication complete a concentration from one of the following areas: interpersonal and organizational communication, journalism, media production and criticism, political communication, or public relations.

Internships
The department has an active internship program. Many students pursue an internship during their junior and/or senior year to earn credit while gaining practical experience with public relations firms, national and international businesses, associations, or government agencies.

Student Activities
All students are encouraged to participate in the following communication-related student activities: Communication Ambassadors, Debate, Forensics, Fourth Estate (student journalism), GMView, Mason Cable Network, Public Relations Student Society of America (PRSSA), Lambda Pi Eta, Society of Professional Journalists (SPJ), or WGMU.

Minors
The department offers minors in communication, health communication, journalism, political communication, professional experience in communication, and sport communication. The political communication minor is offered jointly with the Schar School of Policy and Government (p. 906), and the sport communication minor is offered jointly with the School of Recreation, Health, and Tourism (p. 211) in the College of Education and Human Development (p. 154). Department faculty also participate in these minors:

- Film and Media Studies Minor (p. 372)
- Multimedia Minor (p. 586)
- Well-Being Minor (p. 588)
- Women and Gender Studies Minor (p. 592)

Students majoring in communication may also choose to minor in any discipline that offers an undergraduate minor.

Graduate Programs
The department offers both MA and PhD degrees in communication with three major areas of emphasis: strategic communication, health communication, and science communication. The programs provide students with a strong foundation in communication theory and research while at the same time encouraging students to apply their skills in the public, private, and nonprofit sectors.

The faculty in strategic communication, drawing on their expertise in organizational, public relations, and political communication theory and research, teach courses on planning, developing, executing, and
evaluating public communication campaigns and interventions. Faculty in health communication teach courses which explore the relationship between communication practices and the health and well-being of individuals and communities. This includes how to improve cooperation and coordination between health care providers and consumers, how to effectively utilize health information technologies, and how to develop influential health promotion campaigns. The faculty in science communication offer courses designed to improve students’ knowledge of the particular challenges involved in making science and technology understandable to a variety of audiences, as well as exploring solutions to those challenges. Science communicators work in media and in other organizations and agencies involved in promoting and disseminating science, as well as facilitating public engagement in considering science-related issues.

Strategic, health, and science communication are three of the most rapidly expanding specialties within the broad field of communication. Graduates of these programs find a very welcoming employment market for their expertise.

Funding
The department offers graduate teaching and research assistantships, which are awarded on a competitive basis. Other sources of funding such as grants, loans, and employment on campus are also available. Students awarded assistantships must register for a minimum of six credits a semester and show satisfactory progress toward their degree.

Faculty

Department Faculty

Professors
Botan, Decker, Kreps, Lichter, Maibach, Nicotera (chair), Rowan, K. Wright

Emeritus Professors
Boileau, Friedley, Looney, Lont, Manchester, McAuley, Taylor

Associate Professors
Cai, Gibson (associate chair), Hopson, Muir, Zhao

Assistant Professors
Broeckelman-Post, Clarke, Craig, S. Kim, Vraga

Term Professor
Pober

Term Associate Professor
Finn, C. Wright, Yook

Term Assistant Professor
Keohane

Term Research Associate Professor
Roser-Renouf

Term Research Assistant Professor
Akerlof

Term Instructors
Hodgson, Jannery, Miller, Samoilenko, Schmeidler, R. Smith, Steele, Tomasovic

Programs

• Communication Minor
• Communication, BA
• Communication, MA
• Communication, PhD
• Health Communication Minor
• Journalism Minor
• Political Communication Minor (CHSS)
• Professional Experience in Communication Minor
• Science Communication Graduate Certificate
• Sport Communication Minor

Communication Minor

Banner Code: COM

Academic Advising
A307 Robinson Hall
Fairfax Campus

Email: cdadvice@gmu.edu
Website: communication.gmu.edu

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. COMM 100 Public Speaking (Mason Core) (p. 135), COMM 101 Interpersonal and Group Interaction (Mason Core) (p. 135), or COMM 487 Washington Media Institute cannot be used toward the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 304) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 200</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 300</td>
<td>Foundations of Public Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 301</td>
<td>Foundations of Interpersonal Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 302</td>
<td>Foundations of Media Theory</td>
<td></td>
</tr>
</tbody>
</table>
Select one public-presentation (PPI) course from the following:  
1

COMM 210 Voice and Articulation  
COMM 310 Performance for Communication Arts  
COMM 320 Business and Professional Communication  
COMM 356 Video: Performance and Writing  
COMM 440 Ceremonial Speech Writing and Performance  

Total Credits 12  

Other courses that are PPI may be applied to this requirement with prior written approval of the director of the minor. COMM 100 Public Speaking (Mason Core) (p. 135) or COMM 101 Interpersonal and Group Interaction (Mason Core) (p. 135) cannot be used toward the minor.

Electives in Communication  
Select two COMM courses (6 credits) in consultation with an advisor (p. 1286)  

Total Credits 6  

COMM 100 Public Speaking (Mason Core) (p. 135), COMM 101 Interpersonal and Group Interaction (Mason Core) (p. 135), or COMM 487 Washington Media Institute cannot be used toward the minor.

Communication, BA  
Banner Code: LA-BA-COM  
A307 Robinson Hall  
Fairfax Campus  
Email: cdadvice@gmu.edu  
Website: communication.gmu.edu/programs/la-ba-com  

Communication is the study of basic human social processes: the creation and dissemination of meaning and information. The major prepares students for graduate study or professional positions in such fields as interpersonal and organizational communication, journalism, media production and criticism, political communication, and public relations. Students develop skills and knowledge that put them at the edge of a rapidly changing communication industry. Majors learn to construct and evaluate messages across platforms—web, print, audio and visual.

Admissions & Policies  

Policies  
Students pursuing this degree must complete 39 credits within the major, with a minimum grade of 2.00 in each course.

Of the 39 credits applied to the major, no more than 10 credits may be from courses listed in the Degree Requirements. In addition to 12 credits of core courses, students take 21 credits of courses in a concentration and 6 credits of additional communication courses. Of these last 27 credits, at least 12 credits must be at the 300-400 level, no more than 6 credits may be in COMM 450 Internship in Communication, and no more than 3 credits may be in COMM 452 Media Production Practicum. 

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements  

Degree Requirements  
Total credits: minimum 120  

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 305) tab.

Core Courses  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 200</td>
<td>Communication Theory</td>
<td>3</td>
</tr>
<tr>
<td>COMM 300</td>
<td>Foundations of Public Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 305</td>
<td>Foundations of Intercultural Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 400</td>
<td>Research Methods in Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12  

1 Must first complete COMM 200 Communication Theory with a grade of C or better.

Concentration  

Students must complete coursework in one concentration. Students may also declare a second concentration. They must declare a concentration before they earn more than 75 credits. Transfer students with 60 or more credits are encouraged to declare a concentration by the end of their first semester. COMM 399 Special Topics in Communication or other special topics courses from other concentrations may be applied toward a concentration when the topic is relevant to the concentration with prior written approval of the undergraduate director.

Concentration in Interpersonal and Organizational Communication (IOC)  

Required Courses  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 301</td>
<td>Foundations of Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 335</td>
<td>Organizational Communication (core course)</td>
<td>3</td>
</tr>
<tr>
<td>COMM 201</td>
<td>Small Group Communication</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 332</td>
<td>Nonverbal Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives  
Select 12 credits from the following:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 201</td>
<td>Small Group Communication</td>
</tr>
<tr>
<td>COMM 230</td>
<td>Case Studies in Persuasion</td>
</tr>
<tr>
<td>COMM 304</td>
<td>Foundations of Health Communication</td>
</tr>
<tr>
<td>COMM 306</td>
<td>Issues in Intercultural Communication</td>
</tr>
<tr>
<td>COMM 320</td>
<td>Business and Professional Communication</td>
</tr>
<tr>
<td>COMM 332</td>
<td>Nonverbal Communication</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>COMM 334</td>
<td>Family and Health Communication</td>
</tr>
<tr>
<td>COMM 367</td>
<td>Children and Media</td>
</tr>
<tr>
<td>COMM 385</td>
<td>Special Topics in Interpersonal and Organizational Communication</td>
</tr>
<tr>
<td>COMM 395</td>
<td>Special Topics in Health Communication</td>
</tr>
<tr>
<td>COMM 401</td>
<td>Interpersonal Communication in the Workplace</td>
</tr>
<tr>
<td>COMM 430</td>
<td>Persuasion</td>
</tr>
<tr>
<td>COMM 433</td>
<td>Environmental Communication</td>
</tr>
<tr>
<td>COMM 434</td>
<td>Interviewing</td>
</tr>
<tr>
<td>COMM 435</td>
<td>Digital Communication</td>
</tr>
<tr>
<td>COMM 440</td>
<td>Ceremonial Speech Writing and Performance</td>
</tr>
<tr>
<td>COMM 465</td>
<td>Topics in Communication and Gender</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 203</td>
<td>Introduction to Journalism</td>
<td>3</td>
</tr>
<tr>
<td>COMM 303</td>
<td>Writing across the Media</td>
<td>3</td>
</tr>
<tr>
<td>COMM 454</td>
<td>Free Speech and Ethics (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 351</td>
<td>News Writing and Reporting</td>
<td></td>
</tr>
<tr>
<td>COMM 352</td>
<td>News Editing: Print and Beyond</td>
<td></td>
</tr>
<tr>
<td>COMM 361</td>
<td>Online Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 453</td>
<td>Multimedia Journalism</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 145</td>
<td>Newspaper Workshop I</td>
<td></td>
</tr>
<tr>
<td>COMM 148</td>
<td>Radio Workshop I</td>
<td></td>
</tr>
<tr>
<td>COMM 157</td>
<td>Digital Media Workshop</td>
<td></td>
</tr>
<tr>
<td>COMM 302</td>
<td>Foundations of Media Theory</td>
<td></td>
</tr>
<tr>
<td>COMM 345</td>
<td>Newspaper Workshop II</td>
<td></td>
</tr>
<tr>
<td>COMM 351</td>
<td>News Writing and Reporting (if not taken as a required course)</td>
<td></td>
</tr>
<tr>
<td>COMM 352</td>
<td>News Editing: Print and Beyond</td>
<td></td>
</tr>
<tr>
<td>COMM 353</td>
<td>Broadcast Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 356</td>
<td>Video: Performance and Writing</td>
<td></td>
</tr>
<tr>
<td>COMM 361</td>
<td>Online Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 370</td>
<td>Feature Writing</td>
<td></td>
</tr>
<tr>
<td>COMM 371</td>
<td>Sports Writing and Reporting</td>
<td></td>
</tr>
<tr>
<td>COMM 373</td>
<td>Business and Economic Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 374</td>
<td>Political Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 387</td>
<td>Special Topics in Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 453</td>
<td>Multimedia Journalism (if not taken as a required course)</td>
<td></td>
</tr>
<tr>
<td>COMM 455</td>
<td>History of Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 475</td>
<td>Journalism Law</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration in Journalism (JNL)**

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 203</td>
<td>Introduction to Journalism</td>
<td>3</td>
</tr>
<tr>
<td>COMM 303</td>
<td>Writing across the Media</td>
<td>3</td>
</tr>
<tr>
<td>COMM 454</td>
<td>Free Speech and Ethics (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three credits from the following:

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 351</td>
<td>News Writing and Reporting</td>
<td></td>
</tr>
<tr>
<td>COMM 352</td>
<td>News Editing: Print and Beyond</td>
<td></td>
</tr>
<tr>
<td>COMM 361</td>
<td>Online Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 453</td>
<td>Multimedia Journalism</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 145</td>
<td>Newspaper Workshop I</td>
<td></td>
</tr>
<tr>
<td>COMM 148</td>
<td>Radio Workshop I</td>
<td></td>
</tr>
<tr>
<td>COMM 157</td>
<td>Digital Media Workshop</td>
<td></td>
</tr>
<tr>
<td>COMM 302</td>
<td>Foundations of Media Theory</td>
<td></td>
</tr>
<tr>
<td>COMM 345</td>
<td>Newspaper Workshop II</td>
<td></td>
</tr>
<tr>
<td>COMM 351</td>
<td>News Writing and Reporting (if not taken as a required course)</td>
<td></td>
</tr>
<tr>
<td>COMM 352</td>
<td>News Editing: Print and Beyond</td>
<td></td>
</tr>
<tr>
<td>COMM 353</td>
<td>Broadcast Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 356</td>
<td>Video: Performance and Writing</td>
<td></td>
</tr>
<tr>
<td>COMM 361</td>
<td>Online Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 370</td>
<td>Feature Writing</td>
<td></td>
</tr>
<tr>
<td>COMM 371</td>
<td>Sports Writing and Reporting</td>
<td></td>
</tr>
<tr>
<td>COMM 373</td>
<td>Business and Economic Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 374</td>
<td>Political Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 387</td>
<td>Special Topics in Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 453</td>
<td>Multimedia Journalism (if not taken as a required course)</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration in Media Production and Criticism (MPC)**

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 208</td>
<td>Introduction to Media Production</td>
<td>3</td>
</tr>
<tr>
<td>COMM 302</td>
<td>Foundations of Media Theory</td>
<td>3</td>
</tr>
<tr>
<td>COMM 380</td>
<td>Media Criticism</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 148</td>
<td>Radio Workshop I</td>
<td></td>
</tr>
<tr>
<td>COMM 157</td>
<td>Digital Media Workshop</td>
<td></td>
</tr>
<tr>
<td>COMM 202</td>
<td>Media and Society</td>
<td></td>
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<td>COMM 210</td>
<td>Voice and Articulation</td>
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<td>COMM 255</td>
<td>Introduction to Media Literacy</td>
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<td>COMM 303</td>
<td>Writing across the Media</td>
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<tr>
<td>COMM 310</td>
<td>Performance for Communication Arts</td>
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<td>COMM 346</td>
<td>Yearbook Workshop</td>
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<td>COMM 347</td>
<td>Cable TV Programming and Marketing</td>
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<td>COMM 348</td>
<td>Radio Workshop II</td>
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<td>COMM 350</td>
<td>Mass Communication and Public Policy</td>
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<td>COMM 353</td>
<td>Broadcast Journalism</td>
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<td>COMM 354</td>
<td>Radio Production</td>
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<td>COMM 356</td>
<td>Video: Performance and Writing</td>
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<td>Multi-Camera Studio Production</td>
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<td>COMM 359</td>
<td>Media Management</td>
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<td>COMM 360</td>
<td>Digital Postproduction</td>
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<td>COMM 363</td>
<td>Media Career Seminar</td>
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<td>COMM 364</td>
<td>Videography</td>
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<td>COMM 365</td>
<td>Gender, Race, and Class in the Media</td>
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<td>COMM 366</td>
<td>Visual Communication</td>
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<td>COMM 367</td>
<td>Children and Media</td>
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<td>COMM 372</td>
<td>Sports and the Media</td>
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<td>COMM 375</td>
<td>Mass Communication Advertising and Promotions</td>
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<td>COMM 396</td>
<td>Special Topics in Mass Communication</td>
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<td>COMM 397</td>
<td>Special Topics in Production</td>
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<td>COMM 435</td>
<td>Digital Communication</td>
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<td>COMM 452</td>
<td>Media Production Practicum</td>
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<td>COMM 456</td>
<td>Comparative Mass Media (Mason Core)</td>
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**Concentration in Political Communication (PCOM)**

**Required Courses**

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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>COMM 302</td>
<td>Foundations of Media Theory</td>
<td>3</td>
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<tr>
<td>COMM 327</td>
<td>Political Communication</td>
<td>3</td>
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<tr>
<td>COMM 430</td>
<td>Persuasion</td>
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**Electives**

Select 9 credits from the following:

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<th>Course Title</th>
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<tr>
<td>COMM 140</td>
<td>Forensics Seminar in Creative Arts</td>
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<tr>
<td>COMM 141</td>
<td>Forensics Seminar in Recreative Arts</td>
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<tr>
<td>COMM 142</td>
<td>Forensics Seminar in Debate: Affirmative Strategies</td>
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<tr>
<td>COMM 143</td>
<td>Forensics Seminar in Debate: Negative Strategies</td>
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### Concentration in Public Relations (PR)

#### Required Courses

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<th>Title</th>
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<tr>
<td>COMM 204</td>
<td>Introduction to Public Relations</td>
</tr>
<tr>
<td>COMM 303</td>
<td>Writing across the Media</td>
</tr>
<tr>
<td>COMM 331</td>
<td>Advanced Principles in Public Relations</td>
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#### Electives

Select 9 credits from the following:

<table>
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<th>Title</th>
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<tr>
<td>COMM 202</td>
<td>Media and Society</td>
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<tr>
<td>COMM 230</td>
<td>Case Studies in Persuasion</td>
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<td>COMM 260</td>
<td>Basic Debate Theory and Practice</td>
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<td>COMM 261</td>
<td>Theories of Argumentation</td>
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<td>COMM 302</td>
<td>Foundations of Media Theory</td>
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<td>COMM 320</td>
<td>Business and Professional Communication</td>
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<td>COMM 335</td>
<td>Organizational Communication</td>
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<td>COMM 351</td>
<td>News Writing and Reporting</td>
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<td>COMM 359</td>
<td>Media Management</td>
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<td>COMM 362</td>
<td>Argument and Public Policy (Mason Core) (p. 135)</td>
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<td>COMM 375</td>
<td>Mass Communication Advertising and Promotions</td>
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<td>COMM 384</td>
<td>Public Relations and Social Media</td>
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<td>Special Topics in Public Relations</td>
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<td>COMM 389</td>
<td>Public Relations for Associations and Nonprofits</td>
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<td>COMM 390</td>
<td>Issues in Public Relations</td>
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<td>COMM 391</td>
<td>Writing for Public Relations</td>
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<td>COMM 392</td>
<td>Public Relations Study Abroad</td>
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### Electives

Select six credits of COMM courses in consultation with an advisor (p. 1286)

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>COMM 140</td>
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<td>COMM 141</td>
<td>Forensics Seminar in Recreative Arts</td>
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<td>COMM 142</td>
<td>Forensics Seminar in Debate: Affirmative Strategies</td>
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<tr>
<td>COMM 143</td>
<td>Forensis Seminar in Debate: Negative Strategies</td>
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<td>COMM 145</td>
<td>Newspaper Workshop I</td>
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<td>COMM 148</td>
<td>Radio Workshop I</td>
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<td>COMM 157</td>
<td>Digital Media Workshop</td>
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<td>COMM 340</td>
<td>Forensics Seminar in Creative Arts</td>
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<td>COMM 341</td>
<td>Forensics Seminar in Recreative Arts</td>
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<td>COMM 342</td>
<td>Forensics Seminar in Debate: Affirmative Strategies</td>
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<td>COMM 343</td>
<td>Forensics Seminar in Debate: Negative Strategies</td>
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<tr>
<td>COMM 345</td>
<td>Newspaper Workshop II</td>
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<td>COMM 346</td>
<td>Yearbook Workshop</td>
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<td>COMM 348</td>
<td>Radio Workshop II</td>
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<td>COMM 398</td>
<td>Research Practicum in Communication</td>
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<td>COMM 450</td>
<td>Internship in Communication</td>
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<td>COMM 451</td>
<td>Facilitating Communication Education</td>
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<td>COMM 452</td>
<td>Media Production Practicum</td>
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<td>COMM 491</td>
<td>RS: Honors Research Project in Communication</td>
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<td>COMM 498</td>
<td>RS: Research Projects in Communication</td>
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<tr>
<td>COMM 499</td>
<td>Independent Study in Communication</td>
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</table>

#### Writing-Intensive Requirement

The university requires all students to complete at least one course designated as writing intensive in their majors at the 300 level or above. Students majoring in communication fulfill this requirement by successfully completing COMM 300 Foundations of Public Communication.
Upper Level Requirement

Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree

In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>PHIL</td>
<td>(p. 1818)</td>
<td>3</td>
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<tr>
<td>RELI</td>
<td>(p. 1904)</td>
<td></td>
</tr>
</tbody>
</table>

Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
<td>3</td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
<td></td>
</tr>
<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
<td>2</td>
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<tr>
<td>LING</td>
<td>(p. 1694)</td>
<td></td>
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<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
<td></td>
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<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
<td></td>
</tr>
</tbody>
</table>

Or choose from the following GGS courses:
- GGS 101 Major World Regions (Mason Core) (p. 135)
- GGS 103 Human Geography (Mason Core) (p. 135)
- GGS 110 Introduction to Geoinformation Technologies
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography
- GGS 306 Urban Geography

GGS 315 Geography of the United States
GGS 316 Geography of Latin America
GGS 320 Geography of Europe
GGS 325 Geography of North Africa and the Middle East
GGS 330 Geography of the Soviet Succession States
GGS 357 Structures in Urban Governance and Planning
GGS 380 Geography of Virginia

Foreign Language

Intermediate-level proficiency in one foreign language, fulfilled by:
- Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)
- Or achieving a satisfactory score on an approved proficiency test
- Or completing the following ASL three course sequence:
  - EDSE 115 American Sign Language (ASL) I
  - EDSE 116 American Sign Language (ASL) II
  - EDSE 219 American Sign Language (ASL) III

Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
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<th>Code</th>
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<tr>
<td>ANTH</td>
<td>114 Introduction to Cultural Anthropology</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>300 Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>301 Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>302 Peoples and Cultures of Latin America</td>
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<tr>
<td>ANTH</td>
<td>303 Peoples and Cultures of the Andes</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>306 Peoples and Cultures of Island Asia</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>307 Ancient Mesoamerica (Mason Core)</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>308 Peoples and Cultures of the Middle East</td>
<td>3</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
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<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
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<td>ANTH 314</td>
<td>Zombies</td>
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<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
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<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
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<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
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<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
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<td>ANTH 381</td>
<td>Medical Anthropology</td>
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<td>ANTH 383</td>
<td>Cities of the Global South</td>
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<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
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<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
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<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
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<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
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<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
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<td>Art of the Islamic World (Mason Core) (p. 135)</td>
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<td>Arts of India (Mason Core) (p. 135)</td>
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<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
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<td>Arts of China (Mason Core) (p. 135)</td>
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<td>Arts of Japan (Mason Core) (p. 135)</td>
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<td>The Silk Road (Mason Core) (p. 135)</td>
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<td>Contemporary Chinese Film</td>
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<td>World Dance (Mason Core) (p. 135)</td>
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<td>GGS 316</td>
<td>Geography of Latin America</td>
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<td>Geography of North Africa and the Middle East</td>
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<td>Government and Politics of the Middle East and North Africa</td>
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<td>Government and Politics of Asia</td>
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<td>Chinese Foreign Policy</td>
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<td>Islam and Politics</td>
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<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
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<td>Political Economy of East Asia</td>
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<td>The Soviet Union and Russia Since World War II</td>
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<td>Rise of Russia (Mason Core) (p. 135)</td>
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<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
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<td>History of South Africa (Mason Core) (p. 135)</td>
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<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
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<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
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<td>Comparative Slavery</td>
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<td>History, Fiction, and Film in Latin America</td>
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<td>Topics in Global History (Mason Core) (p. 135)</td>
<td>3-6</td>
</tr>
<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
</tr>
</tbody>
</table>
HIST 462  Women in Islamic Society (Mason Core)  3
HIST 465  The Middle East in the 20th Century  3
JAPA 310  Japanese Culture in a Global World (Mason Core)  3
JAPA 340  Topics in Japanese Literature (Mason Core)  3
KORE 320  Korean Popular Culture in a Global World  3
MUSI 103  Musics of the World (Mason Core)  3
RELI 211  Religions of the West (Mason Core)  3
RELI 212  Religions of Asia (Mason Core)  3
RELI 240  Death and the Afterlife in World Religions  3
RELI 272  Islam  3
RELI 313  Hinduism (Mason Core)  3
RELI 314  Chinese Philosophies and Religions Traditions  3
RELI 315  Buddhism (Mason Core)  3
RELI 337  Mysticism: East and West  3
RELI 365  Muhammad: Life and Legacy  3
RELI 374  Islamic Thought (Mason Core)  3
RELI 375  Qur’an and Hadith  3
RELI 379  Islamic Law, Society, and Ethics  3
RELI 387  Islam, Democracy, and Human Rights  3
RELI 490  Comparative Study of Religions (Mason Core)  3
RUSS 353  Russian Civilization (Mason Core)  3
RUSS 354  Contemporary Post-Soviet Life (Mason Core)  3

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundation Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
</tbody>
</table>

Natural Science (p. 141)  7
Social and Behavioral Sciences (p. 142)  3
Western Civilization/World History (p. 143)  3

**Synthesis/Capstone Requirement**

Synthesis/Capstone (p. 143)  3

Total Credits  40

**Additional Elective Courses**

Select any remaining credits of elective courses to bring the degree total to 120

**Honors**

**Honors in the Major**

Highly-qualified students may pursue advanced coursework leading to graduation with honors in the major.

**Eligibility**

Students are eligible to apply for honors coursework if they meet the following requirements:

- Completion of a minimum of 75 credit hours, including COMM 200 Communication Theory and two of COMM 300 Foundations of Public Communication, COMM 301 Foundations of Interpersonal Communication, COMM 302 Foundations of Media Theory, COMM 305 Foundations of Intercultural Communication (Mason Core) (p. 135).
- Minimum GPA of 3.25 in all coursework completed at George Mason.
- GPA of 3.50 in all communication coursework completed at George Mason and applied to the major.

Honors coursework in communication is a fall-spring sequence. Applications may be submitted by eligible students for fall semester enrollment. The deadline is March 15 each spring, for the sequence beginning the following fall. Student eligibility will be dependent on the GPA at the time of application. If accepted to pursue honors coursework, the student must then enroll in COMM 490 Honors Research Methods in Communication. Under the guidance of the COMM 490 Honors Research Methods in Communication instructor, the student will complete a research prospectus for an honors project to be implemented in the following semester in COMM 491 RS: Honors Research Project in Communication.

**Honors Requirements**

To remain eligible for honors coursework, the student must

- receive a grade of 3.00 (no lower than B) in COMM 490 Honors Research Methods in Communication;
- have the research prospectus approved by the COMM 490 Honors Research Methods in Communication instructor and the honors director; and
- maintain an overall GPA of 3.25 and a minimum GPA of 3.50 in all COMM coursework completed at George Mason University and applied to the major.

In the following semester, the student enrolls in COMM 491 RS: Honors Research Project in Communication. The student conducts his/her
research and prepares a written project conforming to the standards set by the instructor. Upon completion of the project, the COMM 491 RS: Honors Research Project in Communication instructor and the honors director will determine if the project is of honors quality, which is then indicated by the grade earned in COMM 491 RS: Honors Research Project in Communication. For honors designation, the student must achieve an average grade of 3.50 across COMM 490 Honors Research Methods in Communication and COMM 491 RS: Honors Research Project in Communication and must also maintain minimum GPA eligibility requirements outlined above.

**Accelerated Master’s**

The accelerated master’s programs in the list below specify the BA in communication as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)**

**Overview**

Highly-qualified undergraduates in select majors may apply to the accelerated master's degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
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</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)**

**Overview**

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384),
Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 600</td>
<td>Introduction to Graduate Studies</td>
<td>3</td>
</tr>
<tr>
<td>COMM 798</td>
<td>Communication Studies Project</td>
<td>3</td>
</tr>
</tbody>
</table>

**Communication, MA**

**Banner Code:** LA-MA-COM

A307 Robinson Hall
Fairfax Campus

Email: commgrad@gmu.edu
Website: communication.gmu.edu/programs/la-ma-com

As the environment for public and private communication becomes increasingly complex, organizations rely more and more heavily on thoughtful and effective communication professionals. To this end, communication MA students may choose to specialize in strategic communication, public relations, or health communication; or pursue a concentration in science communication. They may also choose an individualized specialization in communication studies according to their interests. Across all specializations, students receive a strong foundation in communication theory and learn to design, execute, and interpret rigorous communication research. Students are challenged to apply communication knowledge to help solve problems and to address important social issues.

**Admissions & Policies**

**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MA in communication, see Application Requirements and Deadlines (http://communication.gmu.edu/programs/LA-MA-COM/application).

Admission to the graduate program in communication is competitive.

**Policies**

For policies governing all graduate degrees, see Graduate Policies (p. 87).

**Transfer of Credit/Reduction of Credit**

Students may request transfer of up to 15 hours of graduate coursework from graduate non-degree status or from graduate study at another institution, or request a reduction of credit up to 6 hours based on a previously conferred graduate degree. Students should carefully review AP 6.5 (p. 88) and the policies governing graduate transfer of credit and reduction of credit. Transfer and reduction of credit is subject to the approval of the program director and graduate dean.

**Requirements**

**Degree Requirements**

Total credits: 33

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 312) tab.

All students pursuing the MA in communication follow the same general program structure whether completing the degree with a concentration or specialization. Students complete two program core courses, two methods courses, two theory courses, one practicum course, two specialization or concentration courses, and three elective courses (or 9 credits), of which 3 credits may be thesis.

Students must choose from one area of specialization (strategic communication/public relations, health communication, or individualized communication studies) or the Concentration in Science Communication. Specific requirements are described below. Because it is a narrow specialized area, science communication is subject to the stricter requirements of a concentration.

**Core Courses for MA with Specialization**

**Two Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 600</td>
<td>Introduction to Graduate Studies</td>
<td>3</td>
</tr>
<tr>
<td>COMM 798</td>
<td>Communication Studies Project</td>
<td>3</td>
</tr>
</tbody>
</table>
Two Methods Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 650</td>
<td>Research Methodologies in Communication</td>
</tr>
<tr>
<td></td>
<td>(required course)</td>
</tr>
</tbody>
</table>

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 725</td>
<td>Qualitative Methods</td>
</tr>
<tr>
<td>COMM 750</td>
<td>Research Methods II</td>
</tr>
<tr>
<td>COMM 775</td>
<td>Media Content Analysis</td>
</tr>
</tbody>
</table>

Other graduate level methods course, taken in COMM or elsewhere, as approved by graduate director.

Two Theory Courses

Select two theory courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 602</td>
<td>Theories and Research of Mass Communication</td>
</tr>
<tr>
<td>COMM 605</td>
<td>Intercultural Communication</td>
</tr>
<tr>
<td>COMM 620</td>
<td>Health Communication</td>
</tr>
<tr>
<td>COMM 630</td>
<td>Theories of Public Relations</td>
</tr>
<tr>
<td>COMM 632</td>
<td>Persuasion Theory</td>
</tr>
<tr>
<td>COMM 634</td>
<td>Theories of Interpersonal Communication</td>
</tr>
<tr>
<td>COMM 635</td>
<td>Organizational Communication</td>
</tr>
<tr>
<td>COMM 639</td>
<td>Science Communication</td>
</tr>
<tr>
<td>COMM 642</td>
<td>Science and the Public</td>
</tr>
<tr>
<td>COMM 706</td>
<td>Strategic Communication</td>
</tr>
</tbody>
</table>

One Practicum Course

Select one practicum course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 604</td>
<td>Communication Research Practicum</td>
</tr>
<tr>
<td>COMM 636</td>
<td>Communication Consulting</td>
</tr>
<tr>
<td>COMM 641</td>
<td>Advanced Communication Skills for STEM</td>
</tr>
<tr>
<td>COMM 653</td>
<td>Graduate Seminar in Instructional Communication</td>
</tr>
<tr>
<td>COMM 655</td>
<td>Theory and Practice of Digital Communication</td>
</tr>
<tr>
<td>COMM 660</td>
<td>Climate Change and Sustainability Communication Campaigns</td>
</tr>
<tr>
<td>COMM 670</td>
<td>Social Marketing</td>
</tr>
<tr>
<td>COMM 694</td>
<td>Communication Internship</td>
</tr>
<tr>
<td>COMM 697</td>
<td>Independent Production</td>
</tr>
<tr>
<td>COMM 721</td>
<td>E-Health Communication</td>
</tr>
<tr>
<td>COMM 820</td>
<td>Health Communication Campaigns</td>
</tr>
</tbody>
</table>

Total Credits: 21

1 Other courses, including special topics (COMM 590 Seminar in Communication or COMM 690 Special Topics in Communication) and independent study, can be used to fulfill this requirement with prior written approval of the program director.

Specializations

Students complete the degree by completing 6 credits of coursework in one of the three specializations and an additional 6 elective credits in any graduate coursework, to include an optional thesis. Courses outside the department require the prior written approval of the program director.

Strategic Communications/Public Relations Specialization

The specialization in strategic communication/public relations requires a minimum of two courses from the list below. A course taken as a part of the general program cannot be duplicated in credits, but it can count as a course required for the specialization. Additional credits may be met through electives.

Two Specialization Courses

Select two specialization courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 590</td>
<td>Seminar in Communication</td>
</tr>
<tr>
<td>COMM 602</td>
<td>Theories and Research of Mass Communication</td>
</tr>
<tr>
<td>COMM 615</td>
<td>Political Communication</td>
</tr>
<tr>
<td>COMM 630</td>
<td>Theories of Public Relations</td>
</tr>
<tr>
<td>COMM 632</td>
<td>Persuasion Theory</td>
</tr>
<tr>
<td>COMM 636</td>
<td>Communication Consulting</td>
</tr>
<tr>
<td>COMM 637</td>
<td>Risk Communication</td>
</tr>
<tr>
<td>COMM 660</td>
<td>Climate Change and Sustainability Communication Campaigns</td>
</tr>
<tr>
<td>COMM 670</td>
<td>Social Marketing</td>
</tr>
<tr>
<td>COMM 690</td>
<td>Special Topics in Communication</td>
</tr>
<tr>
<td>COMM 706</td>
<td>Strategic Communication</td>
</tr>
<tr>
<td>COMM 716</td>
<td>International Public Relations</td>
</tr>
<tr>
<td>COMM 735</td>
<td>Crisis Communication</td>
</tr>
<tr>
<td>COMM 820</td>
<td>Health Communication Campaigns</td>
</tr>
<tr>
<td>COMM 890</td>
<td>Special Topics in Communication</td>
</tr>
</tbody>
</table>

Optional Thesis

Three credits of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 799</td>
<td>Master’s Thesis</td>
</tr>
</tbody>
</table>

Electives

Three to six additional credits chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
</table>

Any other graduate COMM courses

Up to 6 credits of coursework from other departments with prior written approval of the program director.

Total Credits: 12

1 When topic is strategic communication, as approved by program director.

2 Students who do not choose to complete a thesis will take additional credits of elective. Students who choose to write a thesis should be aware of the policies governing theses as stated in AP.6.9.3 Master’s Thesis (p. 91). If a thesis is chosen, students must follow the thesis enrollment policy of the university and, once enrolled in COMM 799 Master’s Thesis, maintain continuous enrollment.

3 Students choosing to write a thesis take 3 credits of electives. Those opting out of a thesis take 6 credits.

Health Communication Specialization

The specialization in health communication requires a minimum of two courses from the list below. A course taken as a part of the general program cannot be duplicated in credits, but it can count as a course required for the specialization. Additional credits may be met through electives.

Two Specialization Courses

Select two specialization courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 590</td>
<td>Seminar in Communication</td>
</tr>
<tr>
<td>COMM 620</td>
<td>Health Communication</td>
</tr>
<tr>
<td>COMM 632</td>
<td>Persuasion Theory</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>COMM 690</td>
<td>Special Topics in Communication</td>
</tr>
<tr>
<td>COMM 705</td>
<td>Intercultural Health and Risk Communication</td>
</tr>
<tr>
<td>COMM 720</td>
<td>Consumer-Provider Health Communication</td>
</tr>
<tr>
<td>COMM 721</td>
<td>E-Health Communication</td>
</tr>
<tr>
<td>COMM 820</td>
<td>Health Communication Campaigns</td>
</tr>
<tr>
<td>COMM 890</td>
<td>Special Topics in Communication</td>
</tr>
</tbody>
</table>

**Optional Thesis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 799</td>
<td>Master’s Thesis</td>
</tr>
</tbody>
</table>

**Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional courses from the list above</td>
<td></td>
</tr>
<tr>
<td>Up to 6 credits of coursework from other departments with prior written approval of the program director</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

12

1 When topic is health communication as approved by program director.

2 Students who do not choose to complete a thesis will take additional credits of elective courses. Students who choose to write a thesis should be aware of the policies governing theses as stated in AP.6.9.3 Master’s Thesis (p. 91). If a thesis is chosen, students must follow the thesis enrollment policy of the university and, once enrolled in COMM 799 Master’s Thesis, maintain continuous enrollment.

3 Students choosing to write a thesis take 3 credits of electives. Those opting out of the thesis take 6 credits.

**MA with Concentration in Science Communication (SCMN)**

Students who wish to focus their graduate study in science communication complete the following requirements.

**Two Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 600</td>
<td>Introduction to Graduate Studies</td>
</tr>
<tr>
<td>COMM 798</td>
<td>Communication Studies Project</td>
</tr>
</tbody>
</table>

**Two Methods Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 650</td>
<td>Research Methodologies in Communication</td>
</tr>
</tbody>
</table>

Select one course from the following:

- COMM 725 Qualitative Methods
- COMM 750 Research Methods II
- COMM 775 Media Content Analysis

Graduate research methods course in science, social science or science policy for which the student is qualified and which has been approved by the program director.

**Two Theory Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 639</td>
<td>Science Communication</td>
</tr>
<tr>
<td>COMM 642</td>
<td>Science and the Public</td>
</tr>
</tbody>
</table>

**One Practicum Course**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 641</td>
<td>Advanced Communication Skills for STEM</td>
</tr>
</tbody>
</table>

**One Required Course**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 640</td>
<td>Controversies in Science Communication</td>
</tr>
<tr>
<td>or COMM 644</td>
<td>Analysis and Criticism of Science Journalism</td>
</tr>
</tbody>
</table>

**Optional Thesis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 799</td>
<td>Master’s Thesis</td>
</tr>
</tbody>
</table>

**Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 6-9 credits of electives</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

33

1 Students should select from 500- or 600-level courses offered by CHSS, COS, CHHS, SPGIA, or CEHD.

2 Students who do not choose to complete a thesis will take additional credits of elective courses. Students who choose to write a thesis should be aware of the policies governing theses as stated in AP.6.9.3 Master’s Thesis (p. 91). If a thesis is chosen, students must follow the thesis enrollment policy of the university and, once enrolled in COMM 799 Master’s Thesis, maintain continuous enrollment.

3 Students choosing to write a thesis take 3 credits of electives. Those opting out of the thesis take 6 credits.

**Individualized Communication Studies specialization**

Students pursuing a specialization in individualized communication studies design a program of courses to reflect their interests.

**Two Specialization Courses**

Select from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 590</td>
<td>Seminar in Communication</td>
</tr>
<tr>
<td>COMM 690</td>
<td>Special Topics in Communication</td>
</tr>
<tr>
<td>COMM 890</td>
<td>Special Topics in Communication</td>
</tr>
</tbody>
</table>

**Optional Thesis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 799</td>
<td>Master’s Thesis</td>
</tr>
</tbody>
</table>

**Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional courses from the list above</td>
<td></td>
</tr>
<tr>
<td>Any other graduate COMM course</td>
<td></td>
</tr>
<tr>
<td>Up to 6 credits of coursework from other departments with prior written approval of the program director</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

12

1 Two courses in a field of specialization are chosen in consultation with an advisor or the program director. These courses may include select special topics courses shown above as approved by the program director.
At least one science-related course (3 credits) outside the department is required. A maximum of three outside courses (9 credits) is allowed for the concentration. Outside course(s) must be chosen from graduate courses in science, social science or science policy for which students are qualified and which have been approved by the program director. Students should select from 500- or 600-level courses offered by CHSS, COS, CHHS, SPGIA, or CEHD. The remaining elective courses in the concentration must be other graduate-level COMM courses, to include the optional thesis.

Communication, PhD

Banner Code: LA-PHD-COM
A307 Robinson Hall
Fairfax Campus
Email: commgrad@gmu.edu
Website: communication.gmu.edu/programs/la-phd-com

The PhD in communication explores key issues in the discipline such as communicating complex information, influencing health behaviors, the digital divide, public advocacy, intercultural sensitivity, media literacy, and national security. The PhD program offers two major areas of emphasis: health and strategic communication. Students may also emphasize science communication in conjunction with either of these. Faculty and students conduct research concerning consumer-provider relationships, risk communication, crisis management, organizational communication, media systems, health campaigns, new information technologies, communication policy, media advocacy, and health communication interventions.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants must already have earned a master's degree in a relevant field. For information specific to the PhD in communication, see Application Requirements and Deadlines (http://communication.gmu.edu/programs/LA-PHD-COM/application).

Policies
For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit
Students must have a master's degree before being admitted to the PhD in communication. Most students receive a reduction of study of 30 credits based on their previous master's degree.

Program Requirements
To receive the PhD in communication, students must complete a minimum of 90 credits, 60 beyond the master's degree, including core courses in theory and research methods, coursework in substantive fields of study, and a research practicum. Following completion of all required coursework, students must pass a written qualifying examination and an oral defense of it, after which they are advanced to candidacy by the dean and complete a dissertation, an original and independent research project.

If specific requirements are waived, students must complete substitutions, which are recorded on their Program of Study. All substitutions to degree requirements must be approved by the graduate committee.

Requirements

Degree Requirements
Total credits: 90
Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 315) tab.

Core Courses
Four Theory Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 700</td>
<td>Building Social Science Theory</td>
<td>3</td>
</tr>
<tr>
<td>COMM 602</td>
<td>Theories and Research of Mass Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 605</td>
<td>Intercultural Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 632</td>
<td>Persuasion Theory</td>
<td></td>
</tr>
<tr>
<td>COMM 634</td>
<td>Theories of Interpersonal Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 635</td>
<td>Organizational Communication</td>
<td></td>
</tr>
</tbody>
</table>

Select one additional theory course from the following: 3

Select two additional theory courses from the following: 6

Total Credits 12

Three Research Methods Courses
Methods Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 650</td>
<td>Research Methodologies in Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Qualitative methods course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 725</td>
<td>Qualitative Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Research Course
Select one course at the 700-level or above. 3

Total Credits 9

1 Or another course at 700-level or above as approved by the graduate committee.
2 This course should be chosen to help prepare for the dissertation and must be approved by the graduate committee.
Substantive Field of Study
Students choose one of the following substantive fields of study.

Health Communication
Select three courses from the following: 9
- COMM 620 Health Communication
- COMM 705 Intercultural Health and Risk Communication
- COMM 720 Consumer-Provider Health Communication
- COMM 820 Health Communication Campaigns
Select three elective courses chosen with approval of the advisor and director 9
Total Credits 18

Strategic Communication
Select three courses from the following: 9
- COMM 630 Theories of Public Relations
- COMM 705 Intercultural Health and Risk Communication
- COMM 706 Strategic Communication
- COMM 735 Crisis Communication
Select three elective courses chosen with approval of the advisor and director 9
Total Credits 18

One Research Practicum
Select 3 credits from the following: 3
- COMM 604 Communication Research Practicum
- COMM 890 Special Topics in Communication
- COMM 896 Independent Study
Total Credits 3

Elective Courses
Students complete the remaining credits through additional elective courses chosen in consultation with an advisor 0-30
Total Credits 0-30

Advancement to Candidacy
To advance to candidacy, students must complete all coursework required on their approved program of study. Students must also successfully pass a written qualifying exam and an oral qualifying exam. In addition, students must have a dissertation committee appointed by the Dean's Office as well as an approved proposal. Evidence of the approved proposal must be on file in the Dean's Office before a student can advance to candidacy.

Dissertation
Once enrolled in COMM 998 Doctoral Dissertation Proposal, students in this degree program must maintain continuous registration for at least 1 credit. Once enrolled in COMM 999 Doctoral Dissertation Research, student must maintain continuous registration each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in COMM 999 Doctoral Dissertation Research, students must follow the university's continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of COMM 999 Doctoral Dissertation Research.

Students complete a minimum of 3 credits of COMM 998 Doctoral Dissertation Proposal and 3 credits of COMM 999 Doctoral Dissertation Research. They must apply a minimum of 18 dissertation credits (COMM 998 Doctoral Dissertation Proposal and COMM 999 Doctoral Dissertation Research combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

At least eighteen credits of the following: 18
- COMM 998 Doctoral Dissertation Proposal
- COMM 999 Doctoral Dissertation Research
Total Credits 18

Health Communication Minor
Banner Code: HCOM

Academic Advising
A307 Robinson Hall
Fairfax Campus
Email: cdadvice@gmu.edu
Website: communication.gmu.edu/programs/la-minor-la-hcom

Health communication, one of the fastest growing fields in the broader communication discipline, addresses how communication intersects with all aspects of health (social, mental, and physical).

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 316) tab.

Core Courses

Required Courses
- COMM 304 Foundations of Health Communication 3
- COMM 430 Persuasion 3
- COMM 334 Family Health Communication 3
Total Credits 9

One Additional Communication Course
Select 3 credits from the following: 1
- COMM 395 Special Topics in Health Communication
- COMM 399 Special Topics in Communication 2

Elective Courses

Students complete the remaining credits through additional elective courses chosen in consultation with an advisor 0-30
Total Credits 0-30
**Environmental Communication**

Total Credits 3

1. Other COMM (p. 1286) courses may be substituted with approval of the minor director.

2. Requires approval of the minor director.

**Electives**

Students should confer with the health communication minor program director when making choices among these courses. Other courses may be substituted with approval of the minor director.

Select 6 credits from the following:

- HAP 301 Health Care Delivery in the United States
- HAP 310 Healthcare Ethics
- HAP 395 Health Care Finance
- HAP 425 Health Economics and Policy
- HAP 442 Introduction to Health Care Politics and Policy
- HAP 445 Introduction to Health Services Research
- HEAL 230 Introduction to Health Behavior (Mason Core) (p. 135)
- HEAL 310 Drugs and Health
- HEAL 325 Health Aspects of Human Sexuality
- HEAL 327 Women’s Health
- HEAL 331 Men’s Health
- HEAL 350 Interventions for Populations and Communities at Risk
- HEAL 351 Relationship Health
- HEAL 372 Health Communication
- HHS 432 Healthy Aging
- GCH 205 Global Health (Mason Core) (p. 135)
- GCH 300 Introduction to Public Health
- GCH 310 Health Behavior Theories
- GCH 350 Health Promotion and Education
- GCH 360 Health and Environment
- GCH 412 Fundamentals of Epidemiology
- GCH 445 Social Determinants of Health
- GCH 480 Health Maintenance and Health Aspects of Aging
- INTS 310 Violence and Gender
- INTS 314 Conflict, Trauma and Healing
- INTS 410 Contemporary Health Issues
- INTS 440 Death, Dying, and Decision Making
- NUTR 295 Introduction to Nutrition (Mason Core) (p. 135)
- NUTR 422 Nutrition throughout the Life Cycle
- PSYC 211 Developmental Psychology (Mason Core) (p. 135)
- PSYC 313 Child Development
- PSYC 314 Adolescent Development
- PSYC 321 Clinical Psychology
- PSYC 322 Behavior Modification
- PSYC 325 Abnormal Psychology
- PSYC 326 Therapeutic Communication Skills

**Journalism Minor**

Banner Code: JNL

Academic Advising

A307 Robinson Hall
Fairfax Campus

Email: cdadvice@gmu.edu
Website: communication.gmu.edu/programs/la-minor-comm-jnl

Journalism provides a cross-platform foundation with a focus on reporting, research techniques and writing style unique to online, print, broadcast, social media and database journalism.

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

This minor is not available to communication majors pursuing a concentration in journalism.

**Requirements**

**Minor Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 317) tab.

**Core Courses**

- COMM 303 Writing across the Media 3
- COMM 351 News Writing and Reporting 3
- or COMM 352 News Editing: Print and Beyond
- COMM 361 Online Journalism 3
- or COMM 453 Multimedia Journalism
- COMM 475 Journalism Law 3

Total Credits 12
Electives
Select two from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 203</td>
<td>Introduction to Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 208</td>
<td>Introduction to Media Production</td>
<td></td>
</tr>
<tr>
<td>COMM 351</td>
<td>News Writing and Reporting (^1) (1)</td>
<td></td>
</tr>
<tr>
<td>COMM 352</td>
<td>News Editing: Print and Beyond (^1)</td>
<td></td>
</tr>
<tr>
<td>COMM 353</td>
<td>Broadcast Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 361</td>
<td>Online Journalism (^1)</td>
<td></td>
</tr>
<tr>
<td>COMM 370</td>
<td>Feature Writing</td>
<td></td>
</tr>
<tr>
<td>COMM 371</td>
<td>Sports Writing and Reporting</td>
<td></td>
</tr>
<tr>
<td>COMM 373</td>
<td>Business and Economic Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 374</td>
<td>Political Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 387</td>
<td>Special Topics in Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 450</td>
<td>Internship in Communication (take for 3 credits)</td>
<td></td>
</tr>
<tr>
<td>COMM 453</td>
<td>Multimedia Journalism (^1)</td>
<td></td>
</tr>
<tr>
<td>COMM 454</td>
<td>Free Speech and Ethics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>COMM 455</td>
<td>History of Journalism</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

1 Only if not taken as a required course.
2 When relevant, may be taken as elective with prior written approval of the director of the minor.

Political Communication Minor (CHSS)

Banner Code: PCOM

Academic Advising

A307 Robinson Hall
Fairfax Campus

Email: cdadvice@gmu.edu
Website: communication.gmu.edu/programs/LA-MINOR-COMM-PCOM

This interdisciplinary minor is offered jointly by the Schar School of Policy and Government (p. 906) and the Department of Communication.

Political communication explores the interaction among members of the public, the media, advocacy groups, and politicians in democratic society. This minor uses a diverse approach to questions of how mass and interpersonal communication influence democratic functioning, including:

1. how political actors use strategic messaging to persuade and mobilize the public
2. how citizens make sense of these messages and their impact on engagement, deliberation, efficacy, knowledge, and participation
3. the role of the mass media in facilitating or hindering this relationship

Political communication includes explicitly political activities like voting and political campaigns. It also encompasses any issue of public debate or deliberation, including culture and social movements.

Admissions & Policies

Admissions

This minor is available to all Mason undergraduate students with the exception of communication majors pursuing a concentration in political communication.

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. A minimum of 6 COMM credits and a minimum of 6 GOVT credits are required. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 318) tab.

Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 327</td>
<td>Political Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 412</td>
<td>Politics and the Mass Media</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Communication and Political Process

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 326</td>
<td>Rhetoric of Social Movements and Political Controversy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>COMM 374</td>
<td>Political Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 431</td>
<td>New Media and Democracy</td>
<td></td>
</tr>
<tr>
<td>COMM 454</td>
<td>Free Speech and Ethics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GOVT 311</td>
<td>Public Opinion and Electoral Behavior</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

Persuasion Theory

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 230</td>
<td>Case Studies in Persuasion</td>
<td>3</td>
</tr>
<tr>
<td>COMM 261</td>
<td>Theories of Argumentation</td>
<td></td>
</tr>
<tr>
<td>COMM 362</td>
<td>Argument and Public Policy (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>COMM 430</td>
<td>Persuasion</td>
<td></td>
</tr>
<tr>
<td>GOVT 313</td>
<td>Political Psychology</td>
<td></td>
</tr>
<tr>
<td>GOVT 342</td>
<td>Diplomacy</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3
The minor is available only to students who are accepted into the program by application to the Department of Communication (p. 303), and enroll in credits dedicated to the Washington Media Institute Mason Semester, a semester-long program held in Washington Media Institute in Washington, DC.

### Admissions & Policies

#### Admissions

The minor is available only to students who are accepted into the program by application to the Department of Communication (p. 303), and enroll in credits dedicated to the Washington Media Institute Mason Semester, a semester-long program held in Washington Media Institute in Washington, DC.

#### Policies

Students pursuing this minor must complete all course offerings with a minimum grade of 2.00 in each course. All fifteen credits of coursework must be unique to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Requirements

#### Minor Requirements

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 319) tab.

#### Coursework

Students complete five required courses, offered as individualized sections of COMM 487 Washington Media Institute. Specific course titles may vary from semester to semester. Examples are Entrepreneurial Media and Journalism and Social Justice. Various seminars, a technology workshop and internship may also be offered.

Take five sections of the following under different titles.  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 487</td>
<td>Washington Media Institute</td>
<td>15</td>
</tr>
</tbody>
</table>

### Science Communication Graduate Certificate

#### Banner Code: LA-CERG-SCMN

A307 Robinson Hall  
Fairfax Campus  

Email: commgrad@gmu.edu  
Website: communication.gmu.edu/programs/la-cerg-scmn

This certificate is designed for graduate students with or without an academic communication background to upgrade their knowledge of the field. It is geared to meet the needs of both communication professionals and science professionals who want to emphasize science communication work in their future careers.
This graduate certificate may be pursued on a part-time or full-time basis.

**Admissions & Policies**

**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in science communication, see Application Requirements and Deadlines (http://communication.gmu.edu/programs/la-cerg-scmn/application).

**Policies**

All course choices included in this certificate must be approved by the department.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

**Requirements**

**Certificate Requirements**

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 320) tab.

**Core Courses**

- COMM 639 Science Communication 3
- COMM 641 Advanced Communication Skills for STEM 3

Total Credits 6

**One Course in COMM**

Select one course from the following: 3

- COMM 637 Risk Communication
- COMM 640 Controversies in Science Communication
- COMM 642 Science and the Public
- COMM 644 Analysis and Criticism of Science Journalism
- COMM 660 Climate Change and Sustainability Communication Campaigns
- COMM 735 Crisis Communication

Total Credits 3

**Electives**

**Two Courses in STEM, Health Sciences, or Science Policy**

Select two courses in STEM, Health Sciences, or Science Policy 6

Total Credits 6

1. These courses should be chosen from any STEM, health sciences, or science policy discipline. Both courses must be from the same discipline and must be graduate level. Choices must be approved by the program director. Students should select from 500- or 600-level courses offered by COS (p. 593), CHHS (p. 235), Schar (p. 906), or CEHD (p. 154).

**Sport Communication Minor**

**Banner Code:** SCOM

**Academic Advising**

A307 Robinson Hall
Fairfax Campus

Email: cdadvice@gmu.edu
Website: communication.gmu.edu/programs/la-minor-comm-scom

This minor offers students the opportunity to examine important and timely sports-related issues in an ethical context as well as analyze sports from cross-cultural perspectives. Students will gain an understanding of sport mass media, sport communication, sports reporting, interpersonal and organizational communication, and the impact each has in our global society. The courses cover theory and practice in cross-platform communication, sports ethics and theoretical underpinnings, public relations, and marketing. The minor provides applied fundamentals for students seeking employment in the commercial world of sports (areas such as management or promotion of athletic organizations) and in sports media.

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 320) tab.

**Core Courses**

- COMM 303 Writing across the Media 3
- COMM 320 Business and Professional Communication 3
- SPMT 201 Introduction to Sport Management 3 or SPMT 304 Sport, Culture, and Society 3
- SPMT 430 Sport Communication 3

Total Credits 12

**Electives**

Select two electives from the following: 6

- COMM 204 Introduction to Public Relations 6
COMM 305: Foundations of Intercultural Communication (Mason Core) (p. 135)

COMM 351: News Writing and Reporting

COMM 356: Video: Performance and Writing

COMM 359: Media Management

COMM 361: Online Journalism

COMM 371: Sports Writing and Reporting

COMM 372: Sports and the Media

SPMT 201: Introduction to Sport Management

SPMT 302: Philosophical and Ethical Dimensions of Sport

SPMT 304: Sport, Culture, and Society

SPMT 318: Diversity and Inclusion Issues in Sport

SPMT 405: Sport Venues and Events

SPMT 412: Sport Marketing and Sales

SPMT 420: Economics and Finance in the Sport Industry

SPMT 440: Global Perspectives in Sport

SPMT 455: Governance and Policy in Sport Organizations

Total Credits: 6

1. Special topics courses, when relevant, may be used to fulfill this requirement with the prior written approval of the director.

   Depending on which courses students took as a required course (above), they may use either SPMT 201 Introduction to Sport Management or SPMT 304 Sport, Culture, and Society as an elective.

   COMM majors are required to take one elective SPMT course.

Department of Criminology, Law and Society

Phone: 703-993-8315
Website: cls.gmu.edu/

Criminology, Law and Society is a dynamic, multidisciplinary unit. Students at the graduate and undergraduate level develop strong foundations in research, methods, theories and systems of justice, criminology and crime policy, security, and law and society. They graduate with the knowledge and skills needed to understand the causes and consequences of crime and injustice, the responses by criminal and civil justice institutions, and what works to improve social conditions among affected individuals, communities, organizations, and countries.

Undergraduate Programs

Criminology, Law and Society, BS
The BS in criminology, law and society provides students with a focused study of criminology, law and society and the social, human, and moral problems raised in the justice field. The BS degree prepares students for careers in law enforcement, corrections, the courts, investigations, juvenile justice, private and homeland security, and related social and human services. Students who earn the BS degree either gain work experience in a criminal justice agency, or complete a minor in a related field to enhance their study of justice.

Criminology, Law and Society, BA
The BA in criminology, law and society provides students with the opportunity to acquire a broader liberal arts education while studying criminology, law and society. The BA degree prepares students for careers in a range of justice, social service, and human services fields. It also provides a strong background for law school or graduate study in criminal justice or criminology.

Internships
The department supports an active internship program, which places students in justice and related organizations throughout the Washington metropolitan area. Students can gain valuable work place experience while earning credit toward their degree.

Graduate Programs
The department offers a master’s and a doctoral degree in criminology, law and society. These degrees draw on a strong multidisciplinary faculty who teach a wide range of courses in their specialties. These programs take advantage of Mason’s proximity to the many justice organizations at the federal, state, and local levels. The curriculum is structured to give students the skills they need to do policy-relevant research. They will be able to work with local and national agencies concerned with justice and security to put those skills to use.

Funding
The department offers graduate teaching and research assistantships awarded on a competitive basis. Other sources of funding such as grants, loans, and employment on campus are also available. Students awarded assistantships must register for a minimum of six credits a semester and, like all graduate students, show satisfactory progress toward their degree.

Faculty

Department Faculty

Professors
Lum, Mastrofski, Redlich, Robinson, Taxman, Weisburd, Wilson (chair)

Emeritus Research Professor
Turner

Associate Professors
Gallagher, Johnson, Koper, Merola, Rudes, Willis

Assistant Professors
Dong, Gill, Yang

Term Professor
Newmark

Term Assistant Professor
Novak, Staszak, Voreas

Term Lecturer
Bamford

Affiliate Faculty
Uchida

Programs

• Criminal Justice, MS (pending SCHEV approval)
Criminal Justice, MS (pending SCHEV approval)

Banner Code: LA-MS-CJUS

Academic Advising
354 Enterprise Hall
Fairfax Campus
Email: clsgrad@gmu.edu
Website: cls.gmu.edu

Note: As of catalog publication in April, this program has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia for consideration as a new degree program. The university cannot accept applications or enroll students in this program until SCHEV approval has been granted.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to this degree the departmental website.

Policies
For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 30

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 511</td>
<td>Evidence-based Crime and Justice Policy</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 512</td>
<td>Implementing Crime and Justice Policy</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 513</td>
<td>Leadership in Justice Organizations</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 514</td>
<td>Legal and Ethical Issues in Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 515</td>
<td>Criminal Justice Research Methods and Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 516</td>
<td>Evaluation of Crime and Justice Policies and Practices</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
Select three courses from the following: 9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 509</td>
<td>Justice Organizations and Processes</td>
</tr>
<tr>
<td>CRIM 510</td>
<td>Policing in a Democratic Society</td>
</tr>
<tr>
<td>CRIM 521</td>
<td>The Constitution, Criminal Procedure, and Security</td>
</tr>
<tr>
<td>CRIM 523</td>
<td>Law and Social Control</td>
</tr>
<tr>
<td>CRIM 541</td>
<td>Conduct of Justice Organizations at the Street Level</td>
</tr>
<tr>
<td>CRIM 544</td>
<td>Corrections</td>
</tr>
<tr>
<td>CRIM 545</td>
<td>Crime Analysis</td>
</tr>
<tr>
<td>CRIM 561</td>
<td>Politics of Crime Policy</td>
</tr>
<tr>
<td>CRIM 562</td>
<td>Crime and Place</td>
</tr>
<tr>
<td>CRIM 595</td>
<td>Special Topics</td>
</tr>
</tbody>
</table>

Criminology, Law and Society Minor

Banner Code: CLS

Academic Advising
354 Enterprise Hall
Fairfax Campus
Website: cls.gmu.edu/programs/la-minor-cls-cls

Through the minor in criminology, law and society, students develop knowledge of the principles, institutions, and practices of the systems for administering justice. It provides a solid foundation for students seeking to supplement their major area of study, to develop knowledge and skills needed for justice-related occupations, or to lay the foundation for law school or graduate study in the justice field. Students obtain an overview of the justice system and develop advanced knowledge of selected features of the justice system.

Students should plan their course of study with a criminology, law and society advisor assigned by the program.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. No more than 6 credits of CRIM 485 Study Abroad can be applied to the minor. The minor must be approved by the director before graduation.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).
**Requirements**

**Minor Requirements**

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 322) tab.

**Core Course**

| CRIM 100 | Introduction to Criminal Justice (Mason Core) (p. 135) | 3 |

**Electives**

Select four courses in CRIM (p. 1372)

1. Three of the courses must be upper-level. CRIM 479 Preparation for Internship, CRIM 480 Internship, CRIM 498 Research Practicum, and CRIM 499 Independent Study may not be used to fulfill this requirement. A maximum of 6 credits of CRIM 485 Study Abroad can be applied to the minor.

**Criminology, Law and Society, BA**

**Banner Code:** LA-BA-CLS

354 Enterprise Hall

Fairfax Campus

Website: cls.gmu.edu/programs/la-ba-cls

Criminology, Law and Society provides a focused study of the justice system and social, human, and moral problems raised in the justice field. This course of study prepares students for careers in law enforcement, corrections, the courts, investigations, juvenile justice, private and homeland security, and related social and human services. The BA in criminology, law and society is well-suited for students who wish to study the field while branching out into related areas of study.

**Admissions & Policies**

**Policies**

Students pursuing this degree must complete 42 credits within the major, with a minimum GPA of 2.00. Students may use up to 18 credits of transferable ADJ courses from the Virginia Community College System (VCCS) or comparable courses at another community college to fulfill the degree requirements. Once a student matriculates at Mason, no courses may be taken at another institution without prior written approval from the program and the dean.

No more than 12 credits of CRIM 485 Study Abroad can be applied to the major.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

**Degree Requirements**

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 323) tab.

**Core Courses in the Major**

| CRIM 100 | Introduction to Criminal Justice (Mason Core) (p. 135) | 3 |
| CRIM 306 | Criminal Justice Ethics | 3 |
| CRIM 315 | Research Methods and Analysis in Criminology | 3 |
| CRIM 424 | Constitutional Law: Criminal Process and Rights | 3 |
| CRIM 495 | Capstone in Criminology, Law and Society (Mason Core) (p. 135) | 3 |

Total Credits: 15

**Electives in the Major**

Select nine electives from the following:

| CRIM 210 | Introduction to Criminology | 1 |
| CRIM 220 | Introduction to Law and Society | 1 |
| CRIM 230 | Introduction to Homeland Security | 1 |
| CRIM 301 or GOVT 301 | Public Law and the Judicial Process | 2 |
| CRIM 302 | Delinquency | 1 |
| CRIM 304 or IT 357 | Computer Crime, Forensics, and Auditing | 1 |
| CRIM 305 | Crime and Crime Policy | 1 |
| CRIM 307 | Social Inequality, Crime, and Justice | 1 |
| CRIM 308 | Human Rights and Justice | 1 |
| CRIM 310 | Introduction to the Intelligence Community | 1 |
| CRIM 312 | Intelligence Analysis Techniques | 1 |
| CRIM 320 | Crime and Place | 1 |
| CRIM 325 | Hate Crime | 1 |
| CRIM 350 | Counterintelligence | 1 |
| CRIM 400 | Applied Criminal Psychology | 1 |
| CRIM 401 | Policing in America | 1 |
| CRIM 402 | Punishment and Corrections | 1 |
| CRIM 403 | Community Corrections | 1 |
| CRIM 404 | Crime Victims and Victimization | 1 |
| CRIM 405 | Law and Justice around the World (Mason Core) (p. 135) | 1 |
| CRIM 406 | Family Law and the Justice System | 1 |
| CRIM 407 | Advanced Topics in Law and Society | 1 |
| CRIM 408 | Criminal Courts | 1 |
| CRIM 409 | Community Policing | 1 |
| CRIM 410 | Criminal Investigations | 1 |
| CRIM 411 | Innovations in Policing | 1 |
| CRIM 422 | Controversial Legal Issues | 1 |
CRIM 423  Constitutional Law: Civil Rights and Liberties
or GOVT 423  Constitutional Law: Civil Rights and Liberties
CRIM 425  Criminal Justice Management
CRIM 430  Criminal Law
CRIM 460  Surveillance and Privacy in Contemporary Society
CRIM 462  Law Enforcement and Homeland Security
CRIM 471  Prevention and Deterrence of Crime
CRIM 475  Theory and Politics of Terrorism
CRIM 485  Study Abroad
CRIM 490  Special Topics
CRIM 491  Honors Seminar I
CRIM 492  RS: Honors Seminar II
CRIM 498  Research Practicum
CRIM 499  Independent Study

Total Credits  27

1 Students may select an optional concentration to fulfill a portion of this required elective credit.

Optional Concentration in the Major
Criminology and society majors have the option of obtaining a concentration by completing 15 of their 27 elective credits within one of the following areas. Credits earned in CRIM 490 Special Topics may be applied to a concentration as appropriate for the content of the course, to be determined by the undergraduate director.

Concentration in Criminal Justice (CJUS)
Select 15 credits from the following:
CRIM 210  Introduction to Criminology
CRIM 302  Delinquency
CRIM 304  Computer Crime, Forensics, and Auditing
or IT 357  Computer Crime, Forensics, and Auditing
CRIM 305  Crime and Crime Policy
CRIM 307  Social Inequality, Crime, and Justice
CRIM 320  Crime and Place
CRIM 325  Hate Crime
CRIM 400  Applied Criminal Psychology
CRIM 401  Policing in America
CRIM 402  Punishment and Corrections
CRIM 403  Community Corrections
CRIM 404  Crime Victims andVictimization
CRIM 408  Criminal Courts
CRIM 409  Community Policing
CRIM 410  Criminal Investigations
CRIM 411  Innovations in Policing
CRIM 425  Criminal Justice Management
CRIM 462  Law Enforcement and Homeland Security
CRIM 471  Prevention and Deterrence of Crime

Concentration in Law and Society (LAWS)
Select 15 credits from the following:
CRIM 220  Introduction to Law and Society
CRIM 301  Public Law and the Judicial Process
or GOVT 301  Public Law and the Judicial Process
CRIM 308  Human Rights and Justice
CRIM 325  Hate Crime
CRIM 405  Law and Justice around the World
(Mason Core) (p. 135)
CRIM 406  Family Law and the Justice System
CRIM 407  Advanced Topics in Law and Society
CRIM 408  Criminal Courts
CRIM 422  Controversial Legal Issues
CRIM 423  Constitutional Law: Civil Rights and Liberties
or GOVT 423  Constitutional Law: Civil Rights and Liberties
CRIM 430  Criminal Law
CRIM 460  Surveillance and Privacy in Contemporary Society

Concentration in Homeland Security and Justice (HSJ)
Select 15 credits from the following:
CRIM 230  Introduction to Homeland Security
CRIM 310  Introduction to the Intelligence Community
CRIM 312  Intelligence Analysis Techniques
CRIM 350  Counterintelligence
CRIM 405  Law and Justice around the World
(Mason Core) (p. 135)
CRIM 460  Surveillance and Privacy in Contemporary Society
CRIM 462  Law Enforcement and Homeland Security
CRIM 475  Theory and Politics of Terrorism

Writing-Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students majoring in criminology, law and society fulfill this requirement by successfully completing CRIM 495 Capstone in Criminology, Law and Society (Mason Core) (p. 135). Students should complete ENGH 302 Advanced Composition (Mason Core) (p. 135) before taking the writing-intensive course in the major or take the two courses simultaneously.

Upper Level Requirement
Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL (p. 1818)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RELI (p. 1904)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits from the following:
Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

### Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH (p. 1119)</td>
<td>Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)</td>
<td>3</td>
</tr>
<tr>
<td>CRIM (p. 1372)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON (p. 1413)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVT (p. 1588)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST (p. 1628)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LING (p. 1694)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC (p. 1844)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOCI (p. 1923)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Or choose from the following GGS courses:
- GGS 101 Major World Regions (Mason Core) (p. 135)
- GGS 103 Human Geography (Mason Core) (p. 135)
- GGS 110 Introduction to Geoinformation Technologies
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography
- GGS 306 Urban Geography
- GGS 315 Geography of the United States
- GGS 316 Geography of Latin America
- GGS 320 Geography of Europe
- GGS 325 Geography of North Africa and the Middle East
- GGS 330 Geography of the Soviet Succession States
- GGS 357 Structures in Urban Governance and Planning
- GGS 380 Geography of Virginia

The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

1. HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

### Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
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<td>ANTH 301</td>
<td>Native North Americans</td>
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</tr>
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<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
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<tr>
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<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
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<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
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<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
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<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core)</td>
<td>3</td>
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<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
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<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
<td>3</td>
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<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td>3</td>
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<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
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<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td>3</td>
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<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
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<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
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<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
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<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
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<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
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<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
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<td>Survey of Latin American History (Mason Core) (p. 135)</td>
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<td>Survey of Latin American History (Mason Core) (p. 135)</td>
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<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<td>Stalinism</td>
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<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
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<td>HIST 328</td>
<td>Rise of Russia (Mason Core) (p. 135)</td>
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<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
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<td>HIST 353</td>
<td>History of Traditional China</td>
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<td>HIST 354</td>
<td>Modern China</td>
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<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
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<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
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<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
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<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
<td>3</td>
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<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core)</td>
<td>3</td>
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<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
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<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
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<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
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<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
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<td>HIST 426</td>
<td>The Russian Revolution</td>
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<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
<td>3</td>
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<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
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<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
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<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
<td>3</td>
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<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
<td>3</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
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<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
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<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
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<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
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<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
<td>3</td>
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</table>
Honors

Honors in the Major
Highly-qualified students may pursue advanced work leading to graduation with honors in the major. Students admitted to the honors program in the major take a two-course sequence CRIM 491 Honors Seminar I and CRIM 492 RS: Honors Seminar II. To graduate with honors in criminology, law and society, students must complete both courses with a minimum GPA of 3.50 in the two courses.

Criminology, Law and Society, BS

Banner Code: LA-BS-CLS
354 Enterprise Hall
Fairfax Campus
Website: cls.gmu.edu/programs/la-bs-cls

Criminology, Law and Society provides a focused study of the justice system and social, human, and moral problems raised in the justice field. This course of study prepares students for careers in law enforcement, corrections, the courts, investigations, juvenile justice, private and homeland security, and related social and human services. The BS degree provides students a focused approach, requiring more courses within the field of criminology. Students who earn the BS degree either gain work experience in a criminal justice agency, or complete a minor in a related field to enhance their study of justice.

Admissions & Policies

Policies
Students pursuing this degree must complete 60-65 credits within the major, with a minimum GPA of 2.00. Students may use up to 18 credits of transferable ADJ courses from the Virginia Community College System (VCCS) or comparable courses at another community college to fulfill the degree requirements. Once a student matriculates at Mason, no courses may be taken at another institution without prior written approval from the program and the dean.

No more than 12 credits of CRIM 485 Study Abroad can be applied to the major.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements
Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 327) tab.

Core Courses in the Major

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 100</td>
<td>Introduction to Criminal Justice (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 306</td>
<td>Criminal Justice Ethics</td>
<td>3</td>
</tr>
</tbody>
</table>

1. A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundat</td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td>Core</td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
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<td>Synth</td>
<td>Synthesis/Capstone Requirement</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1. minimum 3 credits

Additional Electives
Any remaining credits may be completed with electives to bring the degree total to 120.
Criminology, Law and Society, BS

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 315</td>
<td>Research Methods and Analysis in Criminology</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 424</td>
<td>Constitutional Law: Criminal Process and Rights</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 495</td>
<td>Capstone in Criminology, Law and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15

Internship or Minor in the Major

Select either 15 credits of internship or a minor: 15-20

**Internship**

CRIM 479 Preparation for Internship
& CRIM 480 and Internship

**Minor in a Related Field**

Intelligence Analysis Minor (18 credits) (p. 334)
Information Technology Minor (18 credits) (p. 1049)
Computer Science Minor (19-20 credits) (p. 990)
Forensic Psychology Minor (18 credits) (p. 445)
Forensic Science Minor (20 credits) (p. 738)
Geographic Information Systems Minor (18-20 credits) (p. 695)
Data Analysis Minor (15 credits) (p. 1062)
Statistics Minor (15 credits) (p. 1068)
Legal Studies Minor (18 credits) (p. 928)
International Security Minor (18 credits) (p. 925)

Total Credits: 15-20

Electives in the Major

Select ten electives from the following: 30

CRIM 210 Introduction to Criminology
CRIM 220 Introduction to Law and Society
CRIM 230 Introduction to Homeland Security
CRIM 301 Public Law and the Judicial Process
or GOVT 301 Public Law and the Judicial Process
CRIM 302 Delinquency
CRIM 304 Computer Crime, Forensics, and Auditing
or IT 357 Computer Crime, Forensics, and Auditing
CRIM 305 Crime and Crime Policy
CRIM 307 Social Inequality, Crime, and Justice
CRIM 308 Human Rights and Justice
CRIM 310 Introduction to the Intelligence Community
CRIM 312 Intelligence Analysis Techniques
CRIM 320 Crime and Place
CRIM 325 Hate Crime
CRIM 350 Counterintelligence
CRIM 400 Applied Criminal Psychology
CRIM 401 Policing in America
CRIM 402 Punishment and Corrections
CRIM 403 Community Corrections
CRIM 404 Crime Victims and Victimization
CRIM 405 Law and Justice around the World (Mason Core) (p. 135)

Total Credits: 30

Optional Concentrations in the Major

Criminology, law and society majors have the option of obtaining a concentration by completing 15 of their 30 elective credits within one of the following areas. Credits earned in CRIM 490 Special Topics may be applied to a concentration as appropriate for the content of the course, to be determined by the undergraduate director.

Concentration in Criminal Justice (CJUS)

Select 15 credits from the following: 15

CRIM 210 Introduction to Criminology
CRIM 302 Delinquency
CRIM 304 Computer Crime, Forensics, and Auditing
or IT 357 Computer Crime, Forensics, and Auditing
CRIM 305 Crime and Crime Policy
CRIM 307 Social Inequality, Crime, and Justice
CRIM 320 Crime and Place
CRIM 325 Hate Crime
CRIM 400 Applied Criminal Psychology
CRIM 401 Policing in America
CRIM 402 Punishment and Corrections
CRIM 403 Community Corrections
CRIM 404 Crime Victims and Victimization
CRIM 408 Criminal Courts
CRIM 409 Community Policing
CRIM 410 Criminal Investigations
CRIM 411 Innovations in Policing
CRIM 425 Criminal Justice Management
CRIM 462 Law Enforcement and Homeland Security
CRIM 471 Prevention and Deterrence of Crime

Total Credits 15

Concentration in Homeland Security and Justice (HSJ)
Select 15 credits from the following: 15

CRIM 230 Introduction to Homeland Security
CRIM 310 Introduction to the Intelligence Community
CRIM 312 Intelligence Analysis Techniques
CRIM 350 Counterintelligence
CRIM 405 Law and Justice around the World (Mason Core) (p. 135)
CRIM 460 Surveillance and Privacy in Contemporary Society
CRIM 462 Law Enforcement and Homeland Security
CRIM 475 Theory and Politics of Terrorism

Total Credits 15

Concentration in Law and Society (LAWS)
Select 15 credits from the following: 15

CRIM 220 Introduction to Law and Society
CRIM 301 Public Law and the Judicial Process
or GOVT 301 Public Law and the Judicial Process
CRIM 308 Human Rights and Justice
CRIM 325 Hate Crime
CRIM 405 Law and Justice around the World (Mason Core) (p. 135)
CRIM 406 Family Law and the Justice System
CRIM 407 Advanced Topics in Law and Society
CRIM 408 Criminal Courts
CRIM 422 Controversial Legal Issues
CRIM 423 Constitutional Law: Civil Rights and Liberties
or GOVT 423 Constitutional Law: Civil Rights and Liberties
CRIM 430 Criminal Law
CRIM 460 Surveillance and Privacy in Contemporary Society

Total Credits 15

Writing-Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students majoring in criminology, law and society fulfill this requirement by successfully completing CRIM 495 Capstone in Criminology, Law and Society (Mason Core) (p. 135). Students should complete ENGH 302 Advanced Composition (Mason Core) (p. 135) before taking the writing-intensive course in the major or take the two courses simultaneously.

Upper Level Requirement
Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation Requirements</td>
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<tr>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
<td>3</td>
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<tr>
<td>Quantitative Reasoning (p. 136)</td>
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<tr>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
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<tr>
<td>Core Requirements</td>
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<td>Arts (p. 137)</td>
<td>3</td>
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<td>Global Understanding (p. 139)</td>
<td>3</td>
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<td>Literature (p. 140)</td>
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<td>Natural Science (p. 141)</td>
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<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
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<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td>Synthesis/Capstone Requirement 1</td>
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<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

Additional Electives
Any remaining credits may be completed with electives to bring the degree total to 120.

Honors

Honors in the Major
Highly qualified students may pursue advanced work leading to graduation with honors in the major. Students admitted to the honors program in the major take a two-course sequence CRIM 491 Honors Seminar I and CRIM 492 RS: Honors Seminar II. To graduate with honors in criminology, law and society, students must complete both courses with a minimum GPA of 3.50 in the two courses.

Criminology, Law and Society, MA

Banner Code: LA-MA-CLS

Academic Advising
354 Enterprise Hall
Fairfax Campus
Email: clsgrad@gmu.edu
Website: cls.gmu.edu/programs/la-ma-cls

The MA in criminology, law and society is designed for students who seek to make a difference in the development and evaluation of policy in related fields. Students gain enhanced skills in analysis and policy evaluation for career development or to help prepare for competitive, sought-after positions. The program takes advantage of the university's proximity to many justice organizations at the federal, state, and local levels in the capital region. The curriculum is structured to give students the skills to do policy-relevant research and to work with justice and security agencies in the region.
Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admission section of this catalog. For information specific to the MA in criminology, law and society, see Application Requirements and Deadlines (http://cls.gmu.edu/programs/la-ma-cls/application) on the departmental web site.

Policies
For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87).

Transfer Credits
Students may request to transfer a maximum of 12 credits for prior graduate course work (not applied to a previous degree) subject to approval by the graduate director and dean and in accordance with the Academic Policies section of this catalog.

Reduction of Credits
Students entering the master's program with a previously conferred graduate degree in a related discipline may request that the required credits for the MA degree be reduced by a maximum of 12 credits with approval of the graduate director and dean and in accordance with the Graduate Policies section of this catalog.

Satisfactory Progress
Each new student is assigned a faculty advisor who helps develop a program of study. The advisor and faculty assess the progress of all students annually. Students who fail to make satisfactory progress may be terminated from the program. Satisfactory progress in the MA in criminology, law and society is defined as maintaining a minimum GPA of 3.00 with the minimum grade of B- in all courses. Students who receive a grade below B- will receive an academic warning the first time and a letter of termination the second time.

Requirements

Degree Requirements
Total credits: 30

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 330) tab.

MA without Concentration
Students who wish to pursue a doctoral degree and academic or research career should complete the requirements for the MA in criminology, law and society with thesis shown below.

Four Core Courses in Three Fields
Justice and Law
CRIM 700 Theories of Justice 3
CRIM 720 Behavior of Law 3

Justice Organizations, Administration, and Leadership
CRIM 740 Justice Organization and Administration 3

Crime and Crime Policy
CRIM 760 Crime and Crime Policy 3

Total Credits 12

Analytic Methods
CRIM 780 Research Methods 3
CRIM 782 Statistics I 3
CRIM 783 Statistics II 3

Total Credits 9

Electives
Select one to two electives (3 to 6 credits) 1 3-6

Total Credits 3-6

1 Students choose electives from courses in one or more of the substantive fields of study listed below.

Thesis
Students can apply a minimum of 3 and a maximum of 6 credits of thesis to the degree. A thesis proposal must be submitted to the graduate director prior to registering for thesis credits. The master's thesis must be defended orally before a committee of three faculty appointed by the graduate director. Students who do a 3-credit thesis will have 6 credits of electives.

Students must follow the thesis enrollment policy of the university and once enrolled in CRIM 799 Master's Thesis, maintain continuous enrollment as specified in Academic Policies.

CRIM 799 Master's Thesis 1-6

Total Credits 3-6

MA with Concentration in Policy and Practice (PAP)
This concentration in policy and practice is intended for students planning careers in justice and security organizations following completion of the MA degree, and does not include a thesis requirement.

Four Core Courses in Three Fields
Justice and Law
CRIM 720 Behavior of Law 3

Justice Organizations, Administration, and Leadership
CRIM 740 Justice Organization and Administration 3
CRIM 742 Leadership in Justice and Security Organizations 3

Crime and Crime Policy
CRIM 760 Crime and Crime Policy 3

Total Credits 12

Analytic Methods
CRIM 780 Research Methods 3
CRIM 781 Justice Program Evaluation 3

Total Credits 6

Capstone Practicum
CRIM 790 Capstone in Policy and Practice 3

Total Credits 3
Electives
Select three electives (9 credits) ¹

Total Credits 9

¹ Students choose electives from courses in one or more of the substantive fields of study listed below.

Substantive Fields of Study
Master’s students are required to take one to three electives chosen from among the substantive fields of study below. One non-CRIM elective course may be taken. Students may use other courses as elective credit with prior written approval of the director of the graduate program.

Justice and Law
Justice-Related Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
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<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
<td>1-3</td>
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<tr>
<td>GOVT 520</td>
<td>Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 725</td>
<td>Democratic Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 631</td>
<td>Seminar in Comparative Politics and Institutions</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 619</td>
<td>Conflict and Conflict Management: Perspectives from Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 711</td>
<td>Classical Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 712</td>
<td>Contemporary Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONF 501</td>
<td>Introduction to Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 720</td>
<td>Ethnic and Cultural Factors in Conflict Resolution</td>
<td>1-3</td>
</tr>
<tr>
<td>CONF 721</td>
<td>Conflict and Race</td>
<td>3</td>
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<td>CONF 723</td>
<td>Conflict and Gender</td>
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<td>CONF 726</td>
<td>Moral and Philosophical Foundations of Conflict</td>
<td>3</td>
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<td>CONF 747</td>
<td>Reconciliation</td>
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<td>CONF 802</td>
<td>Theories of the Person</td>
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<td>CONF 803</td>
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<td>ECON 852</td>
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<td>ECON 854</td>
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Law-Related Electives
Any selected LAW courses ¹

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CRIM 721</td>
<td>The Constitution, Criminal Procedure, and Security</td>
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</tr>
<tr>
<td>CRIM 723</td>
<td>Law and Social Control</td>
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</tr>
<tr>
<td>CRIM 730</td>
<td>Courts and Constitutional Law</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
<td>1-3</td>
</tr>
<tr>
<td>CONF 733</td>
<td>Law and Justice from a Conflict Perspective</td>
<td>1-3</td>
</tr>
<tr>
<td>ECON 895</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
</tbody>
</table>

¹ Prerequisite for enrollment in LAW courses: successful completion of CRIM 720 Behavior of Law and CRIM 721 The Constitution, Criminal Procedure, and Security. Enrollment requires preapproval from the graduate director, law school instructor, and associate dean for student academic affairs of the Law School.

Justice Organizations, Administration, and Leadership

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 509</td>
<td>Justice Organizations and Processes</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 510</td>
<td>Policing in a Democratic Society</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 741</td>
<td>Conduct of Justice Organizations at the Street Level</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 742</td>
<td>Leadership in Justice and Security Organizations</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 743</td>
<td>Changing Justice and Security Organizations</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 744</td>
<td>Corrections</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
<td>1-3</td>
</tr>
<tr>
<td>PUAD 502</td>
<td>Administration in Public and Nonprofit Organizations</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 520</td>
<td>Organization Theory and Management Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 540</td>
<td>Public Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 621</td>
<td>Principles and Practices in Government Organization and Management</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 622</td>
<td>Program Planning and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 661</td>
<td>Public Budgeting Systems</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 671</td>
<td>Public Employee Labor Relations</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 680</td>
<td>Managing Information Resources</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 700</td>
<td>Ethics and Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 727</td>
<td>Seminar in Risk Assessment and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 781</td>
<td>Information Management: Technology and Policy</td>
<td>3</td>
</tr>
<tr>
<td>CONF 731</td>
<td>Conflict in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>CONF 741</td>
<td>Negotiations</td>
<td>3</td>
</tr>
<tr>
<td>CONF 743</td>
<td>Dynamics of Conflict Termination</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 631</td>
<td>Industrial and Personnel Testing and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 639</td>
<td>Survey of Organizational Processes</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 605</td>
<td>Gender and Social Structure</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Racial and Ethnic Relations: American and Selected Global Perspectives</td>
<td>3</td>
</tr>
</tbody>
</table>

Crime and Crime Policy

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 761</td>
<td>Politics of Crime Policy</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 762</td>
<td>Crime and Place</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 764</td>
<td>Sentencing</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
<td>1-3</td>
</tr>
<tr>
<td>SOCI 607</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 540</td>
<td>Public Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 644</td>
<td>Public Policy Models</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 645</td>
<td>Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 617</td>
<td>Child Psychopathology</td>
<td>3</td>
</tr>
</tbody>
</table>

Criminology, Law and Society, PhD
Banner Code: LA-PHD-CLS

Academic Advising
The PhD in criminology, law and society is designed to produce top academic scholars and leaders in policy and applied settings. Students coming to this program seek to make a difference in the development and evaluation of policy in these fields using cutting edge social science methods. The program seeks to provide a rigorous course of study that will prepare students to do research, teach, develop and test policies, and administer agencies and programs designed to administer law, deliver justice, reduce crime, and enhance domestic security.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://cls.gmu.edu/programs/application/LA-PHD-CLS).

Policies

For policies governing all graduate degrees, see Graduate Policies (p. 87).

Master's Degree

Students admitted to the doctoral program without a master's degree need to earn the MA in criminology, law and society with thesis. The requirements for the MA degree are included in the requirements for the PhD listed below. When beginning the doctoral program students should add the master's degree as a secondary program using the Secondary Program Application (http://registrar.gmu.edu/wp-content/uploads/GSMA.pdf) and then apply online (http://registrar.gmu.edu/students/graduation/process) to graduate the semester prior to meeting all requirements for the master's degree.

Reduction of Credit

Students entering the doctoral program with a master's degree in a related discipline, including a law degree, may request that the required credits for the doctoral degree be reduced by a maximum of 30 credits with approval of the graduate director and dean and in accordance with university policy. Students who have prior graduate course work that has not been applied to another degree may request to have a maximum of 12 of these graduate credits transferred to their degree program, with approval of the graduate director and dean and in accordance with university policy.

Satisfactory Progress

Each new student is assigned an advisor who helps develop a program of study. On advancement to candidacy, the chair of the dissertation committee becomes the advisor. The advisor and faculty assess the progress of all students annually. Students who fail to make satisfactory progress may be terminated from the program. Satisfactory progress in the PhD in criminology, law and society is defined as maintaining a minimum GPA of 3.00 with the minimum grade of B- in all courses.

Students who receive a grade below B- will receive an academic warning the first time and a letter of termination the second time.

Requirements

Degree Requirements

Total credits: 72

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 332) tab.

Core Substantive Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 700</td>
<td>Theories of Justice</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 720</td>
<td>Behavior of Law</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 740</td>
<td>Justice Organization and Administration</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 760</td>
<td>Crime and Crime Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Analytical Methods Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 780</td>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 782</td>
<td>Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 783</td>
<td>Statistics II</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 781</td>
<td>Justice Program Evaluation</td>
</tr>
<tr>
<td>CRIM 784</td>
<td>Experimental Criminology</td>
</tr>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
</tr>
<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
</tr>
<tr>
<td>SOCI 631</td>
<td>Survey Research</td>
</tr>
<tr>
<td>SOCI 632</td>
<td>Evaluation Research for Social Programs</td>
</tr>
<tr>
<td>SOCI 634</td>
<td>Qualitative Research Methods</td>
</tr>
<tr>
<td>STAT 574</td>
<td>Survey Sampling I</td>
</tr>
<tr>
<td>STAT 658</td>
<td>Time Series Analysis and Forecasting</td>
</tr>
<tr>
<td>STAT 662</td>
<td>Multivariate Statistical Methods</td>
</tr>
<tr>
<td>STAT 665</td>
<td>Categorical Data Analysis</td>
</tr>
<tr>
<td>STAT 674</td>
<td>Survey Sampling II</td>
</tr>
<tr>
<td>STAT 773</td>
<td>Statistical Methods for Longitudinal Data Analysis</td>
</tr>
<tr>
<td>PSYC 633</td>
<td>Evaluative Research in Psychology</td>
</tr>
<tr>
<td>PSYC 640</td>
<td>Techniques in Industrial/Organizational Psychology</td>
</tr>
<tr>
<td>CSS 600</td>
<td>Introduction to Computational Social Science</td>
</tr>
<tr>
<td>CSS 610</td>
<td>Agent-based Modeling and Simulation</td>
</tr>
</tbody>
</table>

Total Credits 12

Six Courses in Two Substantive Fields of Study

Students select two substantive fields and complete three courses within each. Students may take one non-CRIM elective course in each area or other courses in criminology, law and society with prior written approval of the director of the graduate program.

Select two substantive fields from the lists below and complete three courses within each 18

Justice and Law

Justice Organizations, Administration, and Leadership
Justice and Law

Justice-related Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
<td>1-3</td>
</tr>
<tr>
<td>GOVT 520</td>
<td>Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 725</td>
<td>Democratic Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 631</td>
<td>Seminar in Comparative Politics and Institutions</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 619</td>
<td>Conflict and Conflict Management: Perspectives from Sociology</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 711</td>
<td>Classical Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 712</td>
<td>Contemporary Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONF 501</td>
<td>Introduction to Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 720</td>
<td>Ethnic and Cultural Factors in Conflict Resolution</td>
<td>1-3</td>
</tr>
<tr>
<td>CONF 721</td>
<td>Conflict and Race</td>
<td>3</td>
</tr>
<tr>
<td>CONF 723</td>
<td>Conflict and Gender</td>
<td>3</td>
</tr>
<tr>
<td>CONF 726</td>
<td>Moral and Philosophical Foundations of Conflict</td>
<td>3</td>
</tr>
<tr>
<td>CONF 747</td>
<td>Reconciliation</td>
<td>3</td>
</tr>
<tr>
<td>CONF 802</td>
<td>Theories of the Person</td>
<td>3</td>
</tr>
<tr>
<td>CONF 803</td>
<td>Structural Theories</td>
<td>3</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Microeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECON 852</td>
<td>Public Choice I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 854</td>
<td>Public Choice II</td>
<td>3</td>
</tr>
</tbody>
</table>

Law-related Electives

Any selected LAW courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 721</td>
<td>The Constitution, Criminal Procedure, and Security</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 723</td>
<td>Law and Social Control</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 730</td>
<td>Courts and Constitutional Law</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
<td>1-3</td>
</tr>
<tr>
<td>CONF 733</td>
<td>Law and Justice from a Conflict Perspective</td>
<td>1-3</td>
</tr>
<tr>
<td>ECON 895</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Prerequisite for enrollment in LAW courses: successful completion of CRIM 720 Behavior of Law and CRIM 721 The Constitution, Criminal Procedure, and Security. Enrollment requires preapproval from the graduate director, law school instructor, and associate dean for student academic affairs of the Law School.

Crime and Crime Policy

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 761</td>
<td>Politics of Crime Policy</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 762</td>
<td>Crime and Place</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 764</td>
<td>Sentencing</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 795</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 796</td>
<td>Directed Reading</td>
<td>1-3</td>
</tr>
<tr>
<td>SOCI 607</td>
<td>Criminology</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 540</td>
<td>Public Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 644</td>
<td>Public Policy Models</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 645</td>
<td>Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 617</td>
<td>Child Psychopathology</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Students may have more than 6 credits of electives, depending on the number of dissertation credits required by their program of study.

Electives

Students complete the remaining 72 credits through additional elective courses relevant to criminology, law and society in consultation with their advisor.

Select 6-15 credits of electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 797</td>
<td>Professionalization Seminar</td>
<td>0</td>
</tr>
</tbody>
</table>

1 Total Credits

One Professionalization Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 797</td>
<td>Professionalization Seminar</td>
<td>0</td>
</tr>
</tbody>
</table>

Total Credits

0
Qualifying Exams
Students must pass written qualifying exams in two core substantive fields of the student's choosing, selected from the three fields above. Students may take a single qualifying exam at each sitting.

Students are not eligible to take the qualifying exams until they have successfully completed the required course work, as well as course work in the substantive area in which they intend to sit for the qualifying exam. Students have one opportunity across both exam areas to retake a failed exam.

Advancement to Candidacy
To advance to candidacy, students must complete all course work required on their approved program of study. Students must also successfully complete and pass two qualifying exams. In addition, students must have a dissertation committee appointed by the Dean's Office and have defended their dissertation proposal.

Dissertation
Dissertation Committee
The student's committee is composed of at least four faculty members. Three of the four must be members of the graduate faculty in criminology, law and society. The fourth must be from another program at Mason or from outside the university. The faculty member serving as the chair of the committee must be a member of the graduate faculty in criminology, law and society.

Dissertation Research
Once enrolled in CRIM 998 Doctoral Dissertation Proposal, students in this degree program must maintain continuous registration in CRIM 998 Doctoral Dissertation Proposal or CRIM 999 Doctoral Dissertation Research each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in CRIM 999 Doctoral Dissertation Research, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Registration (p. 93). Students who defend in the summer must be registered for at least 1 credit of CRIM 999 Doctoral Dissertation Research.

Students may apply to this degree a minimum of 3 and a maximum of 6 credits of CRIM 998 Doctoral Dissertation Proposal and a minimum of 12 and a maximum of 21 credits of CRIM 999 Doctoral Dissertation Research. They may apply a maximum of 24 dissertation credits (CRIM 998 Doctoral Dissertation Proposal and CRIM 999 Doctoral Dissertation Research combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses. Students who take fewer than 24 dissertation credits will have accordingly more elective credits.

Select 15-24 credits from the following: 15-24

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 998</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 999</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

The final requirement is a dissertation of original research representing a significant contribution to the field, which should be publishable in a referred journal or a quality press.

Intelligence Analysis Minor
Banner Code: NTLA

Academic Advising
354 Enterprise Hall
Fairfax Campus
Website: cls.gmu.edu/programs/la-minor-cls-ntla

This minor is designed for students who are interested in careers in homeland security or other intelligence-related fields. This minor focuses on developing the skills of intelligence analysis, including research, writing, briefing, and analytical tradecraft. Students explore ethical issues in the field and new developments in the analysis of intelligence information.

The curriculum fosters a broad knowledge of content in several disciplines valued by employers in homeland security and intelligence-related fields. The minor offers students sufficient flexibility to pursue their primary interests while also preparing themselves for careers in intelligence analysis.

Admissions & Policies
Policies
Twelve credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. This minor is multidisciplinary in nature and requires coursework from at least two different academic departments. It must be approved by the director before graduation. A maximum of 6 credits of CRIM 485 Study Abroad can be applied to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements
Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 334) tab.

Students should plan their course of study with a criminology, law and society advisor assigned by the program.

Core Courses in the Minor

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 310</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 312</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Electives in the Minor
The electives must consist of courses from at least two different departments (two different subject prefixes).

Select four electives from the following: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 345</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 230</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 304</td>
<td>3</td>
</tr>
<tr>
<td>or IT 357</td>
<td>3</td>
</tr>
</tbody>
</table>

or IT 357 Computer Crime, Forensics, and Auditing
CRIM 350  Counterintelligence
CRIM 400  Applied Criminal Psychology
CRIM 460  Surveillance and Privacy in Contemporary Society
CRIM 462  Law Enforcement and Homeland Security
CRIM 475  Theory and Politics of Terrorism
GGS 301  Political Geography
GGS 311  Introduction to Geographic Information Systems
GGS 316  Geography of Latin America
GGS 320  Geography of Europe
GGS 325  Geography of North Africa and the Middle East
GGS 330  Geography of the Soviet Succession States
GGS 412  Air Photography Interpretation
GGS 416  Satellite Image Analysis
GOVT 332  Government and Politics of the Middle East and North Africa
GOVT 333  Government and Politics of Asia
GOVT 334  Government and Politics of Europe
GOVT 338  Government and Politics of Russia
GOVT 340  Central Asian Politics
GOVT 341  Chinese Foreign Policy
GOVT 344  American Foreign Policy
GOVT 345  Islam and Politics
GOVT 346  American Security Policy
GOVT 347  International Security
GOVT 446  International Law and Organization
HIST 327  The Soviet Union and Russia Since World War II
HIST 329  Modern Russia and the Soviet Union (Mason Core) (p. 135)
HIST 354  Modern China
HIST 358  Post-1949 China (Mason Core) (p. 135)
HIST 359  Modern Iraq
HIST 364  Revolution and Radical Politics in Latin America (Mason Core) (p. 135)
HIST 460  Modern Iran (Mason Core) (p. 135)
HIST 461  Arab-Israeli Conflict
HIST 465  The Middle East in the 20th Century
PHIL 173  Logic and Critical Thinking
SOCI 320  Social Structure and Globalization (Mason Core) (p. 135)
SOCI 326  Conflict, Violence, and Peace
STAT 350  Introductory Statistics II

Special topics courses may be approved if they are relevant to the field of intelligence analysis

1 Contact minor director for approval of specific sections of special topics courses.

Total Credits 12

Internship
Students who are American citizens may apply for an internship in intelligence analysis at the Federal Bureau of Investigation. Credits earned for the internship are in addition to those required for the minor and are not required for completion of the minor. Students who intend to apply for the internship should begin the application process no later than September of their sophomore year, since the security clearance process can take a year or more. Students in this minor are strongly encouraged to pursue advanced training in Arabic, Chinese, or Russian.

Department of Economics
D150 Mason Hall
Fairfax Campus
Phone: 703-993-1151
Website: economics.gmu.edu

Undergraduate Programs
The department offers a bachelor of arts and a bachelor of science degree in economics. The bachelor of science degree program is designed for students who desire a more technical program with a stronger emphasis on economic and quantitative analysis. It is especially appropriate for students who anticipate a career as an economic analyst in government, consulting, trade associations, or private sector positions that emphasize economic research and analysis. The requirements are also suitable for students planning postgraduate education in economics or more quantitative business administration programs.

Students interested in careers in the business world can pursue a concentration in managerial economics within the BS in economics.

The bachelor of arts degree in economics is designed for students with an interest in the liberal arts. It is appropriate for those who prefer a less quantitative degree program and may be especially suitable for students planning to attend law school or graduate programs in business or public administration.

Bachelor’s/Accelerated Master’s Program
The department offers highly qualified undergraduates the opportunity to apply to an accelerated master’s degree program in economics (p. 342). If accepted, students will be able to earn both an undergraduate and a graduate degree after satisfactory completion of 144 credits, sometimes within five years.

Graduate Programs
The department offers a master’s and a doctoral degree in economics. The department is noted for its emphasis on comparative institutional analysis and its focus on the relations among economic, political, and legal institutions. This is reflected in the specializations associated with the department: experimental economics, Austrian economics, public choice, constitutional political economy, law and economics, and new institutional economics.

Funding
The department offers graduate teaching and research assistantships and fellowships that are awarded on a competitive basis. Other sources of funding such as grants, loans, and employment on campus are also available. Students with assistantships must register for a minimum of
six credits a semester and, like all students, demonstrate satisfactory progress toward their degree.

**Faculty**

**Department Faculty**

**Distinguished Professors Emeriti**

Smith

**Professors Emeriti**

Chung, Phillips, Vaughn

**Professors**

Bennett, Boettke, Boudreaux, Caplan, Cowen, Groseclose, Heiner, Houser (chair), Klein, Leeson, Levy, Martinelli, McCabe, Nye, Ramirez, Stratmann, Tabarrok, Wagner, White, Williams

**Associate Professors**

Coyne, Hanson, Johnson, Jones, Meyer

**Assistant Professors**

Eil, Koyama

**Term Assistant Professor**

Dunick, Rustici

**Programs**

- Economic Systems Design Minor
- Economics Minor
- Economics, BA
- Economics, BS
- Economics, MA
- Economics, PhD

**Economic Systems Design Minor**

Banner Code: ESD

**Academic Advising**

D150 Mason Hall
Fairfax Campus

Website: economics.gmu.edu/programs/la-minor-econ-esd

The design of processes that efficiently allocate resources and foster exchange are crucial in society, organizations, personal interactions, and individual decision-making. Economic systems design is the scientific study of the design, development, testing, and understanding of economic institutions. Economic systems design explores problems in the design of allocation systems and provides a method to develop and test the properties of such systems. A minor in economic systems design prepares students to undertake the scientific process of understanding and developing systems of exchange and their incentives. The skills offered through this minor can be of use to e-commerce designers, policy analysts, systems designers, engineers, and computer scientists.

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 336) tab.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 440</td>
<td>Economic Systems Design: Principles and Experiments</td>
<td>3</td>
</tr>
<tr>
<td>ECON 441</td>
<td>Economic Systems Design: Case Studies and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ECON 442</td>
<td>Economic Systems Design: Implementation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

**Electives**

Students can choose from the courses below or others chosen in consultation with the director of the minor.

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS 491</td>
<td>Seminar in Management Information Systems</td>
</tr>
<tr>
<td>MATH 441</td>
<td>Deterministic Operations Research</td>
</tr>
<tr>
<td>SYST 420</td>
<td>Network Analysis</td>
</tr>
<tr>
<td>SYST 470</td>
<td>Human Factors Engineering</td>
</tr>
<tr>
<td>CS 480</td>
<td>Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>CS 483</td>
<td>Analysis of Algorithms</td>
</tr>
<tr>
<td>ECON 335</td>
<td>Environmental Economics</td>
</tr>
<tr>
<td>ECON 415</td>
<td>Law and Economics</td>
</tr>
</tbody>
</table>

Total Credits: 6

**Economics Minor**

Banner Code: ECON

**Academic Advising**

D150 Mason Hall
Fairfax Campus

Website: economics.gmu.edu/programs/la-minor-econ-econ

Economics is an essential tool for understanding the complexities of modern society. Economics analyzes how people with limited resources make choices and how we might make better choices. A minor in economics is an extremely flexible and marketable choice. Whether a student’s primary interest is in business, communications, policy, data
management, international studies, or engineering, a minor in economics provides an additional edge in the workplace.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 21

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 337) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles</td>
<td>3</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

1 Must be completed with a minimum grade of C.

Electives

Select four electives from courses in economics at the 3xx or 4xx level 12

Total Credits 12

1 - ECON 385 International Economic Policy may not be used to fulfill this requirement.

- With permission of the department chair or undergraduate director, a course in a closely-related field may be substituted for 3 credits of economics electives. A course in statistics is highly-recommended, and BUS 210 Business Analytics I or STAT 344 Probability and Statistics for Engineers and Scientists I may be substituted for up to 3 credits of economics electives.

- A minimum of nine credits of upper-level economics courses must be taken at Mason.

Economics, BA

Banner Code: LA-BA-ECON

D150 Mason Hall
Fairfax Campus

Website: economics.gmu.edu/programs/la-ba-econ

Economics is about more than money and profits. It is a way of looking at the world through the lens of incentives, choices, and markets to help uncover new solutions to the persistent problems in our society. This economic perspective sheds light on important issues in the areas of production, education, crime, the environment, international trade, immigration, health care, economic growth, poverty, and more. The BA is designed for students with a strong interest in the liberal arts. It is appropriate for those who prefer a less quantitative degree program than the BS and may be especially appropriate for students planning to attend law school or graduate programs in business or public administration.

Admissions & Policies

Policies

Students pursuing this degree must complete a minimum of 48 credits of required coursework with a minimum GPA of 2.00. Students in the concentration in philosophy, politics, and economics complete a minimum of 70 credits. Students must also complete ECON 103 Contemporary Microeconomic Principles (Mason Core) (p. 135) and ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135) with at least a 2.00 (C) in each.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 337) tab.

Economics majors can fulfill the Mason Core (p. 135) synthesis requirement with ECON 309 Economic Problems and Public Policies (Mason Core) (p. 135). Some economics courses may fulfill the Mason Core (p. 135) requirement in global understanding or the college requirement in non-Western culture. Check with the departmental advising office for more information.

Core Courses without Concentration

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles</td>
<td>3</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 311</td>
<td>Intermediate Macroeconomics</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HNRT 125</td>
<td>A Liberal Arts Approach to Calculus</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>HNRS 353 &amp; MIS 102</td>
<td>Technology in the Contemporary World (Topic Varies) (Mason Core) (p. 135) and Spreadsheet Applications for Business</td>
<td>18-19</td>
</tr>
<tr>
<td>BUS 210 &amp; BUS 310</td>
<td>Business Analytics I and Business Analytics II</td>
<td>6</td>
</tr>
<tr>
<td>STAT 250 &amp; STAT 350</td>
<td>Introductory Statistics I (Mason Core) (p. 135) and Introductory Statistics II</td>
<td>6</td>
</tr>
<tr>
<td>STAT 344 &amp; STAT 354</td>
<td>Probability and Statistics for Engineers and Scientists I and Probability and Statistics for Engineers and Scientists II</td>
<td>6</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 311</td>
<td>Intermediate Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 412</td>
<td>Game Theory and Economics of Institutions</td>
<td>3</td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HNRT 125</td>
<td>A Liberal Arts Approach to Calculus (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Statistics**

Select 6 credits from the following: 6

- BUS 210 & BUS 310 Business Analytics I and Business Analytics II
- STAT 250 & STAT 350 Introductory Statistics I (Mason Core) (p. 135) and Introductory Statistics II
- STAT 344 & STAT 354 Probability and Statistics for Engineers and Scientists I and Probability and Statistics for Engineers and Scientists II

**Electives without Concentration**

Select 24 credits of electives from courses in economics at the 300 and 400 level (p. 1413) 1

Total Credits: 24

1 ECON 385 International Economic Policy may not be used to fulfill this requirement.

**Core Courses with Concentration in Philosophy, Politics, and Economics (PPE)**

The 70-73 credit concentration in philosophy, politics, and economics offers students a program that explores the interdisciplinary connections between philosophy, political science, and economics.

**Economics**

- ECON 103 Contemporary Microeconomic Principles (Mason Core) (p. 135)
- ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135)
- ECON 306 Intermediate Microeconomics
- ECON 311 Intermediate Macroeconomics
- ECON 412 Game Theory and Economics of Institutions

Select one from the following: 3

- MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135)
- HNRT 125 A Liberal Arts Approach to Calculus (Mason Core) (p. 135)
- MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135)

Select one from the following: 3-4

- IT 104 Introduction to Computing (Mason Core) (p. 135)
- CS 112 Introduction to Computer Programming (Mason Core) (p. 135)

**Philosophy**

- PHIL/GOVT 324 Modern Western Political Theory
- PHIL/GOVT 327 Contemporary Western Political Theory
- PHIL 357 Philosophy of the Social Sciences
- PHIL 371 Philosophy of Natural Sciences
- PHIL 358 Ethics and Economics
- PHIL 411 Theories of Decision

Total Credits: 12

**Public and International Affairs**

- GOVT 103 Introduction to American Government (Mason Core) (p. 135)
- GOVT/PHIL 323 Classical Western Political Theory
- GOVT 422 Constitutional Interpretation
- GOVT 467 Current Issues in Economic Policy

Total Credits: 12

**Capstone Experience Course**

- GOVT 469 Philosophy, Politics, and Economics

Total Credits: 3
Writing-Intensive Requirement
The university requires all students to complete at least one course designated as "writing intensive" in their majors at the 300 level or above. Students majoring in economics fulfill this requirement by successfully completing one of the following courses:

- ECON 345 Introduction to Econometrics
- ECON 355 The Political Economy of Nonprofit Institutions
- ECON 365 Topics in Economic History
- ECON 435 Economics of Energy
- ECON 470 Economics of Regulation

Upper Level Requirements
Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies
Select 3 credits from the following:

- PHIL (p. 1818) 1
- RELI (p. 1904)

1 Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences
Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement) 1

- ANTH (p. 1119)
- CRIM (p. 1372)
- ECON (p. 1413)
- GOVT (p. 1588)
- HIST (p. 1628) 2

1 Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Foreign Language
Intermediate-level proficiency in one foreign language, fulfilled by: 1

- Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)
- Or achieving a satisfactory score on an approved proficiency test
- Or completing the following ASL three course sequence:
  - EDSE 115 American Sign Language (ASL) I
  - EDSE 116 American Sign Language (ASL) II
  - EDSE 219 American Sign Language (ASL) III

1 Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Non-Western Culture
Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
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</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
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</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td>3</td>
</tr>
<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
<td>3</td>
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<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
<td>3</td>
</tr>
<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
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<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
<td>3</td>
</tr>
</tbody>
</table>
HIST 354  Modern China  3
HIST 356  Modern Japan (Mason Core) (p. 135)  3
HIST 357  Postwar Japan (Mason Core) (p. 135)  3
HIST 358  Post-1949 China (Mason Core) (p. 135)  3
HIST 360  History of South Africa (Mason Core) (p. 135)  3
HIST 364  Revolution and Radical Politics in Latin America (Mason Core) (p. 135)  3
HIST 365  Conquest and Colonization in Latin America (Mason Core) (p. 135)  3
HIST 366  Comparative Slavery  3
HIST 367  History, Fiction, and Film in Latin America  3
HIST 387  Topics in Global History (Mason Core) (p. 135)  3-6
HIST 426  The Russian Revolution  3
HIST 460  Modern Iran (Mason Core) (p. 135)  3
HIST 461  Arab-Israeli Conflict  3
HIST 462  Women in Islamic Society (Mason Core) (p. 135)  3
HIST 465  The Middle East in the 20th Century  3
JAPA 310  Japanese Culture in a Global World (Mason Core) (p. 135)  3
JAPA 340  Topics in Japanese Literature (Mason Core) (p. 135)  3
KORE 320  Korean Popular Culture in a Global World  3
MUSI 103  Musics of the World (Mason Core) (p. 135)  3
RELI 211  Religions of the West (Mason Core) (p. 135)  3
RELI 212  Religions of Asia (Mason Core) (p. 135)  3
RELI 240  Death and the Afterlife in World Religions  3
RELI 272  Islam  3
RELI 313  Hinduism (Mason Core) (p. 135)  3
RELI 314  Chinese Philosophies and Religious Traditions  3
RELI 315  Buddhism (Mason Core) (p. 135)  3
RELI 337  Mysticism: East and West  3
RELI 365  Muhammad: Life and Legacy  3
RELI 374  Islamic Thought (Mason Core) (p. 135)  3
RELI 375  Qur’an and Hadith  3
RELI 379  Islamic Law, Society, and Ethics  3
RELI 387  Islam, Democracy, and Human Rights  3
RELI 490  Comparative Study of Religions (Mason Core) (p. 135)  3
RUSS 353  Russian Civilization (Mason Core) (p. 135)  3
RUSS 354  Contemporary Post-Soviet Life (Mason Core) (p. 135)  3

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Foundation Requirements</td>
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</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
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<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
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<td></td>
<td>Literature (p. 140)</td>
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<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
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<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone Requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

Additional Electives
Any remaining credits may be completed with electives to bring the degree total to 120.

Honors

Honors in the Major
Students pursuing departmental honors must complete 6 hours of ECON 495 RS: Honors Thesis in Economics culminating with an original work of research and an oral presentation. Requirements for departmental honors are in addition to the coursework required for the major. Students must complete ECON 495 RS: Honors Thesis in Economics with a grade of B or higher to receive departmental honors.

Economics majors who have completed 90 credits with an overall GPA of 3.50 and a GPA of 3.50 within the major are eligible to apply. Not all applicants who meet the minimum requirements are guaranteed acceptance.

Applications will be available starting May 1st of each year. Applications are due by August 1st.

To be accepted into the program and enroll in ECON 495 RS: Honors Thesis in Economics students must submit a research
proposal. Research proposals can be developed independently or by completing ECON 494 Honors Thesis Writing Seminar with a grade of B or higher. Completion of ECON 494 Honors Thesis Writing Seminar is not required for departmental honors.

**Accelerated Master’s**

The accelerated master’s program listed below specifies the BA in economics as a feeder degree for its program. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

**Economics, BA or BS/Economics, Accelerated MA**

**Overview**

Highly-qualified Mason economics majors may apply to the accelerated master’s degree program. If accepted, students will be able to earn both a BA (p. 337) or BS (p. 342) and a MA in economics (p. 347) after satisfactory completion of 144 credits. Graduates are exceptionally well-prepared for professional school or a PhD program in economics or a related discipline.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in economics, see Application Requirements and Deadlines (http://economics.gmu.edu/programs/application/LA-MA-ACEL-ECON) on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students will be required to complete two master’s courses to be applied to the undergraduate degree as upper level credit. These two courses must be selected from the following five courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 535</td>
<td>Survey of Applied Econometrics</td>
<td>6</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 612</td>
<td>Microeconomic Theory II</td>
<td></td>
</tr>
<tr>
<td>ECON 615</td>
<td>Macroeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 630</td>
<td>Mathematical Economics I</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

While undergraduate students, accelerated master’s students may take an additional two master’s courses as reserve graduate credit. These two additional master’s courses must be selected from the following five courses:

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 535</td>
<td>Survey of Applied Econometrics</td>
<td>6</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 612</td>
<td>Microeconomic Theory II</td>
<td></td>
</tr>
<tr>
<td>ECON 615</td>
<td>Macroeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 630</td>
<td>Mathematical Economics I</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Economics, BS**

**Banner Code: LA-BS-ECON**

D150 Mason Hall
Fairfax Campus

Website: economics.gmu.edu/programs/la-bs-econ

Economics is about more than money and profits. It is a way of looking at the world through the lens of incentives, choices, and markets to help uncover new solutions to the persistent problems in our society. This economic perspective sheds light on important issues in the areas of production, education, crime, the environment, international trade, immigration, health care, economic growth, poverty, and more. The BS in Economics provides a stronger emphasis on quantitative analysis. Students prepare for a career as an analyst in government, consulting, trade associations, or other private sector positions, and for graduate school in economics or more quantitative business administration programs.

**Admissions & Policies**

**Policies**

Students pursuing this degree must complete a minimum of 59 credits of required coursework with a minimum GPA of 2.00. Students completing a concentration will complete additional credits.
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

**Requirements**

**Degree Requirements**

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 342) tab.

Some economics courses may fulfill the Mason Core requirement in global understanding. Check with the departmental advising office for more information. Economics majors can fulfill the Mason Core synthesis requirement with ECON 309 Economic Problems and Public Policies (Mason Core) (p. 135).

**Core Courses without Concentration**

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 311</td>
<td>Intermediate Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 345</td>
<td>Introduction to Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
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<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
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</table>

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HNRS 353 &amp; MIS 102</td>
<td>Technology in the Contemporary World (Topic Varies) (Mason Core) (p. 135) and Spreadsheet Applications for Business</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 26-27

**Statistics**

Select one from the following: 1

<table>
<thead>
<tr>
<th>Course Code &amp; Credits</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>STAT 250 &amp; STAT 350</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>STAT 344 &amp; STAT 354</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Probability and Statistics for Engineers and Scientists II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

1 With departmental permission, BUS 210 Business Analytics I and BUS 310 Business Analytics II may also be substituted for the two required courses in statistics; however, a two-course sequence of STAT 250 Introductory Statistics I (Mason Core) (p. 135) and STAT 350 Introductory Statistics II OR STAT 344 Probability and Statistics for Engineers and Scientists I and STAT 354 Probability and Statistics for Engineers and Scientists II is highly recommended for students who wish to pursue graduate study in economics.

**Additional Course**

ACCT 203 Survey of Accounting 3

or STAT 362 Introduction to Computer Statistical Packages 3

Total Credits 3

**Electives without Concentration**

**Electives**

Select 24 credits of electives from courses in economics at the 300 and 400 level (p. 1413) 24

Total Credits 24

1 ECON 385 International Economic Policy may not be used to fulfill this requirement.

If ECON 340 Introduction to Mathematical Economics is chosen as an elective, students need not take the 4-credit course MATH 114 Analytic Geometry and Calculus II; however, MATH 114 Analytic Geometry and Calculus II is strongly recommended for students considering graduate school in economics since it is required for admission to most graduate programs. An additional calculus course beyond MATH 114 Analytic Geometry and Calculus II is also advisable for students considering graduate study in economics.

**Optional Concentrations**

Students interested in a degree in economics with a concentration will complete the coursework for one of the concentrations below.

**Concentration in Managerial Economics (MECN)**

Students who wish to focus their BS in economics for application in the business world may choose to pursue a concentration in managerial economics. They complete 62 credits, 10 of which may be used also to fulfill Mason Core requirements.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
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<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 308</td>
<td>Managerial Economics and Strategy</td>
<td>3</td>
</tr>
<tr>
<td>ECON 310</td>
<td>Money and Banking</td>
<td>3</td>
</tr>
<tr>
<td>ECON 311</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 345</td>
<td>Introduction to Econometrics</td>
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</table>

Total Credits 21

**Statistics**

Select one from the following: 1

<table>
<thead>
<tr>
<th>Course Code &amp; Credits</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250 &amp; STAT 350</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6
STAT 344 & STAT 354 Probability and Statistics for Engineers and Scientists I and Probability and Statistics for Engineers and Scientists II

Total Credits 6

With departmental permission, BUS 210 Business Analytics I and BUS 310 Business Analytics II may also be substituted for the two required courses in statistics; however, a two-course sequence of STAT 250 Introductory Statistics I (Mason Core) (p. 135) and STAT 350 Introductory Statistics II OR STAT 344 Probability and Statistics for Engineers and Scientists I and STAT 354 Probability and Statistics for Engineers and Scientists II is highly recommended for students who wish to pursue graduate study in economics.

Required Courses in Math, Accounting, and Information Technology

ACCT 203 Survey of Accounting 3

Select one from the following: 3-4

IT 104 Introduction to Computing (Mason Core) (p. 135)

CS 112 Introduction to Computer Programming (Mason Core) (p. 135)

HNRS 353 & MIS 102 Technology in the Contemporary World (Topic Varies) (Mason Core) (p. 135) and Spreadsheet Applications for Business

MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) 4

MATH 114 Analytic Geometry and Calculus II 4

Total Credits 14-15

ECON 340 Introduction to Mathematical Economics may not be substituted for MATH 114 Analytic Geometry and Calculus II for the concentration.

Two Required Courses in Business Writing

BUS 103 Develop Professional Skills I: Foundational Elements 3

BUS 303 Develop Professional Skills II: Advanced Elements 3

Total Credits 6

Electives in Economics

Select 9 credits from the following: 9

ECON 321 Economics of Labor
ECON 370 Economics of Industrial Organization
ECON 390 International Economics (Mason Core) (p. 135)
ECON 412 Game Theory and Economics of Institutions
ECON 415 Law and Economics
ECON 420 International Money and Finance
ECON 421 Financial Economics
ECON 496 Special Topics in Economics

Total Credits 9

Additional Electives in Economics

Select 6 credits of electives in economics from courses at the 300 and 400 level (p. 1413)

Total Credits 6

ECON 385 International Economic Policy may not be used to fulfill this requirement.

Elective not in Economics

Select one elective from the following: 3

BULE 303 Legal Environment of Business
FNAN 303 Financial Management
MGMT 303 Principles of Management
MKTG 303 Principles of Marketing
MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135)
OM 303 Operations Management

Total Credits 3

Concentration in Philosophy, Politics, and Economics (PPE)

This is a high credit concentration for students interested in a program that explores the interdisciplinary connections between philosophy, political science, and economics.

Required Courses in Economics

ECON 103 Contemporary Microeconomic Principles (Mason Core) (p. 135) 3
ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135) 3
ECON 306 Intermediate Microeconomics 3
ECON 311 Intermediate Macroeconomics 3
ECON 345 Introduction to Econometrics 3
ECON 412 Game Theory and Economics of Institutions 3

Total Credits 18

Statistics

Select one from the following: 1

STAT 250 & STAT 350 Introductory Statistics I (Mason Core) (p. 135) and Introductory Statistics II

STAT 344 & STAT 354 Probability and Statistics for Engineers and Scientists I and Probability and Statistics for Engineers and Scientists II

Total Credits 6

Required Courses in Math and Information Technology

Select one from the following: 3-4

BULE 303 Legal Environment of Business
FNAN 303 Financial Management
MGMT 303 Principles of Management
MKTG 303 Principles of Marketing
MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135)
OM 303 Operations Management

Total Credits 3

With departmental permission, BUS 210 Business Analytics I and BUS 310 Business Analytics II may also be substituted for the two required courses in statistics; however, a two-course sequence of STAT 250 Introductory Statistics I (Mason Core) (p. 135) and STAT 350 Introductory Statistics II OR STAT 344 Probability and Statistics for Engineers and Scientists I and STAT 354 Probability and Statistics for Engineers and Scientists II is highly recommended for students who wish to pursue graduate study in economics.

Required Courses in Math and Information Technology

Select one from the following: 3-4
IT 104  Introduction to Computing (Mason Core)  
(p. 135)

CS 112  Introduction to Computer Programming  
(Mason Core)  (p. 135)

HNRS 353 & MIS 102  Technology in the Contemporary World  
(Topic Varies) (Mason Core)  (p. 135) and Spreadsheet Applications for  
Business

MATH 113  Analytic Geometry and Calculus I (Mason  
Core)  (p. 135)

MATH 114  Analytic Geometry and Calculus II  
4

Total Credits  
11-12

Electives

Select 18 credits of electives in economics at the 300 and 400  
level (p. 1413)  

Total Credits  
18

1  ECON 385 International Economic Policy may not be used to fulfill this  
requirement. If ECON 340 Introduction to Mathematical Economics is  
chosen as an elective, students need not take the 4-credit course MATH 114  
Analytic Geometry and Calculus II; however, MATH 114 Analytic Geometry  
and Calculus II is strongly recommended for students considering graduate  
school in economics since it is required for admission to most graduate  
programs. An additional calculus course beyond MATH 114 Analytic  
Geometry and Calculus II is also advisable for students considering graduate  
study in economics.

Philosophy

PHIL/GOVT 324  Modern Western Political Theory  
3

PHIL 357  Philosophy of the Social Sciences  
3

PHIL 358  Ethics and Economics  
3

PHIL 411  Theories of Decision  
3

Total Credits  
12

Public and International Affairs

GOVT 103  Introduction to American Government  
(Mason Core)  (p. 135)

GOVT/PHIL 323  Classical Western Political Theory  
3

GOVT 422  Constitutional Interpretation  
3

GOVT 467  Current Issues in Economic Policy  
3

Total Credits  
12

Capstone Experience Course

GOVT 469  Philosophy, Politics, and Economics  
3

or PHIL/ECON  
460  Senior Seminar in Philosophy, Politics, and  
Economics

Total Credits  
3

Writing-Intensive Requirement

The university requires all students to complete at least one course  
designated as "writing intensive" in their majors at the 300 level or above.  
Students majoring in economics fulfill this requirement by successfully  
completing:

Select one from the following:  

ECON 345  Introduction to Econometrics  
ECON 355  The Political Economy of Nonprofit  
Institutions  
ECON 365  Topics in Economic History  
ECON 435  Economics of Energy  
ECON 470  Economics of Regulation  

Total Credits  
3

Upper Level Requirements

Students seeking a bachelor’s degree must apply at least 45 credits  
of upper-level courses (numbered 300 or above) toward graduation  
requirements.

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by  
the major requirements listed above. Students are strongly encouraged  
to consult their advisors to ensure they fulfill all remaining Mason Core  
(p. 135) requirements.

<table>
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<th>Title</th>
<th>Credits</th>
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<td>Written Communication (p. 135)</td>
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<td>Information Technology (p. 136)</td>
<td>3-7</td>
<td></td>
</tr>
</tbody>
</table>

Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts (p. 137)</td>
<td>3</td>
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<td>Global Understanding (p. 139)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Literature (p. 140)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Natural Science (p. 141)</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
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<td></td>
</tr>
<tr>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Synthesis/Capstone Requirement  

Synthesis/Capstone (p. 143)  
3

Total Credits  
40

1  minimum 3 credits

Additional Electives

Any remaining credits may be completed with electives to  
bring the degree total to 120

Honors

Honors in the Major

Students pursuing departmental honors must complete 6 hours  
of ECON 495 RS: Honors Thesis in Economics culminating with an  
original work of research and an oral presentation. Requirements for  
departmental honors are in addition to the coursework required for  
the major. Students must complete ECON 495 RS: Honors Thesis in  
Economics with a grade of B or higher to receive departmental honors.  
Economics majors who have completed 90 credits with an overall GPA  
of 3.50 and a GPA of 3.50 within the major are eligible to apply. Not
all applicants who meet the minimum requirements are guaranteed acceptance.

Applications will be available starting May 1st of each year. Applications
are due by August 1st.

To be accepted into the program and enroll in ECON 495 RS:
Honors Thesis in Economics students must submit a research
proposal. Research proposals can be developed independently or by
completing ECON 494 Honors Thesis Writing Seminar with a grade of B
or higher. Completion of ECON 494 Honors Thesis Writing Seminar is not
required for departmental honors.

### Accelerated Master's

The accelerated master's programs listed below specify the BS in
economics as a feeder degree for their programs. It is important
to note, however, that many accelerated master's programs are
available for any bachelor's degree at Mason, including this one. See
the full list of master's degrees (http://catalog.gmu.edu/programs/
#filter=filter_27&filter_24) with accelerated programs at George Mason.

### Economics, BA or BS/Economics,
Accelerated MA

#### Overview

Highly-qualified Mason economics majors may apply to the accelerated
master's degree program. If accepted, students will be able to earn both
a BA (p. 337) or BS (p. 342) and a MA in economics (p. 347) after
satisfactory completion of 144 credits. Graduates are exceptionally well-
prepared for professional school or a PhD program in economics or a
related discipline.

For more detailed information, see AP.6.7 Bachelor's/Accelerated
Master's Degrees (p. 89). For policies governing all graduate degrees,
see AP.6 Graduate Policies (p. 87).

#### Application Requirements

Applicants to all graduate programs at George Mason University
must meet the admission standards and application requirements
for graduate study as specified in Graduate Admissions (p. 66). For
information specific to the accelerated MA in economics, see Application
Requirements and Deadlines (http://economics.gmu.edu/programs/
application/LA-MA-ACEL-ECON) on the departmental web site.

#### Accelerated Option Requirements

While undergraduate students, accelerated master's students will
be required to complete two master's courses to be applied to the
undergraduate degree as upper level credit. These two courses must be
selected from the following five courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 535</td>
<td>Survey of Applied Econometrics</td>
<td>6</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 612</td>
<td>Microeconomic Theory II</td>
<td></td>
</tr>
<tr>
<td>ECON 615</td>
<td>Macroeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 630</td>
<td>Mathematical Economics I</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

Once admitted to the accelerated master's pathway, students must
maintain a minimum cumulative GPA of 3.25 in all course work and earn
a grade of B or better (3.00 or higher) in course work applied to their
major. Upon completion and conferral of the undergraduate degree in
the semester indicated in the application, they submit the Bachelor's/
Accelerated Master's Transition Form and are admitted to graduate
status.

As graduate students, accelerated master's students have an advanced
standing. They must meet all master's degree requirements except for
the two courses (6 credits) they completed as undergraduates. Students
must begin their master's program in the semester immediately following
conferral of the undergraduate degree.

#### Reserve Graduate Credit

While undergraduate students, accelerated master's students may take
an additional two master's courses as reserve graduate credit. These
two additional master's courses must be selected from the following five courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 535</td>
<td>Survey of Applied Econometrics</td>
<td></td>
</tr>
<tr>
<td>ECON 611</td>
<td>Microeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 612</td>
<td>Microeconomic Theory II</td>
<td></td>
</tr>
<tr>
<td>ECON 615</td>
<td>Macroeconomic Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 630</td>
<td>Mathematical Economics I</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

These credits do not apply to the undergraduate degree. To apply these
credits to the master's degree, students should use the Bachelor's/
Accelerated Master's Transition Form.

The ability to take courses, including ones not listed above, for reserve
graduate credit is available to all high achieving undergraduates with
the permission of the department. Permission is normally granted only
to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4
Graduate Course Enrollment by Undergraduates (p. 76).

### BS (selected)/Statistical Science,
Accelerated MS

#### Overview

Highly-qualified students in selected BS programs (see below)
have the option of obtaining an accelerated Statistical Science, MS
(p. 1064). Students in an accelerated degree program must fulfill all
university requirements for the master's degree.

For more detailed information, see AP.6.7 Bachelor's/Accelerated
Master's Degrees (p. 89). For policies governing all graduate degrees,
see AP.6 Graduate Policies (p. 87).

#### Admission Requirements

Students enrolled in a BS degree in any one of the Volgenau School
major areas, in the Mathematics, BS (p. 716) program
from the College of Science (p. 593), or in the Economics, BS
(p. 342) program from the College of Humanities and Social Sciences
(p. 295) may apply to this option if they have earned 90 undergraduate
credits with an overall GPA of 3.00. Criteria for admission are identical to
criteria for admission to the Statistical Science, MS (p. 1064) program,
which include successful completion of the following Mason courses each with a grade of C or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 321</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 351</td>
<td>Probability</td>
<td></td>
</tr>
</tbody>
</table>

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with grades of B or better in two 500-level STAT courses selected from STAT 544 Applied Probability, STAT 554 Applied Statistics I, and STAT 574 Survey Sampling I.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and Graduate Recruitment and Enrollment Services. At the completion of MS requirements, a master's degree is conferred.

**Economics, MA**

**Banner Code: LA-MA-ECON**

**Academic Advising**

D150 Mason Hall  
Fairfax Campus  
Email: econgrad@gmu.edu  
Website: economics.gmu.edu/programs/la-ma-econ

The economics MA is noted for its emphasis on comparative institutional analysis and its concentration on the relationships among economic, political, and legal institutions. The specific areas associated with the department include experimental economics, Austrian economics, public choice, constitutional political economy, law and economics, and new institutional economics. The program strengthens students' knowledge of economic theory and improves their skills in applying the theory to economic problems. Graduates are qualified to read and judge other research and conduct their own, either individually or as members of government or business teams. They are also prepared to write policy analyses. Students who plan to pursue a PhD in economics should apply directly to the doctoral program.

**Admissions & Policies**

**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MA in economics, see Application Requirements and Deadlines (http://economics.gmu.edu/programs/application/LA-MA-ECON) on the departmental website.

**Policies**

For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87)

**Transfer Credits**

Students may request to transfer a maximum of 12 credits for prior graduate course work (not applied to a previous graduate degree) subject to approval by the graduate director and dean in accordance with the Program Policies of the department and AP.6.5.3 Transfer of Credit (p. 86).

**Reduction of Credit**

This program does not permit a reduction of credit based on a previously conferred graduate degree.

**Requirements**

**Degree Requirements**

Total credits: 30

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 347) tab.

**Core Courses**

In place of core courses shown below, students admitted to the PhD in economics who have added the MA as a secondary degree to their record must substitute ECON 637 Econometrics I, ECON 811 Microeconomic Theory I, ECON 812 Microeconomic Theory II, ECON 715 Macroeconomic Theory I, and ECON 830 Mathematical Economics I or ECON 831 Mathematical Economics II.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 535</td>
<td>Survey of Applied Econometrics</td>
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<td>Macroeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECON 630</td>
<td>Mathematical Economics I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select 15 credits of ECON electives (p. 1413) 1

Total Credits 15

1 Students may substitute up to a maximum of six credits or two courses outside economics in closely related fields with prior written approval of the MA director.
Students have the option of writing a thesis for six credits in lieu of six credits of electives.

Students admitted to the PhD in economics who have added the MA as a secondary degree to their record must apply ECON 816 Macroeconomic Theory II as one of the five electives applied to the MA degree.

**Comprehensive Exam**

Students must pass one MA comprehensive exam in applied economic theory. This exam is offered twice each year. Students admitted to the PhD in economics who are seeking the MA as secondary degree must pass both the PhD micro and the PhD macro qualifying exams, which will satisfy the requirement for the MA comprehensive exam.

**Thesis (Optional)**

Once enrolled in ECON 799 Master’s Thesis, students are required to maintain continuous registration until the thesis is submitted to and accepted by the University Library. The continuous registration policy is specified in AP.6.9.3 Master’s Thesis (p. 91).

Students who choose to complete a thesis take six fewer elective credits.

<table>
<thead>
<tr>
<th>Thesis Option</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 799 Master’s Thesis</td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

**Accelerated Master’s**

**Economics, BA or BS/Economics, Accelerated MA**

**Overview**

Highly-qualified Mason economics majors may apply to the accelerated master’s degree program. If accepted, students will be able to earn both a BA (p. 337) or BS (p. 342) and a MA in economics (p. 347) after satisfactory completion of 144 credits. Graduates are exceptionally well-prepared for professional school or a PhD program in economics or a related discipline.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in economics, see Application Requirements and Deadlines (http://economics.gmu.edu/programs/application/LA-MA-ACEL-ECON) on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students will be required to complete two master’s courses to be applied to the undergraduate degree as upper level credit. These two courses must be selected from the following five courses:

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<td>6</td>
</tr>
<tr>
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<td>Macroeconomic Theory</td>
<td>6</td>
</tr>
<tr>
<td>ECON 630</td>
<td>Mathematical Economics I</td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work and earn a grade of B or better (3.00 or higher) in course work applied to their major. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

While undergraduate students, accelerated master’s students may take an additional two master’s courses as reserve graduate credit. These two additional master’s courses must be selected from the following five courses:

<table>
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</thead>
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<td>6</td>
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<td>ECON 611</td>
<td>Microeconomic Theory</td>
<td>6</td>
</tr>
<tr>
<td>ECON 612</td>
<td>Microeconomic Theory II</td>
<td>6</td>
</tr>
<tr>
<td>ECON 615</td>
<td>Macroeconomic Theory</td>
<td>6</td>
</tr>
<tr>
<td>ECON 630</td>
<td>Mathematical Economics I</td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Economics, PhD**

**Banner Code: LA-PHD-ECON**

**Academic Advising**

D150 Mason Hall
Fairfax Campus

Email: econgrad@gmu.edu
Website: economics.gmu.edu/programs/la-phd-econ

The economics PhD prepares students for careers in academia, business, and government. Core courses train students in modern theory and quantitative techniques, while field courses stress the application of theory to relevant economic problems. Dissertation work requires
students to master and apply the skills of original research. With an emphasis on writing for publication, many students have had articles accepted and published in professional journals while in the graduate program. Research in the department covers a broad spectrum, from problems of immediate policy importance to fundamental questions of economic and social organization.

### Admissions & Policies

#### Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://economics.gmu.edu/programs/application/LA-PHD-ECON) on the departmental web site.

#### Policies

Students must earn a minimum GPA of 3.00 in coursework applied to the degree. No more than two courses with a grade of 2.00 may be applied toward the degree.

For policies governing all graduate degrees, see Graduate Policies (p. 87).

#### Reduction of Credit

Students who enter with a master’s degree may have their credit requirement reduced by up to 30 credits, depending on the department’s judgment about the degree of closeness of that work to work that would have been taken at George Mason University. Reduction also requires approval of the dean. Requests for reduction of credit are reviewed only after acceptance to the doctoral program.

#### Program of Study

All students must have an approved program of study as specified in AP.6.10 Requirements for Doctoral Degrees (p. 92).

### Requirements

#### Degree Requirements

Total credits: 72

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 349) tab.

#### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 637</td>
<td>Econometrics I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 715</td>
<td>Macroeconomic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 811</td>
<td>Microeconomic Theory I</td>
<td>3</td>
</tr>
<tr>
<td>ECON 812</td>
<td>Microeconomic Theory II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 816</td>
<td>Macroeconomic Theory II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 830</td>
<td>Mathematical Economics I</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 831</td>
<td>Mathematical Economics II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 18

#### Electives

Select 30-42 credits of electives from economics courses in any of the fields offered by the department 1

| Total Credits | 30-42 |

1 Students may substitute up to 6 credits of courses outside economics in closely related fields with prior written approval of the director of the graduate program. ECON 695 Special Topics in Economics cannot be applied toward PhD requirements.

#### Qualifying Exams

Students must successfully pass qualifying exams in microeconomics and macroeconomics.

#### Field Exams

Students must successfully pass field exams in two knowledge areas. Subject to course availability, the department offers courses in the following fields of study on which the knowledge area field exams will be based. Because the specific courses offered each year vary, students should consult the department for the courses that can be used for each field.

- Austrian economics
- Constitutional political economy
- Economic history
- Experimental economics
- Industrial organization
- Individualized field exam
- Institutions and development
- Law and economics
- Monetary theory
- Public choice
- Smithian political economy

#### Advancement to Candidacy

To advance to candidacy, students must complete all course work required on their approved program of study and all exams. In addition, students must have a dissertation committee appointed by the dean as well as an approved proposal. Evidence of the approved proposal must be on file in the Dean’s Office before a student can advance to candidacy.

#### Dissertation

Once enrolled in 998, students in the economics doctoral program must maintain continuous registration in 998 or 999 each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in 999, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Registration (p. 93). Students who defend in the summer must be registered for at least 1 credit of 999.

Students must complete a minimum of 3 credits of 999. They may apply a minimum of 12 and a maximum of 24 dissertation credits (998 and 999 combined) to the degree.

**Dissertation Research**

| Credits | 12-24 |

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 998</td>
<td>Doctoral Dissertation Proposal Research</td>
</tr>
</tbody>
</table>
The department offers a bachelor's degree in English and a bachelor of fine arts degree in creative writing.

**English, BA**
The BA in English is a versatile major with seven concentrations designed to meet students' individual interests and career objectives. English majors can also do an internship in technical writing or linguistics. Students interested in becoming teachers can participate in a program offered in conjunction with the College of Education and Human Development (p. 154) that allows undergraduates to simultaneously complete their BA in English and their licensure requirements to teach English at the secondary school level in Virginia.

English majors learn to read critically and write carefully in classes that are uniquely small for a university the size of Mason. Students develop these abilities not only through reading traditional texts but also through the use of technologies such as blogs, wikis, and multimedia production. Because English majors have excellent skills in written and oral communication, research, critical thinking, and focused creativity they are well prepared for any career - teaching, journalism, creative writing, management, law, and more.

**Creative Writing, BFA**
The BFA in creative writing encourages freedom of thought, speech, and inquiry. Through its innovative courses, the program enables students to exercise analytical and imaginative thinking. Through its combined classroom and work-world curriculum, it prepares students to make well-founded ethical decisions. The degree offers three concentrations allowing for the opportunity to learn the conventions of several genres.

300-level courses in English and linguistics teach the foundational principles for a field of study, include courses of broad scope, and provide an introduction to a genre, literary period, or methodology.

400-level courses in English and linguistics provide an in-depth approach to a field of study, a single genre, literary period, or methodology. They include special topics classes and English honors classes. Some 400-level courses require ENGH 305 Dimensions of Writing and Literature as a prerequisite.

**English with a Second Major**
Students can combine a major in English with a second major. Students interested in this option are encouraged to discuss their plans with their English advisor. See the section on Credit for More than One Undergraduate Major in Undergraduate Policies.

**Minors**
The department offers a minor in English, which is available to students in any major at Mason.
Each summer, selected teachers attend an intensive four-week institute where they demonstrate successful teaching methods, develop their own writing lives, and study the latest research and theory on the learning and teaching of writing. After the summer institute, participants receive the designation of Teacher Consultant and join over 900 other teachers in carrying out the work of the NVWP. The NVWP is an affiliate of the National Writing Project and one of the six sites of the Virginia Writing Project.

Faculty

Department Faculty

Professors
Albanese, Clark, D’Andrea (Robinson Professor), Foster, Goodwin, Kaufmann, Lathbury, Matz, Mori, Pankey, Tichy

Associate Professors
Amireh, Anderson, Atkinson, Brkic, Burr, Chang, Eisner, Eyma, Fuchs, Gallehr, Habila, Harvey, Jones, Keith, Kuebrich, Lattanzi Shutika (chair), Lockwood, Malouf, Michals, Reid, Rogers, Rutledge, Scarlata, Weinberger, Wheelock, Wulf, Yadav

Assistant Professors
Chakravarty, Denevi, Fraser, Gatling, Hoefer, Holmes, Jackson, LaFrance, Lawrence, Morrill, Samuelian, Streckfus

Term Professors
Koch, Miller, Scott, Taciuch, Thompson

Term Associate Professors
Berg, Burnham, King, Matthews, Nanian, Saunders, Taylor

Term Assistant Professors
Corbett, Doetsch-Kidder, Fitzpatrick, Green, Habib, Holmes, Howell, Lawrence, Liberatore, Lister, Mack, Nichols, Photos, Rudnicki, Savage, Shreve

Term Instructors
Baker, Broderick, Hoy, Killiany, Raffel, Scolaro

Adjunct Assistant Professors
Broyles, Cabral, Carbo, Casal, DeFazio, Dutta, Fowler, Grogan-Barone, Jacobs, Johnston, Laptad, Kuhta, Orlando, Pabich, Patrick, Sorvillo

Adjunct Instructors
Holcomb

Programs

- Creative Writing, BFA
- Creative Writing, MFA
- English Minor
- English Pedagogy Graduate Certificate
- English, BA
- English, MA
- Film and Media Studies Minor
- Folklore Studies Graduate Certificate
- Folklore and Mythology Minor
- Linguistics Minor
- Linguistics, PhD
- Native American and Indigenous Studies Minor
- Professional Writing Minor
- Professional and Technical Writing Graduate Certificate
- Teaching English as a Second Language Graduate Certificate
- Teaching English as a Second Language Minor
- Writing and Rhetoric, PhD

Creative Writing, BFA

Banner Code: LA-BFA-CW

A487 Robinson Hall
Fairfax Campus

Website: creativewriting.gmu.edu/programs/la-bfa-cw

The Bachelor of Fine Arts in Creative Writing is one of only thirty BFAs in creative writing available nationwide. With three concentrations to choose from—fiction, poetry, nonfiction—the BFA is structured to give students ample opportunity to learn to write and think creatively while also developing the vocational writing skills that are desperately needed in the workplace. All students pursuing a BFA are strongly advised to complete on-site workplace internships in writing-intensive environments, and finish the degree with a submission of a portfolio of work as part of a final-semester capstone course.

Admissions & Policies

Admissions

Acceptance into the program is competitive. Admission to the university does not guarantee admission to the BFA program.

After acceptance to Mason, students who wish to pursue a major in creative writing should inform the academic coordinator in the English department or the director of the creative writing program of their interest in the program and should seek evaluation of any prior coursework as well as guidance on courses to take and the sequence in which to take them. In the program, students enroll in a series of courses intended to introduce them to all forms of creative writing, and then they select a core set of courses built around a specialization in fiction, nonfiction or poetry, along with upper-level writing, literature and advanced studies courses.

Students planning to enter the BFA program are initially designated as "pre-BFA" until they have successfully completed the requirements for full admission. Full admission requires a minimum of three creative writing courses successfully completed with a grade point average (GPA) of 3.00 or higher in those courses. Alternatively, students who have taken creative writing courses at another institution or in their early undergraduate coursework at Mason may gain full admission status to the BFA program on the strength of recommendations from the instructors in those courses, subject to departmental approval, which is obtained from the Mason creative writing faculty and the director of the creative writing program.

A student admitted to the university and intending to enter the BFA program may designate a major in English and complete English major courses before attempting to move into admitted BFA status.
Meeting minimum requirements does not guarantee admission to full BFA status.

**Policies**

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Students pursuing this degree must complete 45 credits (15 courses) in English/Linguistics beyond ENGH 300 Cover to Cover (not including ENGH 302 Advanced Composition (Mason Core) (p. 135)) with a minimum GPA of 2.00.

At the discretion of the department, transfer students may substitute transferred lower level creative writing classes for some BFA requirements. With permission of the department, BFA students may select a substitute for concentration required coursework from the list of courses approved for the writing or literature elective requirement. Substitutions must be justified as specifically relevant to the student’s study. Substitutions will not satisfy more than one requirement within the major.

## Requirements

### Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 351) tab.

Students will complete 21 credits of BFA core requirements, 12 credits from one of 3 concentrations, and 12 credits in English department requirements. 300-level courses in English and linguistics teach the foundational principles for a field of study, include courses of broad scope, and provide an introduction to a genre, literary period, or methodology. 400-level courses in English and linguistics provide an in-depth approach to a field of study, a single genre, literary period, or methodology. They include special topics classes and English honors classes. Some 400-level courses require ENGH 305 Dimensions of Writing and Literature as a prerequisite.

Students should consult with an English department advisor to learn ways in which the Mason Core (p. 135) requirements can also satisfy college-level requirements or the BFA.

### Core Courses in the Major

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 301</td>
<td>The Fields of English</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 305</td>
<td>Dimensions of Writing and Literature</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 377</td>
<td>Digital Creative Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 396</td>
<td>Introduction to Creative Writing (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 495</td>
<td>Capstone and Thesis (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

### English Department Requirements

#### Literature before 1800

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 320</td>
<td>Literature of the Middle Ages</td>
</tr>
<tr>
<td>ENGH 321</td>
<td>English Poetry and Prose of the 16th Century</td>
</tr>
</tbody>
</table>

#### Literature before 1915

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 334</td>
<td>British Poetry of the Romantic Period</td>
</tr>
<tr>
<td>ENGH 335</td>
<td>Prose and Poetry of the Victorian Period</td>
</tr>
<tr>
<td>ENGH 336</td>
<td>British Novel of the 19th Century</td>
</tr>
<tr>
<td>ENGH 341</td>
<td>Literature of the American Renaissance</td>
</tr>
<tr>
<td>ENGH 343</td>
<td>Development of the American Novel to 1914</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 360</td>
<td>Continental Fiction, 1770-1880</td>
</tr>
</tbody>
</table>

A second course from literature before 1800 list above

Total Credits 3

#### Minority, Folkloric, or Popular Literary and Cultural Traditions

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 310</td>
<td>Topics: Women and Literature</td>
</tr>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklife</td>
</tr>
<tr>
<td>ENGH 319</td>
<td>Popular Culture</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 350</td>
<td>African American Literature Through 1946</td>
</tr>
<tr>
<td>ENGH 351</td>
<td>Contemporary African American Literature</td>
</tr>
<tr>
<td>ENGH 352</td>
<td>Topics in Ethnic American Literature</td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 366</td>
<td>The Idea of a World Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 367</td>
<td>World Literatures in English</td>
</tr>
<tr>
<td>ENGH 412</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 414</td>
<td>Folklore of the Spirit World</td>
</tr>
<tr>
<td>ENGH 415</td>
<td>Folk Arts and Folk Artists</td>
</tr>
<tr>
<td>ENGH 416</td>
<td>Ethnicity and Migration in Folklore</td>
</tr>
<tr>
<td>ENGH 419</td>
<td>Topics in Popular Literature</td>
</tr>
</tbody>
</table>
ENGH 451  Science Fiction
ENGH 452  Critical Study of Children’s Literature

Total Credits 3

Writing or Literature Electives
Select one course from the following:

Additional Writing Courses
ENGH 388  Professional and Technical Writing
ENGH 402  Honors Independent Study
ENGH 459  Internship
ENGH 484  RS: Writing Ethnography (Mason Core) (p. 135)
ENGH 492  Advanced Fiction Writing Workshop
ENGH 493  Advanced Workshop in Nonfiction
ENGH 494  Advanced Poetry Writing Workshop
ENGH 497  Topics in Creative Writing
ENGH 499  Independent Study
ENGH 505  Document Design

Courses in Contemporary Literature
ENGH 315  Folklore and Folklife
ENGH 319  Popular Culture
ENGH 337  British Poetry after 1900
ENGH 338  British Novel after 1900
ENGH 339  British and Irish Drama after 1900
ENGH 344  Development of the American Novel since 1914
ENGH 345  American Drama of the 20th Century
ENGH 346  American Poetry of the 20th Century
ENGH 351  Contemporary African American Literature
ENGH 368  Modern Drama
ENGH 412  Topics in Folklore Studies
ENGH 414  Folklore of the Spirit World
ENGH 415  Folk Arts and Folk Artists
ENGH 419  Topics in Popular Literature
ENGH 451  Science Fiction
ENGH 452  Critical Study of Children’s Literature
ENGH 453  Topics in Fiction
ENGH 454  Topics in Poetry
ENGH 455  Topics in Drama
ENGH 456  Topics in Literary Nonfiction (for fiction and poetry concentrators only)

Course in Writing for other Arts
AVT 395  Writing for Artists
CHSS 390  Peer Tutoring in Writing across the Disciplines
THR 380  Playwriting I
THR 381  Playwriting II
THR 382  Screenplay Workshop
THR 480  Advanced Playwriting

Total Credits 3

Required Workshop Courses
The workshops are in the two areas outside of the chosen concentration. The remaining workshop is included as part of the concentration requirements.

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 397</td>
<td>Poetry Writing</td>
</tr>
<tr>
<td>ENGH 398</td>
<td>Fiction Writing</td>
</tr>
<tr>
<td>ENGH 399</td>
<td>Creative Nonfiction Writing</td>
</tr>
</tbody>
</table>

Total Credits 6

Concentrations in the Major

Students must complete one of the following concentrations.

Concentration in Fiction (FIC)
ENGH 398  Fiction Writing 3
ENGH 392  Forms of Fiction 3
ENGH 355  Recent American Fiction 3
ENGH 492  Advanced Fiction Writing Workshop 3

Total Credits 12

Concentration in Nonfiction (NFIC)
ENGH 399  Creative Nonfiction Writing 3
ENGH 393  Forms of Nonfiction 3
ENGH 456  Topics in Literary Nonfiction 3
ENGH 493  Advanced Workshop in Nonfiction 3

Total Credits 12

Concentration in Poetry (POE)
ENGH 397  Poetry Writing 3
ENGH 391  Forms of Poetry 3
ENGH 356  Recent American Poetry 3
ENGH 494  Advanced Poetry Writing Workshop 3

Total Credits 12

Writing-Intensive Requirement
The university requires all students to complete at least one course designated “writing intensive” in their majors at the 300 level or above. Students majoring in creative writing may fulfill this requirement by successfully completing ENGH 305 Dimensions of Writing and Literature.

Upper Level Requirement
Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies
Code  Title  Credits
Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL</td>
<td>(p. 1818) 1</td>
<td></td>
</tr>
</tbody>
</table>


Note that the following courses may not be used to fulfill this requirement:

- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
<td>3</td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
<td></td>
</tr>
<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
<td></td>
</tr>
<tr>
<td>LING</td>
<td>(p. 1694)</td>
<td></td>
</tr>
<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
<td></td>
</tr>
<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
<td></td>
</tr>
</tbody>
</table>

Or choose from the following GGS courses:

- **GGS 101** Major World Regions (Mason Core) (p. 135)
- **GGS 103** Human Geography (Mason Core) (p. 135)
- **GGS 110** Introduction to Geoinformation Technologies
- **GGS 301** Political Geography
- **GGS 303** Geography of Resource Conservation (Mason Core) (p. 135)
- **GGS 304** Population Geography (Mason Core) (p. 135)
- **GGS 305** Economic Geography
- **GGS 306** Urban Geography
- **GGS 315** Geography of the United States
- **GGS 316** Geography of Latin America
- **GGS 320** Geography of Europe
- **GGS 325** Geography of North Africa and the Middle East
- **GGS 330** Geography of the Soviet Succession States
- **GGS 357** Structures in Urban Governance and Planning
- **GGS 380** Geography of Virginia

The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE</td>
<td>American Sign Language (ASL) I</td>
<td>3</td>
</tr>
<tr>
<td>EDSE</td>
<td>American Sign Language (ASL) II</td>
<td>3</td>
</tr>
<tr>
<td>EDSE</td>
<td>American Sign Language (ASL) III</td>
<td>3</td>
</tr>
</tbody>
</table>

Intermediate-level proficiency in one foreign language, fulfilled by:

1. Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)
2. Or achieving a satisfactory score on an approved proficiency test
3. Or completing the following ASL three course sequence:

   - **EDSE 115** American Sign Language (ASL) I
   - **EDSE 116** American Sign Language (ASL) II
   - **EDSE 219** American Sign Language (ASL) III

   1. Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>Introduction to Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of Island Asia</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Ancient Mesoamerica (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of India</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Myth, Magic, and Mind (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of the Caribbean</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
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</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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</tr>
<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
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</tr>
<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
</tr>
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<td>GOVT 340</td>
<td>Central Asian Politics</td>
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<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
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<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
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<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
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<td>Survey of Latin American History (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
</tr>
<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
</tbody>
</table>
Honors

Honors in the Major

Highly qualified students in either the BA in English (p. 359) or the BFA in creative writing (p. 351) programs may pursue advanced work leading to graduation with honors in the major. To graduate with honors in the major, students must complete a two-course honors sequence and receive a minimum GPA of 3.50 in all courses counted toward the major and, separately, a minimum GPA of 3.50 in their honors courses. Honors courses may simultaneously satisfy concentration and distribution requirements in the major.

Students satisfy the honors course sequence by taking one of the following:

- Two sections of ENGH 400 Honors Seminar
- ENGH 400 Honors Seminar and ENGH 401 RS: Honors Thesis Writing Seminar (Mason Core) (p. 135)
- ENGH 400 Honors Seminar and writing a creative honors thesis in ENGH 402 Honors Independent Study (for students in the creative writing concentration) or ENGH 495 Capstone and Thesis (Mason Core) (p. 135)
- ENGH 402 Honors Independent Study in conjunction with an advanced course in nonfiction writing and completing a nonfiction thesis as part of ENGH 401 RS: Honors Thesis Writing Seminar (Mason Core) (p. 135) (for students in the nonfiction concentration)

Students interested in pursuing honors in the major should consult the English Department (p. 350) for more information.

Accelerated Master’s

The accelerated master’s program listed below specifies the BFA in creative writing as a feeder degree for its program. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including these. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason. In addition, as a student with a BFA in creative writing you may be particularly interested in the accelerated (p. 390)MA in English with a concentration in linguistics. (p. 371)

English, BA or Creative Writing, BFA/ Curriculum and Instruction, Accelerated MEd (Secondary Education English concentration)

Overview

Highly-qualified Mason undergraduates may be admitted to the bachelor’s/accelerated master’s option and obtain both a BA in English (p. 359) or a BFA in Creative Writing (p. 351) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education English) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of English (p. 350) and the Graduate School of Education (p. 155).
Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EDCI 569</td>
<td>3</td>
<td>EDCI 669</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Creative Writing, MFA

Banner Code: LA-MFA-CW

Academic Advising

A487 Robinson Hall
Fairfax Campus

Email: englgrad@gmu.edu
Website: creativewriting.gmu.edu/programs/la-mfa-cw

The MFA in creative writing is a three-year residency program offering tracks in fiction, nonfiction, and poetry. Students in the program are members of a literary community that includes a student-organized program of readings, potluck dinners with faculty, three journals, a student-run publisher—Stillhouse Press—and the annual Fall for the Book literary festival. Resident faculty members include recipients of prestigious writing awards such as the Guggenheim Foundation, the Yale Series of Younger Poets, the Lannan Foundation, the Whiting Foundation and the National Endowment for the Arts, among others.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MFA in creative writing, see Application Requirements and Deadlines (http://english.gmu.edu/programs/application/LA-MFA-CW) on the departmental website.

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Reduction of Credit

With the approval of the MFA faculty, the program director, and the dean, the number of credits required for an MFA may be reduced by a maximum of 23 credits on the basis of graduate course work before admission.

Requirements

Degree Requirements

Total credits: 48

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 357) tab.

Core Courses

Literature

<table>
<thead>
<tr>
<th>Literature</th>
<th>Select two to four courses in consultation with an advisor</th>
<th>6-12</th>
</tr>
</thead>
</table>

Craft Seminars

<table>
<thead>
<tr>
<th>Six to twelve credits of Craft Seminars</th>
<th>6-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 608 Craft Seminars</td>
<td>2</td>
</tr>
</tbody>
</table>

Workshop

<table>
<thead>
<tr>
<th>Workshop</th>
<th>ENGH 699 Workshop in English</th>
<th>13-25</th>
</tr>
</thead>
</table>

1. ENGH 798 Directed Reading and Research may not be used to fulfill this requirement.
2. This course may be repeated for credit.

Concentration in Fiction (FIC)

<table>
<thead>
<tr>
<th>ENGH 566 Forms of Fiction</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 618 Fiction Writing Workshop</td>
<td>9</td>
</tr>
<tr>
<td>ENGH 751 Advanced Workshop in Fiction Writing</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Nonfiction Writing (NFW)

<table>
<thead>
<tr>
<th>ENGH 506 Research for Narrative Writing</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 565 Forms of Nonfiction</td>
<td>3</td>
</tr>
<tr>
<td>Writing Workshops</td>
<td>9</td>
</tr>
<tr>
<td>ENGH 616 Nonfiction Writing Workshop</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12
English Minor

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 752</td>
<td>Advanced Workshop in Nonfiction Writing</td>
<td>15</td>
</tr>
</tbody>
</table>

1. Students should enroll the first semester it is offered after they enter the program.

### Concentration in Poetry (POE)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 564</td>
<td>Form of Poetry</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 617</td>
<td>Poetry Writing Workshop</td>
<td>9</td>
</tr>
</tbody>
</table>

Select at least one course in another genre (fiction or nonfiction) 1

Total Credits 15

1. This requirement may be filled by a section of ENGH 608 Craft Seminars in another genre.

### Electives

Select up to 15 credits from electives in consultation with the writing program faculty 1

Total Credits 15

1. The number of electives will vary according to the number of literature courses and workshops that students take.

### Exam or Project

#### Poetry Concentration

Students in poetry must pass a written MFA exam based on the authors they have chosen. The authors are selected in collaboration with the writing faculty any time after completing 12 credits of course work and before completing 32 credits. The exam must be completed at least one semester before the student registers for the final 3 credits of thesis.

#### Fiction and Nonfiction Concentration

Students in fiction and nonfiction writing must pass an MFA exam or complete an MFA project.

Students who elect to take the MFA exam select, after the completion of 18 credits and with the approval of their faculty advisors, a list of authors and an area of emphasis (for example, the European novel). Students who elect to complete an MFA project (such as editing an anthology) must carry out the project under the direction of a faculty member and may register for ENGH 798 Directed Reading and Research to fulfill this requirement. The project must be completed at least one semester before the student registers for the final 3 credits of thesis.

### Thesis

ENGH 798 Directed Reading and Research may not be used as thesis preparation. Students who want to register for thesis credits in the summer need the permission of the thesis committee.

Students should be aware of the university policies governing theses. They must follow the thesis enrollment policy and once enrolled in ENGH 799 Thesis, maintain continuous enrollment. These policies are specified in AP.6.9.3 Master’s Thesis (p. 91).

### Requirements

#### Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 358) tab.

ENGH 305 Dimensions of Writing and Literature is not required for the minor but is strongly encouraged.

### Core Courses

Select 3-6 credits of 200-level courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 201</td>
<td>Reading and Writing about Texts (Mason Core) (p. 135)</td>
<td>3-6</td>
</tr>
<tr>
<td>ENGH 202</td>
<td>Texts and Contexts (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ENGH 203</td>
<td>Western Literary Tradition (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ENGH 204</td>
<td>Western Literary Traditions (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3-6

### Electives

Select 12-15 credits in 300- or 400-level ENGH or LING courses 1

Total Credits 12-15
Students have the option of choosing courses to form a focus for the minor. Examples include: American literature, British literature, creative writing, cultural studies, drama, fiction, film and media studies, folklore, literary criticism, poetry, and world literature. Students should consult with the English undergraduate advisor to design a minor program to meet their educational goals and interests.

1. ENGH 302 Advanced Composition (Mason Core) (p. 135) may not be applied to the minor.

### English Pedagogy Graduate Certificate

**Banner Code: LA-CERG-EPGY**

**Academic Advising**

A487 Robinson Hall
Fairfax Campus

Website: english.gmu.edu/programs/la-cerg-epgy

The graduate certificate in English pedagogy provides students with coursework that focuses on teaching in the domains of English studies, including literature, composition, creative writing, and technical writing.

The certificate may be pursued concurrently with any of several programs in English and elsewhere. Part of the coursework toward the certificate may be applied to those degrees with the approval of the director of the degree program.

The graduate certificate in English pedagogy may be pursued on a part-time or full-time basis.

### Admissions & Policies

**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in English pedagogy, see Application Requirements and Deadlines (http://english.gmu.edu/programs/la-cerg-epgy/application) on the departmental website.

**Policies**

Students must achieve a minimum grade of 3.00 in each course.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

#### Certificate Requirements

Total credits: 18

- **Core Courses**
  - ENGH 610: Proseminar in Teaching the Reading of Literature (3)
  - ENGH 615: Proseminar in Composition Instruction (3)
  - Total Credits: 6

- **Pedagogy Courses**
  - Select two courses from the following: 6
    - ENGH 620: Topics in Pedagogy
    - ENGH 695: Northern Virginia Writing Project Inservice Program
    - ENGH 697: Composition Theory
    - ENGH 699: Workshop in English
  - Total Credits: 6

  1. Offered only to full-time teachers through school district contracts.
  2. Topic must be NVWP Summer Institute; open to full-time teachers on an invitation basis.

- **Electives**
  - Select content-area coursework that supports their goals in developing pedagogical expertise 6
  - Total Credits: 6

  1. Electives should be selected in consultation with an advisor.

### English, BA

**Banner Code: LA-BA-ENGL**

A487 Robinson Hall
Fairfax Campus

Website: english.gmu.edu/programs/la-ba-engl

The BA in English offers students the opportunity to study literature, creative writing, film and media studies, writing and rhetoric, linguistics, folklore and mythology, and cultural studies. Of these seven concentrations, students pursue one or two that best match their interests and career objectives. Students are encouraged to pursue internships related to their concentrations and receive faculty mentorship throughout that process. In fact, English classes are kept small so faculty members may provide students with personalized attention. Students write in a range of traditional and digital forms and in a variety of contexts; student work culminates in a research project written for the major capstone course in their concentration. For students who want to challenge themselves even further, there is an Honors Program in English, which includes a thesis option, as well as other opportunities to pursue advanced research or creative projects; for those who want to become teachers, there is a bachelor’s/accelerated master’s program that English offers in conjunction with the College of Education and Human Development.
Admissions & Policies

Policies

Students pursuing this degree must complete 36 credits in English/Linguistics beyond ENGH 300 (not including ENGH 302) with a minimum GPA of 2.00. At least 12 credits (including the capstone requirement) must be at the 400 level.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 360) tab.

300-level courses in English and linguistics teach the foundational principles for a field of study, include courses of broad scope, and provide an introduction to a genre, literary period, or methodology.

400-level courses in English and linguistics provide an in-depth approach to a field of study, a single genre, literary period, or methodology. They include special topics classes and English honors classes. Some 400 level courses require ENGH 305 Dimensions of Writing and Literature as a prerequisite.

Students choose at least one and no more than two of seven concentrations.

Students should consult with an English Department advisor to learn ways in which the Mason Core requirements can also satisfy college-level requirements for the English major.

Core Courses in the Major

Required Courses

Threshold Course

ENGH 301 The Fields of English 3

Field Introduction Courses

ENGH 305 Dimensions of Writing and Literature 3

Select 3 credits from the following: 1

LING 306 General Linguistics (Mason Core) (p. 135) 3
ENGH 315 Folklore and Folklife
ENGH 318 Introduction to Cultural Studies
ENGH 372 Introduction to Film (Mason Core) (p. 135)
ENGH 380 Introduction to Writing and Rhetoric
ENGH 396 Introduction to Creative Writing (Mason Core) (p. 135)

Theory Course

ENGH 308 Theory and Inquiry 3

Capstone Course

Select 3 credits from the following: 3

ENGH 401 RS: Honors Thesis Writing Seminar (Mason Core) (p. 135)

English Department Requirements

Courses taken to fulfill this requirement may simultaneously satisfy a concentration. Special topics courses, when relevant, may be used to fulfill this requirement with the prior written approval of the department.

Literature before 1800

Select 3 credits from the following: 3

ENGH 320 Literature of the Middle Ages
ENGH 321 English Poetry and Prose of the 16th Century
ENGH 322 Shakespeare
ENGH 323 Shakespeare: Special Topics
ENGH 324 English Renaissance Drama
ENGH 325 English Poetry and Prose of the 17th Century
ENGH 330 Augustan Age: 1660-1745
ENGH 331 Age of Sensibility: 1745-1800
ENGH 332 Restoration and 18th Century Drama
ENGH 333 British Novel of the 18th Century
ENGH 340 Early American Literature
ENGH 421 Topics in Medieval and Renaissance Literature
ENGH 422 Chaucer
ENGH 424 Spenser
ENGH 428 Milton

Literature before 1915

Select 3 credits from courses listed above and the following: 3

ENGH 334 British Poetry of the Romantic Period
ENGH 335 Prose and Poetry of the Victorian Period
ENGH 336 British Novel of the 19th Century
ENGH 341 Literature of the American Renaissance
ENGH 343 Development of the American Novel to 1914
ENGH 348 Beginnings of African American Literature Through 1865
ENGH 349 African American Literature: Reconstruction to 1903
ENGH 360 Continental Fiction, 1770-1880
ENGH 361 Continental Fiction, 1880-1950
Minority, Folkloric, or Popular Literary and Cultural Traditions
Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 310</td>
<td>Topics: Women and Literature</td>
</tr>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklife</td>
</tr>
<tr>
<td>ENGH 319</td>
<td>Popular Culture</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 350</td>
<td>African American Literature Through 1946</td>
</tr>
<tr>
<td>ENGH 351</td>
<td>Contemporary African American Literature</td>
</tr>
<tr>
<td>ENGH 352</td>
<td>Topics in Ethnic American Literature</td>
</tr>
<tr>
<td>ENGH 356</td>
<td>The Idea of a World Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 367</td>
<td>World Literatures in English</td>
</tr>
<tr>
<td>ENGH 412</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 414</td>
<td>Folklore of the Spirit World</td>
</tr>
<tr>
<td>ENGH 415</td>
<td>Folk Arts and Folk Artists</td>
</tr>
<tr>
<td>ENGH 416</td>
<td>Ethnicity and Migration in Folklore</td>
</tr>
<tr>
<td>ENGH 417</td>
<td>RS: Topics in Folklore Research (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 419</td>
<td>Topics in Popular Literature</td>
</tr>
<tr>
<td>ENGH 451</td>
<td>Science Fiction</td>
</tr>
<tr>
<td>ENGH 452</td>
<td>Critical Study of Children’s Literature</td>
</tr>
</tbody>
</table>

Total Credits: 9

Electives in the Major
Students must take 0-12 elective credits in the major as needed to meet the 36-credit requirement.

Total Credits: 0-12

Concentrations in the Major
Students choose one and no more than two concentrations. Special topics courses may be used to fulfill the requirements for a concentration when so designated by department.

Concentration in Creative Writing (CW)
Select four courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 377</td>
<td>Digital Creative Writing</td>
</tr>
<tr>
<td>ENGH 397</td>
<td>Poetry Writing</td>
</tr>
<tr>
<td>ENGH 398</td>
<td>Fiction Writing</td>
</tr>
<tr>
<td>ENGH 399</td>
<td>Creative Nonfiction Writing</td>
</tr>
<tr>
<td>ENGH 492</td>
<td>Advanced Fiction Writing Workshop</td>
</tr>
<tr>
<td>ENGH 493</td>
<td>Advanced Workshop in Nonfiction</td>
</tr>
<tr>
<td>ENGH 494</td>
<td>Advanced Poetry Writing Workshop</td>
</tr>
<tr>
<td>ENGH 497</td>
<td>Topics in Creative Writing</td>
</tr>
</tbody>
</table>

Total Credits: 12

Concentration in Cultural Studies (CULT)
Select four courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 308</td>
<td>Theory and Inquiry</td>
</tr>
<tr>
<td>ENGH 310</td>
<td>Topics: Women and Literature</td>
</tr>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklife</td>
</tr>
<tr>
<td>ENGH 318</td>
<td>Introduction to Cultural Studies</td>
</tr>
<tr>
<td>ENGH 319</td>
<td>Popular Culture</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 350</td>
<td>African American Literature Through 1946</td>
</tr>
<tr>
<td>ENGH 351</td>
<td>Contemporary African American Literature</td>
</tr>
<tr>
<td>ENGH 352</td>
<td>Topics in Ethnic American Literature</td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 372</td>
<td>Introduction to Film (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 412</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 414</td>
<td>Folklore of the Spirit World</td>
</tr>
<tr>
<td>ENGH 415</td>
<td>Folk Arts and Folk Artists</td>
</tr>
<tr>
<td>ENGH 416</td>
<td>Ethnicity and Migration in Folklore</td>
</tr>
<tr>
<td>ENGH 418</td>
<td>Cultural Constructions of Sexualities</td>
</tr>
<tr>
<td>ENGH 419</td>
<td>Topics in Popular Literature</td>
</tr>
<tr>
<td>ENGH 452</td>
<td>Critical Study of Children’s Literature</td>
</tr>
<tr>
<td>ENGH 474</td>
<td>Topics in Film/Media Studies</td>
</tr>
<tr>
<td>COMM 465</td>
<td>Topics in Communication and Gender</td>
</tr>
<tr>
<td>CULT 320</td>
<td>Globalization and Culture</td>
</tr>
<tr>
<td>PSYC 362</td>
<td>Psychology of Gender</td>
</tr>
<tr>
<td>SOCI 315</td>
<td>Contemporary Gender Relations</td>
</tr>
<tr>
<td>WMST 300</td>
<td>Current Issues in Women and Gender Studies</td>
</tr>
<tr>
<td>WMST 330</td>
<td>Theoretical Perspectives in Women and Gender Studies</td>
</tr>
</tbody>
</table>

Total Credits: 12

Concentration in Film and Media Studies (FILM)
Select four courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 318</td>
<td>Introduction to Cultural Studies</td>
</tr>
<tr>
<td>ENGH 319</td>
<td>Popular Culture (with department approval)</td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (p. 135) (with department approval)</td>
</tr>
<tr>
<td>ENGH 370</td>
<td>Introduction to Documentary (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 371</td>
<td>Television Studies (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 372</td>
<td>Introduction to Film (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 373</td>
<td>Film and Video Forms</td>
</tr>
<tr>
<td>ENGH 418</td>
<td>Cultural Constructions of Sexualities (with department approval)</td>
</tr>
<tr>
<td>ENGH 470</td>
<td>RS: Topics in Film/Media History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 472</td>
<td>Topics in Film/Media Theory</td>
</tr>
<tr>
<td>ENGH 474</td>
<td>Topics in Film/Media Studies</td>
</tr>
<tr>
<td>AVT 377</td>
<td>Cyberpunk</td>
</tr>
<tr>
<td>COMM 201</td>
<td>Small Group Communication</td>
</tr>
</tbody>
</table>

May include one course from outside the English Department chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>COMM 201</td>
<td>Small Group Communication</td>
</tr>
<tr>
<td>PSYC 362</td>
<td>Psychology of Gender</td>
</tr>
<tr>
<td>SOCI 315</td>
<td>Contemporary Gender Relations</td>
</tr>
<tr>
<td>WMST 300</td>
<td>Current Issues in Women and Gender Studies</td>
</tr>
<tr>
<td>WMST 330</td>
<td>Theoretical Perspectives in Women and Gender Studies</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>-------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>COMM 365</td>
<td>Gender, Race, and Class in the Media</td>
</tr>
<tr>
<td>COMM 366</td>
<td>Visual Communication</td>
</tr>
<tr>
<td>COMM 380</td>
<td>Media Criticism</td>
</tr>
<tr>
<td>COMM 465</td>
<td>Topics in Communication and Gender</td>
</tr>
<tr>
<td>FAVS 225</td>
<td>The History of World Cinema (Mason Core)</td>
</tr>
<tr>
<td>FAVS 300</td>
<td>Global Horror Film (Mason Core)</td>
</tr>
<tr>
<td>FAVS 352</td>
<td>Ethics of Film and Video (Mason Core)</td>
</tr>
<tr>
<td>FREN 470</td>
<td>French and Francophone Cinema</td>
</tr>
<tr>
<td>FRLN 331</td>
<td>Topics in World Cinema (Mason Core)</td>
</tr>
<tr>
<td>JAPA 320</td>
<td>Japanese Cinema</td>
</tr>
<tr>
<td>MUSI 301</td>
<td>Music in Motion Pictures (Mason Core)</td>
</tr>
<tr>
<td>RUSS 470</td>
<td>Topics in (Post) Soviet Film</td>
</tr>
</tbody>
</table>

**Total Credits: 12**

**Concentration in Folklore and Mythology (FOLK)**

Select 6 credits in folklore and mythology from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklore</td>
</tr>
<tr>
<td>ENGH 316</td>
<td>Topics in Myth and Literature</td>
</tr>
<tr>
<td>ENGH 412</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 414</td>
<td>Folklore of the Spirit World</td>
</tr>
<tr>
<td>ENGH 415</td>
<td>Folk Arts and Folk Artists</td>
</tr>
<tr>
<td>ENGH 416</td>
<td>Ethnicity and Migration in Folklore</td>
</tr>
<tr>
<td>ENGH 417</td>
<td>RS: Topics in Folklore Research (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship</td>
</tr>
<tr>
<td>ENGH 484</td>
<td>RS: Writing Ethnography (Mason Core)</td>
</tr>
<tr>
<td>ENGH 591</td>
<td>Topics in Folklore Studies</td>
</tr>
</tbody>
</table>

May include one course from outside the English Department chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ANTH 450</td>
<td>Qualitative Methods: Nonstatistical Approaches in Culture and Social Research</td>
</tr>
<tr>
<td>CLAS 340</td>
<td>Greek and Roman Epic (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Select up to 6 credits related to folklore and mythology from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 318</td>
<td>Introduction to Cultural Studies</td>
</tr>
<tr>
<td>ENGH 320</td>
<td>Literature of the Middle Ages</td>
</tr>
<tr>
<td>ENGH 322</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGH 323</td>
<td>Shakespeare: Special Topics</td>
</tr>
<tr>
<td>ENGH 339</td>
<td>British and Irish Drama after 1900</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 350</td>
<td>African American Literature Through 1946</td>
</tr>
<tr>
<td>ENGH 351</td>
<td>Contemporary African American Literature</td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 422</td>
<td>Chaucer</td>
</tr>
<tr>
<td>ENGH 424</td>
<td>Spenser</td>
</tr>
<tr>
<td>ENGH 428</td>
<td>Milton</td>
</tr>
</tbody>
</table>

May include one course from outside the English Department chosen from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core)</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core)</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 321</td>
<td>Greek Art and Archaeology (Mason Core)</td>
</tr>
<tr>
<td>ARTH 322</td>
<td>Roman Art and Archaeology (Mason Core)</td>
</tr>
<tr>
<td>ARTH 340</td>
<td>Early Renaissance Art in Italy, 1300-1500</td>
</tr>
<tr>
<td>ARTH 342</td>
<td>High Renaissance Art in Italy, 1480-1570</td>
</tr>
<tr>
<td>ARTH 345</td>
<td>Northern Baroque Art, 1600-1750 (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core)</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

**Total Credits: 12**

**Concentration in Linguistics (LING)**

LING 306    General Linguistics (Mason Core) (p. 135) 3

Select 9 credits from the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 307</td>
<td>English Grammar</td>
</tr>
<tr>
<td>LING 450</td>
<td>Introduction to Sociolinguistics</td>
</tr>
<tr>
<td>LING 480</td>
<td>First Language Acquisition</td>
</tr>
<tr>
<td>LING 485</td>
<td>Semantics and Pragmatics</td>
</tr>
<tr>
<td>LING 486</td>
<td>Syntax I</td>
</tr>
<tr>
<td>LING 490</td>
<td>Generative Phonology</td>
</tr>
<tr>
<td>LING 499</td>
<td>Independent Study</td>
</tr>
<tr>
<td>LING 507</td>
<td>Field Work in Applied Linguistics</td>
</tr>
<tr>
<td>LING 521</td>
<td>Applied Linguistics: Teaching English as a Second Language</td>
</tr>
<tr>
<td>LING 523</td>
<td>English Phonetics</td>
</tr>
<tr>
<td>LING 581</td>
<td>Psycholinguistics</td>
</tr>
<tr>
<td>LING 582</td>
<td>Second Language Acquisition</td>
</tr>
</tbody>
</table>

**Total Credits: 12**
**Concentration in Literature (LIT)**

When relevant, ENGH 400 Honors Seminar, ENGH 401 RS: Honors Thesis Writing Seminar (Mason Core) (p. 135), and ENGH 402 Honors Independent Study may be applied to this concentration.

Select four courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 304</td>
<td>Topics: Literary Surveys</td>
</tr>
<tr>
<td>ENGH 309</td>
<td>Topics in Literature</td>
</tr>
<tr>
<td>ENGH 310</td>
<td>Topics: Women and Literature</td>
</tr>
<tr>
<td>ENGH 320</td>
<td>Literature of the Middle Ages</td>
</tr>
<tr>
<td>ENGH 321</td>
<td>English Poetry and Prose of the 16th Century</td>
</tr>
<tr>
<td>ENGH 322</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGH 323</td>
<td>Shakespeare: Special Topics</td>
</tr>
<tr>
<td>ENGH 324</td>
<td>English Renaissance Drama</td>
</tr>
<tr>
<td>ENGH 325</td>
<td>English Poetry and Prose of the 17th Century</td>
</tr>
<tr>
<td>ENGH 330</td>
<td>Augustan Age: 1660-1745</td>
</tr>
<tr>
<td>ENGH 331</td>
<td>Age of Sensibility: 1745-1800</td>
</tr>
<tr>
<td>ENGH 332</td>
<td>Restoration and 18th Century Drama</td>
</tr>
<tr>
<td>ENGH 333</td>
<td>British Novel of the 18th Century</td>
</tr>
<tr>
<td>ENGH 334</td>
<td>British Poetry of the Romantic Period</td>
</tr>
<tr>
<td>ENGH 335</td>
<td>Prose and Poetry of the Victorian Period</td>
</tr>
<tr>
<td>ENGH 336</td>
<td>British Novel of the 19th Century</td>
</tr>
<tr>
<td>ENGH 337</td>
<td>British Poetry after 1900</td>
</tr>
<tr>
<td>ENGH 338</td>
<td>British Novel after 1900</td>
</tr>
<tr>
<td>ENGH 339</td>
<td>British and Irish Drama after 1900</td>
</tr>
<tr>
<td>ENGH 340</td>
<td>Early American Literature</td>
</tr>
<tr>
<td>ENGH 341</td>
<td>Literature of the American Renaissance</td>
</tr>
<tr>
<td>ENGH 342</td>
<td>Development of the American Novel to 1914</td>
</tr>
<tr>
<td>ENGH 343</td>
<td>Development of the American Novel since 1914</td>
</tr>
<tr>
<td>ENGH 344</td>
<td>American Drama of the 20th Century</td>
</tr>
<tr>
<td>ENGH 345</td>
<td>American Poetry of the 20th Century</td>
</tr>
<tr>
<td>ENGH 346</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 347</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>African American Literature Through 1946</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>Contemporary African American Literature</td>
</tr>
<tr>
<td>ENGH 350</td>
<td>Topics in Ethnic American Literature</td>
</tr>
<tr>
<td>ENGH 351</td>
<td>Recent American Fiction</td>
</tr>
<tr>
<td>ENGH 352</td>
<td>Recent American Poetry</td>
</tr>
<tr>
<td>ENGH 353</td>
<td>Continental Fiction, 1770-1880</td>
</tr>
<tr>
<td>ENGH 354</td>
<td>Continental Fiction, 1880-1950</td>
</tr>
<tr>
<td>ENGH 355</td>
<td>Global Voices (Mason Core) (p. 135) (when topic is relevant, with departmental approval)</td>
</tr>
<tr>
<td>ENGH 356</td>
<td>The Idea of a World Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 357</td>
<td>World Literatures in English</td>
</tr>
<tr>
<td>ENGH 358</td>
<td>Modern Drama</td>
</tr>
<tr>
<td>ENGH 359</td>
<td>Topics in Criticism (when topic is relevant, with departmental approval)</td>
</tr>
<tr>
<td>ENGH 360</td>
<td>Literary Modes</td>
</tr>
<tr>
<td>ENGH 361</td>
<td>Topics in Popular Literature</td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Topics in Medieval and Renaissance Literature</td>
</tr>
<tr>
<td>ENGH 363</td>
<td>Chaucer</td>
</tr>
<tr>
<td>ENGH 364</td>
<td>Spenser</td>
</tr>
<tr>
<td>ENGH 365</td>
<td>Milton</td>
</tr>
<tr>
<td>ENGH 366</td>
<td>Topics: British Literary Periods</td>
</tr>
<tr>
<td>ENGH 367</td>
<td>Topics: British Authors</td>
</tr>
<tr>
<td>ENGH 368</td>
<td>Topics: American Authors</td>
</tr>
<tr>
<td>ENGH 369</td>
<td>Topics: American Literary Periods</td>
</tr>
<tr>
<td>ENGH 370</td>
<td>Science Fiction</td>
</tr>
<tr>
<td>ENGH 371</td>
<td>Critical Study of Children’s Literature</td>
</tr>
<tr>
<td>ENGH 372</td>
<td>Topics in Fiction</td>
</tr>
<tr>
<td>ENGH 373</td>
<td>Topics in Poetry</td>
</tr>
<tr>
<td>ENGH 374</td>
<td>Topics in Drama</td>
</tr>
<tr>
<td>ENGH 375</td>
<td>Topics in Literary Nonfiction</td>
</tr>
<tr>
<td>ENGH 376</td>
<td>RS: Topics in Literary Research (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits: 12

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**Concentration in Writing and Rhetoric (WRTR)**

Select four courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 375</td>
<td>Web Authoring and Design</td>
</tr>
<tr>
<td>ENGH 376</td>
<td>Rhetoric and New Media</td>
</tr>
<tr>
<td>ENGH 380</td>
<td>Introduction to Writing and Rhetoric</td>
</tr>
<tr>
<td>ENGH 382</td>
<td>Writing Nonfiction Genres</td>
</tr>
<tr>
<td>ENGH 386</td>
<td>Editing for Audience, Style, and Voice</td>
</tr>
<tr>
<td>ENGH 388</td>
<td>Professional and Technical Writing</td>
</tr>
<tr>
<td>ENGH 399</td>
<td>Creative Nonfiction Writing</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship</td>
</tr>
<tr>
<td>ENGH 483</td>
<td>Technical Nonfiction Writing</td>
</tr>
<tr>
<td>ENGH 484</td>
<td>RS: Writing Ethnography (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 485</td>
<td>Document Design</td>
</tr>
<tr>
<td>ENGH 486</td>
<td>RS: Writing Nonfiction for Publication (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 488</td>
<td>Topics in Writing and Rhetoric</td>
</tr>
<tr>
<td>ENGH 489</td>
<td>Proposal Writing and Development</td>
</tr>
</tbody>
</table>

Total Credits: 12

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**Writing Intensive Requirement**

The university requires all students to complete at least one course designated “writing intensive” in their majors at the 300 level or above. Students majoring in English fulfill this requirement by successfully completing:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 305</td>
<td>Dimensions of Writing and Literature</td>
</tr>
</tbody>
</table>

Total Credits: 3
Upper Level Courses

Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree

In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

### Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>PHIL</td>
<td>(p. 1818)</td>
<td>3</td>
</tr>
<tr>
<td>RELI</td>
<td>(p. 1904)</td>
<td></td>
</tr>
</tbody>
</table>

1. Note that the following courses may not be used to fulfill this requirement:
   - PHIL 323 Classical Western Political Theory
   - PHIL 324 Modern Western Political Theory
   - PHIL 327 Contemporary Western Political Theory
   - PHIL 393 Humanities College to Career
   - PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

### Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
<td></td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
<td></td>
</tr>
<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
<td>2</td>
</tr>
<tr>
<td>LING</td>
<td>(p. 1694)</td>
<td></td>
</tr>
<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
<td></td>
</tr>
<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
<td></td>
</tr>
</tbody>
</table>

Or choose from the following GGS courses:

- GGS 101 Major World Regions (Mason Core) (p. 135)
- GGS 103 Human Geography (Mason Core) (p. 135)
- GGS 110 Introduction to Geoinformation Technologies
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography
- GGS 306 Urban Geography
- GGS 315 Geography of the United States
- GGS 316 Geography of Latin America
- GGS 320 Geography of Europe
- GGS 325 Geography of North Africa and the Middle East
- GGS 330 Geography of the Soviet Succession States
- GGS 357 Structures in Urban Governance and Planning
- GGS 380 Geography of Virginia

2. The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

### Foreign Language

Intermediate-level proficiency in one foreign language, fulfilled by:

- Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)
- Or achieving a satisfactory score on an approved proficiency test
- Or completing the following ASL three course sequence:
  - EDSE 115 American Sign Language (ASL) I
  - EDSE 116 American Sign Language (ASL) II
  - EDSE 219 American Sign Language (ASL) III

1. Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>114 Introduction to Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH</td>
<td>300 Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>301 Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>302 Peoples and Cultures of Latin America</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH</td>
<td>303 Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>306 Peoples and Cultures of Island Asia</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH</td>
<td>307 Ancient Mesoamerica (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH</td>
<td>308 Peoples and Cultures of the Middle East</td>
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<td>(Mason Core) (p. 135)</td>
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<td>Myth, Magic, and Mind (Mason Core)</td>
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<td>Zombies</td>
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<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
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<td>Peoples and Cultures of Selected Regions: Non-Western</td>
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<td>Cities of the Global South</td>
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<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
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<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
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<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
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<td>Survey of Asian Art (Mason Core)</td>
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<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
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<td>The Silk Road (Mason Core)</td>
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<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
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<td>Major Chinese Writers (Mason Core)</td>
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<td>Economic Development of Latin America (Mason Core)</td>
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<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<td>GGS 316</td>
<td>Geography of Latin America</td>
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<td>Geography of North Africa and the Middle East</td>
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<td>Government and Politics of Asia</td>
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<td>Chinese Foreign Policy</td>
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<td>Islam and Politics</td>
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<td>Political Change and Social Development in Sub-Saharan Africa</td>
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<td>Political Economy of East Asia</td>
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<td>Survey of Latin American History (Mason Core) (p. 135)</td>
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<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<td>Rise of Russia (Mason Core) (p. 135)</td>
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<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
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<td>HIST 354</td>
<td>Modern China</td>
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<td>Modern Japan (Mason Core) (p. 135)</td>
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<td>Postwar Japan (Mason Core) (p. 135)</td>
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<td>Post-1949 China (Mason Core) (p. 135)</td>
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<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
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<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
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<td>History, Fiction, and Film in Latin America</td>
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<td>Arab-Israeli Conflict</td>
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HIST 462 Women in Islamic Society (Mason Core) (p. 135) 3
HIST 465 The Middle East in the 20th Century 3
JAPA 310 Japanese Culture in a Global World (Mason Core) (p. 135) 3
JAPA 340 Topics in Japanese Literature (Mason Core) (p. 135) 3
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RELI 211 Religions of the West (Mason Core) (p. 135) 3
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RELI 365 Muhammad: Life and Legacy 3
RELI 374 Islamic Thought (Mason Core) (p. 135) 3
RELI 375 Qur’an and Hadith 3
RELI 379 Islamic Law, Society, and Ethics 3
RELI 387 Islam, Democracy, and Human Rights 3
RELI 490 Comparative Study of Religions (Mason Core) (p. 135) 3
RUSS 353 Russian Civilization (Mason Core) (p. 135) 3
RUSS 354 Contemporary Post-Soviet Life (Mason Core) (p. 135) 3

A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
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<th>Code</th>
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<tr>
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<td></td>
<td>Written Communication (p. 135)</td>
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<td>Oral Communication (p. 136)</td>
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<td>Quantitative Reasoning (p. 136)</td>
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<td>Information Technology (p. 136)</td>
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<td><strong>Core Requirements</strong></td>
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<td></td>
<td>Arts (p. 137)</td>
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<td>Global Understanding (p. 139)</td>
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<td>Literature (p. 140)</td>
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<td>Social and Behavioral Sciences (p. 142)</td>
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<td>Western Civilization/World History (p. 143)</td>
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<td></td>
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<td><strong>Total Credits</strong></td>
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1 minimum 3 credits

**Additional Elective Courses**

Any remaining credits may be completed with elective courses to bring the degree total to 120.

**Honors**

**Honors in the Major**

Highly qualified students in either the BA in English (p. 359) or the BFA in creative writing (p. 351) programs may pursue advanced work leading to graduation with honors in the major. To graduate with honors in the major, students must complete a two-course honors sequence and receive a minimum GPA of 3.50 in all courses counted toward the major and, separately, a minimum GPA of 3.50 in their honors courses. Honors courses may simultaneously satisfy concentration and distribution requirements in the major.

Students satisfy the honors course sequence by taking one of the following:

- Two sections of ENGH 400 Honors Seminar
- ENGH 400 Honors Seminar and ENGH 401 RS: Honors Thesis Writing Seminar (Mason Core) (p. 135)
- ENGH 400 Honors Seminar and writing a creative honors thesis in ENGH 402 Honors Independent Study (for students in the creative writing concentration) or ENGH 495 Capstone and Thesis (Mason Core) (p. 135)
- ENGH 402 Honors Independent Study in conjunction with an advanced course in nonfiction writing and completing a nonfiction thesis as part of ENGH 401 RS: Honors Thesis Writing Seminar (Mason Core) (p. 135) (for students in the nonfiction concentration)

Students interested in pursuing honors in the major should consult the English Department (p. 350) for more information.

**Accelerated Master’s**

The accelerated master’s programs in the list below specify the BA in English as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason. In addition, as a student with a BA in English you may be particularly interested in the accelerated MA in English with a concentration in linguistics. (p. 371)
English, BA or Creative Writing, BFA/Curriculum and Instruction, Accelerated MEd (Secondary Education English concentration)

Overview
Highly-qualified Mason undergraduates may be admitted to the bachelor's/accelerated master's option and obtain both a BA in English (p. 359) or a BFA in Creative Writing (p. 351) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education English) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of English (p. 350) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Students complete the following courses in their senior year:

<table>
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<tr>
<th>Senior</th>
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<th>Spring Semester</th>
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<tr>
<td>EDCI 569</td>
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<td>EDCI 669</td>
<td>3</td>
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<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
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</table>

Total Credits 12

While undergraduate students, accelerated master's students are able to apply two of the courses listed above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor's/Accelerated Master's Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)

Overview
Highly-qualified undergraduates in select majors may apply to the accelerated master's degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's degree in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

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<thead>
<tr>
<th>Code</th>
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<tr>
<td>WMST 600</td>
<td>Special Topics</td>
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<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
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<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
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<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
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</tbody>
</table>

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree.
To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

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<th>Code</th>
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<tr>
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<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
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The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Bachelor’s Degree (selected)/
Interdisciplinary Studies, Accelerated
MAIS (Social Justice and Human Rights
Concentration)

Overview

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP. 6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP. 6 Graduate Policies (p. 87).

Selected Majors

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
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Total Credits 6

English, MA

Banner Code: LA-MA-ENGL

Academic Advising

A487 Robinson Hall
Fairfax Campus

Email: englgrad@gmu.edu
Website: english.gmu.edu/programs/la-ma-engl

The master’s in English at Mason offers students the opportunity to enhance their skills of reading, writing, research and teaching with courses that encompass the wide range of contemporary English studies. Students can work in and across concentrations in literature, professional writing, rhetoric, cultural studies, film, folklore, linguistics, and the teaching of writing and literature. It offers the MA in field-specific concentrations as well as the opportunity to combine a concentration in one field with a certificate from another one. Many students use the MA for professional enhancement, or as an entry into teaching, professional writing, or doctoral study.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MA in English, see Application Requirements and Deadlines (http://english.gmu.edu/programs/application/LA-MA-ENGL) on the departmental website.
Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 367).

Satisfactory Progress

Students have six years to complete the MA. Students writing a thesis must have an approved proposal by the end of their fifth year as an MA candidate in English and may not make significant changes to that proposal during their sixth year. By the end of the first semester of their sixth year, thesis students need to demonstrate that they have completed their research and are well advanced in developing their analysis and argument, generally by submitting to their advisors a completed rough draft of the thesis or evidence that they have completed their fieldwork and analysis. A student may be dropped from the program if, in the judgment of the thesis advisor and graduate director, evidence of satisfactory progress on the thesis has not been provided by the end of the first semester of a student’s sixth year.

Requirements

Degree Requirements

Total credits: 30-33

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 368) tab.

Students pursuing this degree must successfully complete 30 to 33 credits in one concentration as specified below. Students in the concentration in the teaching of writing and literature who chose to do a thesis complete 33 credits.

Students in the concentrations of cultural studies, literature, and teaching of writing and literature must demonstrate intermediate proficiency in a foreign language in one of the following ways: submitting an undergraduate (or continuing education) transcript that includes courses corresponding to intermediate proficiency; completing a Mason foreign language course numbered 210 or higher; passing a proficiency exam administered by the English department.

Concentration in Cultural Studies (CULT)

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 676</td>
<td>Introduction to Cultural Studies</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 701</td>
<td>Research in English Studies</td>
<td>3</td>
</tr>
<tr>
<td>CULT 802</td>
<td>Histories of Cultural Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Two Courses

Select 6 credits from the following:

- ENGH 551  Introduction to Literary Theory
- ENGH 555  Introduction to Cinema Studies
- ENGH 665  Seminar in Global Culture
- ENGH 670  Seminar in Film and Media Studies
- ENGH 675  Feminist Theory and Criticism
- ENGH 685  Selected Topics, Movements, or Genres of Literature in English
- ENGH 705  Literary Theory and Criticism
- ENGH 740  Seminar in English/Cultural Studies

Three to Five Courses of Literature

Select 9-15 credits from the following:

- ENGH 511  Graduate Literature Survey
- ENGH 513  Topics in Literary and Cultural Studies
- ENGH 514  Theories of Comparative Literature
- ENGH 526  Special Topics in the History and Criticism of Children’s Literature
- ENGH 530  Graduate Survey in African American Literature
- ENGH 555  Introduction to Cinema Studies
- ENGH 590  Topics in Folk Narrative
- ENGH 591  Topics in Folklore Studies
- ENGH 642  Seminar in British Literature
- ENGH 644  Seminar in American Literature
- ENGH 646  Seminar in Advanced Research
- ENGH 661  Seminar in African-American Literature
- ENGH 662  Seminar in Literary Studies
- ENGH 665  Seminar in Global Culture
- ENGH 670  Seminar in Film and Media Studies
- ENGH 681  Advanced Topics in Folklore Studies
- ENGH 685  Selected Topics, Movements, or Genres of Literature in English
- ENGH 705  Literary Theory and Criticism
- ENGH 790  Projects in Literary Studies

Optional Project or Thesis

Select 3-6 credits of a project or a thesis from the following: 3-6

Project:
- ENGH 790  Projects in Literary Studies (3 credits)

Thesis:
- ENGH 799  Thesis (6 credits)

Total Credits: 30

1. ENGH 685 Selected Topics, Movements, or Genres of Literature in English, ENGH 705 Literary Theory and Criticism, and ENGH 740 Seminar in English/Cultural Studies may be repeated once with permission of the director of graduate studies.
2. Students who choose a project take 3 fewer credits of literature.

Concentration in Linguistics (LING)

The linguistics concentration combines courses in linguistics with courses in some related area of language study, such as teaching English as a second language, bilingual education, or foreign language teaching. This course of study is designed to prepare students for teaching in one of these fields or for doctoral work. The certificate in teaching English as a second language (TESL) (p. 379) can be earned concurrently.

Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 580</td>
<td>First Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>LING 690</td>
<td>Generative Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING 692</td>
<td>Phonology II</td>
<td>3</td>
</tr>
<tr>
<td>LING 785</td>
<td>Semantics and Pragmatics</td>
<td>3</td>
</tr>
<tr>
<td>LING 786</td>
<td>Syntax I</td>
<td>3</td>
</tr>
<tr>
<td>LING 787</td>
<td>Syntax II</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 550</td>
<td>Syllable Structure</td>
<td>3</td>
</tr>
<tr>
<td>LING 555</td>
<td>Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING 560</td>
<td>Tone</td>
<td>3</td>
</tr>
<tr>
<td>LING 565</td>
<td>Articulatory Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING 570</td>
<td>Sound</td>
<td>3</td>
</tr>
<tr>
<td>LING 575</td>
<td>Morphology and Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING 580</td>
<td>First Language Acquisition</td>
<td>3</td>
</tr>
<tr>
<td>LING 690</td>
<td>Generative Phonology</td>
<td>3</td>
</tr>
<tr>
<td>LING 692</td>
<td>Phonology II</td>
<td>3</td>
</tr>
<tr>
<td>LING 785</td>
<td>Semantics and Pragmatics</td>
<td>3</td>
</tr>
<tr>
<td>LING 786</td>
<td>Syntax I</td>
<td>3</td>
</tr>
<tr>
<td>LING 787</td>
<td>Syntax II</td>
<td>3</td>
</tr>
</tbody>
</table>
Select 12 credits of electives  

| Total Credits | 30 |
---|---|

1 In consultation with an advisor, chosen from courses that reflect one or more areas of language study. Electives can be in such areas as linguistics, the teaching of reading or writing, literary criticism, bilingual education, or a foreign language, and may include 6 credits of thesis.

**Concentration in Literature (LIT)**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 551</td>
<td>Introduction to Literary Theory</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 701</td>
<td>Research in English Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Literature**

Select 18 credits from the following:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 511</td>
<td>Graduate Literature Survey</td>
</tr>
<tr>
<td>ENGH 513</td>
<td>Topics in Literary and Cultural Studies</td>
</tr>
<tr>
<td>ENGH 514</td>
<td>Theories of Comparative Literature</td>
</tr>
<tr>
<td>ENGH 526</td>
<td>Special Topics in the History and Criticism of Children's Literature</td>
</tr>
<tr>
<td>ENGH 530</td>
<td>Graduate Survey in African American Literature</td>
</tr>
<tr>
<td>ENGH 555</td>
<td>Introduction to Cinema Studies</td>
</tr>
<tr>
<td>ENGH 590</td>
<td>Topics in Folk Narrative</td>
</tr>
<tr>
<td>ENGH 591</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 642</td>
<td>Seminar in British Literature</td>
</tr>
<tr>
<td>ENGH 644</td>
<td>Seminar in American Literature</td>
</tr>
<tr>
<td>ENGH 646</td>
<td>Seminar in Advanced Research</td>
</tr>
<tr>
<td>ENGH 661</td>
<td>Seminar in African-American Literature</td>
</tr>
<tr>
<td>ENGH 662</td>
<td>Seminar in Literary Studies</td>
</tr>
<tr>
<td>ENGH 665</td>
<td>Seminar in Global Culture</td>
</tr>
<tr>
<td>ENGH 670</td>
<td>Seminar in Film and Media Studies</td>
</tr>
<tr>
<td>ENGH 681</td>
<td>Advanced Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 685</td>
<td>Selected Topics, Movements, or Genres of Literature in English</td>
</tr>
<tr>
<td>ENGH 705</td>
<td>Literary Theory and Criticism</td>
</tr>
<tr>
<td>ENGH 790</td>
<td>Projects in Literary Studies</td>
</tr>
</tbody>
</table>

**Two Electives or Thesis**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 599</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

Total Credits  

| Total Credits | 30 |
---|---|

1 Must be taken in the first 12 credits of the degree. Another course in literary theory and criticism may substitute for ENGH 551 Introduction to Literary Theory with prior written approval of the graduate director.

2 Courses fulfilling this requirement must include at least three 600-level ENGH seminars. Graduate seminars involve focused study of a topic with significant attention to scholarship in the field.

3 Electives taught within the English department may be taken without permission of the graduate director. A maximum of six credits of related study outside the department may substitute for the equivalent number of elective credits, with permission of the graduate director.

4 Students who choose a thesis take 6 fewer credits of literature or electives.

**Concentration in Professional Writing and Rhetoric (PWR)**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 501</td>
<td>Introduction to Professional Writing and Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 502</td>
<td>Research Methods in Rhetoric and Professional Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 503</td>
<td>Theory and Practice of Editing</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 505</td>
<td>Document Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**Professional Writing**

Select 9 credits from the following:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 504</td>
<td>Internship</td>
</tr>
<tr>
<td>ENGH 506</td>
<td>Research for Narrative Writing</td>
</tr>
<tr>
<td>ENGH 507</td>
<td>Web Authoring and Design</td>
</tr>
<tr>
<td>ENGH 508</td>
<td>Digital Rhetoric</td>
</tr>
<tr>
<td>ENGH 509</td>
<td>Proposal Writing and Development</td>
</tr>
<tr>
<td>ENGH 609</td>
<td>Online Writing</td>
</tr>
<tr>
<td>ENGH 611</td>
<td>Studies in Rhetoric</td>
</tr>
<tr>
<td>ENGH 612</td>
<td>Cultures of Professional Writing</td>
</tr>
<tr>
<td>ENGH 613</td>
<td>Technical Communication</td>
</tr>
<tr>
<td>ENGH 615</td>
<td>Proseminar in Composition Instruction</td>
</tr>
<tr>
<td>ENGH 689</td>
<td>Advanced Proposal Writing</td>
</tr>
<tr>
<td>ENGH 690</td>
<td>Special Topics in Writing and Rhetoric</td>
</tr>
<tr>
<td>ENGH 696</td>
<td>Northern Virginia Writing Project Teacher/Research Seminar</td>
</tr>
<tr>
<td>ENGH 697</td>
<td>Composition Theory</td>
</tr>
</tbody>
</table>

**Theory**

Select 3 credits from the following:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 508</td>
<td>Digital Rhetoric</td>
</tr>
<tr>
<td>ENGH 551</td>
<td>Introduction to Literary Theory</td>
</tr>
<tr>
<td>ENGH 611</td>
<td>Studies in Rhetoric</td>
</tr>
<tr>
<td>ENGH 675</td>
<td>Feminist Theory and Criticism</td>
</tr>
<tr>
<td>ENGH 676</td>
<td>Introduction to Cultural Studies</td>
</tr>
</tbody>
</table>

**Electives in English**

Select 3-6 credits of electives in English (p. 1476)  

| Total Credits | 30 |
---|---|

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 504</td>
<td>Internship</td>
</tr>
<tr>
<td>ENGH 506</td>
<td>Research for Narrative Writing</td>
</tr>
<tr>
<td>ENGH 507</td>
<td>Web Authoring and Design</td>
</tr>
<tr>
<td>ENGH 508</td>
<td>Digital Rhetoric</td>
</tr>
<tr>
<td>ENGH 509</td>
<td>Proposal Writing and Development</td>
</tr>
<tr>
<td>ENGH 609</td>
<td>Online Writing</td>
</tr>
<tr>
<td>ENGH 611</td>
<td>Studies in Rhetoric</td>
</tr>
<tr>
<td>ENGH 612</td>
<td>Cultures of Professional Writing</td>
</tr>
<tr>
<td>ENGH 613</td>
<td>Technical Communication</td>
</tr>
<tr>
<td>ENGH 615</td>
<td>Proseminar in Composition Instruction</td>
</tr>
<tr>
<td>ENGH 689</td>
<td>Advanced Proposal Writing</td>
</tr>
<tr>
<td>ENGH 690</td>
<td>Special Topics in Writing and Rhetoric</td>
</tr>
<tr>
<td>ENGH 696</td>
<td>Northern Virginia Writing Project Teacher/Research Seminar</td>
</tr>
<tr>
<td>ENGH 697</td>
<td>Composition Theory</td>
</tr>
</tbody>
</table>

**Project or Thesis**

Select 3-6 credits of a project or thesis  

| Total Credits | 30 |
---|---|

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 504</td>
<td>Internship</td>
</tr>
<tr>
<td>ENGH 506</td>
<td>Research for Narrative Writing</td>
</tr>
<tr>
<td>ENGH 507</td>
<td>Web Authoring and Design</td>
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<tr>
<td>ENGH 508</td>
<td>Digital Rhetoric</td>
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<td>ENGH 509</td>
<td>Proposal Writing and Development</td>
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<tr>
<td>ENGH 612</td>
<td>Cultures of Professional Writing</td>
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<tr>
<td>ENGH 613</td>
<td>Technical Communication</td>
</tr>
<tr>
<td>ENGH 615</td>
<td>Proseminar in Composition Instruction</td>
</tr>
<tr>
<td>ENGH 689</td>
<td>Advanced Proposal Writing</td>
</tr>
<tr>
<td>ENGH 690</td>
<td>Special Topics in Writing and Rhetoric</td>
</tr>
<tr>
<td>ENGH 696</td>
<td>Northern Virginia Writing Project Teacher/Research Seminar</td>
</tr>
<tr>
<td>ENGH 697</td>
<td>Composition Theory</td>
</tr>
</tbody>
</table>

1 ENGH 501 Introduction to Professional Writing and Rhetoric should be taken in the first semester of study, if possible.
### Concentration in the Teaching of Writing and Literature (TWL)

**Required Course**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 701</td>
<td>Research in English Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Writing**

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 505</td>
<td>Document Design</td>
</tr>
<tr>
<td>ENGH 564</td>
<td>Form of Poetry</td>
</tr>
<tr>
<td>ENGH 565</td>
<td>Forms of Nonfiction</td>
</tr>
<tr>
<td>ENGH 566</td>
<td>Forms of Fiction</td>
</tr>
<tr>
<td>ENGH 611</td>
<td>Studies in Rhetoric</td>
</tr>
<tr>
<td>ENGH 612</td>
<td>Cultures of Professional Writing</td>
</tr>
<tr>
<td>ENGH 613</td>
<td>Technical Communication</td>
</tr>
<tr>
<td>ENGH 616</td>
<td>Nonfiction Writing Workshop</td>
</tr>
<tr>
<td>ENGH 617</td>
<td>Poetry Writing Workshop</td>
</tr>
<tr>
<td>ENGH 618</td>
<td>Fiction Writing Workshop</td>
</tr>
<tr>
<td>ENGH 619</td>
<td>Special Topics in Writing</td>
</tr>
<tr>
<td>ENGH 699</td>
<td>Workshop in English</td>
</tr>
</tbody>
</table>

**Literature**

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 511</td>
<td>Graduate Literature Survey</td>
</tr>
<tr>
<td>ENGH 513</td>
<td>Topics in Literary and Cultural Studies</td>
</tr>
<tr>
<td>ENGH 514</td>
<td>Theories of Comparative Literature</td>
</tr>
<tr>
<td>ENGH 526</td>
<td>Special Topics in the History and Criticism of Children's Literature</td>
</tr>
<tr>
<td>ENGH 530</td>
<td>Graduate Survey in African American Literature</td>
</tr>
<tr>
<td>ENGH 555</td>
<td>Introduction to Cinema Studies</td>
</tr>
<tr>
<td>ENGH 590</td>
<td>Topics in Folk Narrative</td>
</tr>
<tr>
<td>ENGH 591</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 642</td>
<td>Seminar in British Literature</td>
</tr>
<tr>
<td>ENGH 644</td>
<td>Seminar in American Literature</td>
</tr>
<tr>
<td>ENGH 646</td>
<td>Seminar in Advanced Research</td>
</tr>
<tr>
<td>ENGH 661</td>
<td>Seminar in African-American Literature</td>
</tr>
<tr>
<td>ENGH 662</td>
<td>Seminar in Literary Studies</td>
</tr>
<tr>
<td>ENGH 665</td>
<td>Seminar in Global Culture</td>
</tr>
<tr>
<td>ENGH 670</td>
<td>Seminar in Film and Media Studies</td>
</tr>
<tr>
<td>ENGH 681</td>
<td>Advanced Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 685</td>
<td>Selected Topics, Movements, or Genres of Literature in English</td>
</tr>
<tr>
<td>ENGH 705</td>
<td>Literary Theory and Criticism</td>
</tr>
<tr>
<td>ENGH 790</td>
<td>Projects in Literary Studies</td>
</tr>
</tbody>
</table>

**Linguistics**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 507</td>
<td>Field Work in Applied Linguistics</td>
</tr>
<tr>
<td>LING 520</td>
<td>Introduction to Linguistics</td>
</tr>
<tr>
<td>LING 521</td>
<td>Applied Linguistics: Teaching English as a Second Language</td>
</tr>
<tr>
<td>LING 522</td>
<td>Modern English Grammar</td>
</tr>
<tr>
<td>LING 581</td>
<td>Psycholinguistics</td>
</tr>
<tr>
<td>EDCI 519</td>
<td>Methods of Teaching Culturally Linguistically Diverse Learners</td>
</tr>
</tbody>
</table>

**Teaching of Writing**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 615</td>
<td>Proseminar in Composition Instruction</td>
</tr>
<tr>
<td>ENGH 695</td>
<td>Inservice Program, offered only to full-time teachers through school district contracts</td>
</tr>
<tr>
<td>ENGH 699</td>
<td>Workshop in English (NVWP Summer Institute, open to full-time teachers on an invitation basis)</td>
</tr>
</tbody>
</table>

**Teaching of Literature**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 610</td>
<td>Proseminar in Teaching the Reading of Literature</td>
</tr>
<tr>
<td>ENGH 695</td>
<td>Inservice Program, offered only to full-time teachers through school district contracts</td>
</tr>
</tbody>
</table>

**Composition Theory**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 611</td>
<td>Studies in Rhetoric</td>
</tr>
<tr>
<td>ENGH 697</td>
<td>Composition Theory</td>
</tr>
<tr>
<td>ENGH 615</td>
<td>Proseminar in Composition Instruction</td>
</tr>
</tbody>
</table>

**Elective in Literature or Writing**

Select up to 3 credits in literature or writing

Students who choose to complete project or thesis credits below will do so in place of this requirement.

**Optional Project or Thesis**

Select 3-6 credits of a project or thesis in place of elective

<table>
<thead>
<tr>
<th>Project Credits</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>ENGH 790</td>
<td>Projects in Literary Studies (3 credits)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thesis Credits</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>ENGH 799</td>
<td>Thesis (6 credits)</td>
</tr>
</tbody>
</table>

Total Credits: 30-33

1. Students usually fulfill this requirement with LING 520 Introduction to Linguistics. The other courses listed have prerequisites.
2. Students who choose a project take 3 fewer elective credits in literature or writing.
3. Students may arrange to do a thesis working with an advisor and the director of graduate studies in English. Students who pursue this option take 3 fewer elective credits in literature or writing. They must complete 33 (rather than 30) credits to receive their degree.

---

**Accelerated Master’s**

**Bachelor’s Degree (any)/English, Accelerated MA (Linguistics Concentration)**

**Overview**

Highly qualified Mason undergraduates in any major may apply to the accelerated master’s degree in English with a concentration in linguistics. If accepted, students will be able to earn a BA in their chosen major and an MA in English with a concentration in linguistics after satisfactory completion of 144 credits.
For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in English (linguistics concentration), see Application Requirements and Deadlines (http://english.gmu.edu/programs/application/LA-MA-ENGL) on the departmental website.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete two graduate courses (chosen from LING 690 Generative Phonology, LING 580 First Language Acquisition, LING 692 Phonology II) as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional credits of LING 500-level and 600-level courses as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Film and Media Studies Minor
Banner Code: FILM

Academic Advising
A487 Robinson Hall
Fairfax Campus
Phone: 703-993-2768
Website: english.gmu.edu/programs/la-minor-la-film

The interdisciplinary minor explores mass culture in its visual manifestations and helps students develop an informed awareness of culture and media, ideological tendencies, and effects on daily experience. Committed to interdisciplinary studies, the program addresses the increasing complexity and multiplicity of visual cultures and offers students the tools with which to read a variety of texts, including film, television, video, and new media.

Most coursework is offered through the Departments of Communication (p. 303) and English (p. 350), with other courses available through the Department of Modern and Classical Languages (p. 414) and the Program in Film and Video Studies (p. 781). The two required courses provide an introduction to the languages of film and popular media and modes of analysis appropriate to each. They are prerequisites for all advanced work in the minor. Students select four additional courses designed to introduce a more specialized level of study. Students may decide to focus on film, television, or the study of mass culture, or they may choose some mix of courses that suits their interests.

Faculty
Cynthia Fuchs, Program Director

Thomas Britt, Film and Video Studies; Giovanna Chesler, Film and Video Studies; Julie Christensen, Modern and Classical Languages; Mark Cooley, Art and Visual Technology; Jeremy Freer, School of Music; Timothy Gibson, Communication; Carma Hinton, Robinson Professor; Alison Landsberg, History and Art History; Carla Marcantonio, English; David Miller, Communication; Janine Ricouart, Modern and Classical Languages; Jessica Scarlata, English; Benjamin Steger, Film and Video Studies; Gail Scott White, Art and Visual Technology; Martin Winkler, Modern and Classical Languages.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 372) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 372</td>
<td>Introduction to Film (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>COMM 380</td>
<td>Media Criticism</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Electives

COMM and AVT majors can only use 6 elective credits from their home department toward the FAMS minor.

Select 12 credits from the following: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
</tr>
<tr>
<td>COMM 302</td>
<td>Foundations of Media Theory</td>
</tr>
<tr>
<td>COMM 350</td>
<td>Mass Communication and Public Policy</td>
</tr>
<tr>
<td>COMM 358</td>
<td>Multi-Camera Studio Production</td>
</tr>
<tr>
<td>COMM 360</td>
<td>Digital Postproduction</td>
</tr>
<tr>
<td>COMM 364</td>
<td>Videography</td>
</tr>
<tr>
<td>COMM 365</td>
<td>Gender, Race, and Class in the Media</td>
</tr>
<tr>
<td>COMM 366</td>
<td>Visual Communication</td>
</tr>
</tbody>
</table>
Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in folklore studies, see Application Requirements and Deadlines (http://english.gmu.edu/programs/la-cerg-flks/application).

Requirements

Certificate Requirements
Total credits: 18
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Core Courses

Pathways to Folklore Scholarship
ENGH 681 Advanced Topics in Folklore Studies 1 3

Total Credits 3

1 Topic must be Pathways to Folklore Scholarship. May also be repeated for additional credit when topic is different.

Required Courses
Select three courses from the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 526</td>
<td>Special Topics in the History and Criticism of Children's Literature 1</td>
</tr>
<tr>
<td>ENGH 590</td>
<td>Topics in Folk Narrative 1</td>
</tr>
<tr>
<td>ENGH 591</td>
<td>Topics in Folklore Studies 1</td>
</tr>
<tr>
<td>ENGH 681</td>
<td>Advanced Topics in Folklore Studies 1</td>
</tr>
<tr>
<td>ENGH 798</td>
<td>Directed Reading and Research</td>
</tr>
<tr>
<td>ANTH 750</td>
<td>Ethnographic Genres</td>
</tr>
</tbody>
</table>

Total Credits 9

1 May be repeated for credit if the topic is different.

Research Course
Select one research course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 701</td>
<td>Research in English Studies</td>
</tr>
<tr>
<td>HIST 610</td>
<td>The Study and Writing of History</td>
</tr>
<tr>
<td>SOCI 634</td>
<td>Qualitative Research Methods</td>
</tr>
</tbody>
</table>

Total Credits 3

Electives
Select 3 credits of a relevant elective with the prior written approval of the director. 3

Total Credits 3

Folklore and Mythology Minor
Banner Code: FOLK

Academic Advising
Stories told in both sacred and secular contexts, along with festivals, foods, music, material objects, and other traditional art forms, continue to influence our lives. This interdisciplinary minor offers students tools to explore the compelling meanings within these seemingly simple, everyday cultural texts, and helps them become more aware of the ways these texts are used by individuals and institutions for various goals. Students study folklore and mythology by juxtaposing the multiple viewpoints of anthropology, art history, classical studies, literary studies, and religious studies.

**Faculty**
Decaroli, Fraser (co-coordinator), Fuchs, Hoffman, Johnsen-Neshati, Lin, Mattusch (co-coordinator), Rutledge, Shiner, Lattanzi Shutika, Todd, Winkler

**Admissions & Policies**

**Policies**
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. A course used to fulfill the 3 credits of literature required for Mason Core (p. 140) may not also be applied to the minor. To avoid duplication of courses, English majors who choose this minor may not select the English Department’s folklore and mythology concentration.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**
Total credits: minimum 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 374) tab.

**Core Courses**
Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 102</td>
<td>Symbols and Stories in Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CLAS 250</td>
<td>Classical Mythology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135) (when the topic is Afro-Cuban dance)</td>
</tr>
<tr>
<td>RELI 100</td>
<td>The Human Religious Experience (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Select four to five courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 427</td>
<td>Historic Cemetery Survey</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 321</td>
<td>Greek Art and Archaeology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 322</td>
<td>Roman Art and Archaeology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 399</td>
<td>Special Topics in the History of Art (when the topic is Medieval Irish art and culture)</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art (when the topic is monuments and memory)</td>
</tr>
<tr>
<td>CLAS 340</td>
<td>Greek and Roman Epic (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CLAS 350</td>
<td>Greek and Roman Tragedy (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CLAS 390</td>
<td>Topics in Classical Literature and Culture (when the topic is the Odyssey in film)</td>
</tr>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklife</td>
</tr>
<tr>
<td>ENGH 316</td>
<td>Topics in Myth and Literature</td>
</tr>
<tr>
<td>ENGH 412</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>ENGH 414</td>
<td>Folklore of the Spirit World</td>
</tr>
<tr>
<td>ENGH 415</td>
<td>Folk Arts and Folk Artists</td>
</tr>
<tr>
<td>ENGH 416</td>
<td>Ethnicity and Migration in Folklore</td>
</tr>
<tr>
<td>ENGH 417</td>
<td>RS: Topics in Folklore Research (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 453</td>
<td>Topics in Fiction (when the topic is literary fairy tales)</td>
</tr>
<tr>
<td>ENGH 484</td>
<td>RS: Writing Ethnography (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

**Elective**
Select at most one course of independent study or internship from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 299</td>
<td>Independent Study</td>
</tr>
<tr>
<td>ANTH 495</td>
<td>Internship</td>
</tr>
<tr>
<td>ARTH 393</td>
<td>Art History Internships</td>
</tr>
<tr>
<td>ARTH 490</td>
<td>Independent Study in Art History</td>
</tr>
<tr>
<td>ARTH 491</td>
<td>Independent Study in Art History</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship (when this is an approved internship in folklore)</td>
</tr>
<tr>
<td>ENGH 499</td>
<td>Independent Study</td>
</tr>
</tbody>
</table>

**Total Credits**

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>15-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
Linguistics Minor

Banner Code: LING

Academic Advising

A487 Robinson Hall
Fairfax Campus

Email: english@gmu.edu
Website: english.gmu.edu/programs/la-minor-la-ling

Linguistics is the scientific study of language. Language is studied descriptively, theoretically, computationally, and psychologically, and as a social phenomenon. The field of linguistics thus informs and is informed by many other areas of study, including philosophy, psychology, sociology, computer science, the study of individual languages and literatures, literary studies, and education.

This minor introduces the fundamental concepts of modern linguistic theory and explores how these concepts relate to various other disciplines.

Faculty
Back, Goldin, Jones, Leeman, Levine, Morrill, Roman-Mendoza, Serafini, Weinberger (director), Wulf

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 375) tab.

Core Courses

General Linguistics
LING 306 General Linguistics (Mason Core) (p. 135) 3

Total Credits 3

Syntactic Theory, Phonological Theory, or Linguistic Semantics
Select one course from the following: 3
LING 486 Syntax I
LING 490 Generative Phonology
LING 485 Semantics and Pragmatics

Total Credits 3

Electives

Select three from the following: 1

Any LING course (p. 1694) 9

Linguistics, PhD

Banner Code: LA-PHD-LING

Academic Advising

A487 Robinson Hall
Fairfax Campus

Email: english@gmu.edu
Website: english.gmu.edu/programs/la-phd-ling

The PhD in linguistics trains students in the science of language. Students become specialists in the core areas of linguistics—phonology, syntax, and semantics—and learn to integrate this core with the study of second language acquisition. The program prepares students for positions in academia, industry, government, and a host of organizations concerned with language and second language acquisition. Graduates may become research and teaching professors, administrators of language-learning programs, and consultants in computational linguistic research.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants must already have earned a master’s degree in a relevant field.

For specific information, see Application Requirements and Deadlines (http://linguistics.gmu.edu/programs/application/LA-PHD-LING).

Policies

For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit

For students entering the doctoral program with a master’s degree, the number of required credits may be reduced by a maximum of 30 credits, subject to approval of the program faculty and the dean. Requests for reduction of credit are reviewed only after acceptance to the doctoral program.
Requirements

Degree Requirements
Total credits: 72

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 375) tab.

Core Courses

Phonology
LING 690 Generative Phonology 3
LING 692 Phonology II 3
LING 890 Advanced Phonology Seminar 3

Syntax
LING 786 Syntax I 3
LING 787 Syntax II 3
LING 886 Advanced Syntax Seminar 3

Semantics/Pragmatics
LING 785 Semantics and Pragmatics 3
LING 788 Semantics and Pragmatics II 3

Language Acquisition
Select two courses from the following: 6
LING 582 Second Language Acquisition
LING 782 Second Language Acquisition II
LING 882 Seminar in Language Acquisition

Research Methodology
LING 770 Research Methods 3

Qualifying Papers
LING 898 Advanced Qualifying Seminar (Students register for this course twice) 6

Total Credits 39

Two Seminars
Select 6 credits from the following: 1
LING 882 Seminar in Language Acquisition
LING 886 Advanced Syntax Seminar
LING 890 Advanced Phonology Seminar

Total Credits 6

1 Students take two seminar courses in two chosen fields. Seminar topics change every time they are offered. They may be repeated for credit.

Electives
Select five electives from the following: 15
LING 507 Field Work in Applied Linguistics
LING 521 Applied Linguistics: Teaching English as a Second Language
LING 522 Modern English Grammar
LING 523 English Phonetics
LING 525 Practicum in ESL
LING 580 First Language Acquisition
LING 581 Psycholinguistics
LING 650 Introduction to Sociolinguistics
LING 691 Theories of Language
LING 798 Directed Reading and Research
ENGH 592 Historical Studies of the English Language
FREN 575 Grammatical Analysis
FRLN 565 Theory of Translation
SOCI 636 Statistical Reasoning
SPAN 500 History of the Spanish Language
SPAN 501 Applied Spanish Grammar
SPAN 502 Hispanic Sociolinguistics
PSYC 615 Language Development
CS 580 Introduction to Artificial Intelligence
CSI 600 Quantitative Foundations for Computational Sciences
CSS 600 Introduction to Computational Social Science
NEUR 604 Ethics in Scientific Research
EDCI 516 Bilingualism and Language Acquisition Research
EDCI 569 Teaching English in the Secondary School

Total Credits 15

Advancement to Candidacy
To advance to candidacy, students must complete all coursework required on their approved program of study. Students must also successfully pass a written qualifying exam and an oral qualifying exam. In addition, students must have a dissertation committee appointed by the Dean's Office as well as an approved proposal. Evidence of the approved proposal must be on file in the Dean's Office before a student can advance to candidacy.

Dissertation
Once enrolled in LING 999 Doctoral Dissertation, students must follow the university's continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of LING 999 Doctoral Dissertation.

Students apply to this degree a minimum of 12 dissertation credits (LING 998 Doctoral Dissertation Proposal and LING 999 Doctoral Dissertation combined) with at least 3 credits of LING 999 Doctoral Dissertation. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Dissertation Research 12
LING 998 Doctoral Dissertation Proposal
LING 999 Doctoral Dissertation

Total Credits 12

Native American and Indigenous Studies Minor
Banner Code: NAIS
Academic Advising
A487 Robinson Hall
Native American and indigenous studies is an interdisciplinary field of study committed to understanding both the unity and the diversity of present and past Native American tribes, cultures, and experiences. This interdisciplinary minor will help students think critically and respectfully about the complex dynamics of Native American cultures, considered both individually and comparatively. In addition to practicing and developing critical thinking and writing skills, students in this interdisciplinary minor will learn how value systems operate in different cultures, examine the roots of conflict and resolution across a broad historical and cultural spectrum, better understand the importance of language as a means of cultural expression, and heighten their appreciation of the unique status of present-day Native American tribes as nations with certain sovereign powers within the boundaries of the United States.

In addition to a required course that introduces key concepts, events, figures, and methodological approaches, students take five 3-credit elective courses from no fewer than three departments. The coursework for this minor enables students to examine Native American cultures from a variety of disciplinary perspectives, including those that are anthropological, historical, artistic, philosophical, and political.

**Faculty**
Anderson (coordinator), Benitez, Bristol, Karush, Scully, Snead, Tichy, Yocom

**Admissions & Policies**

**Policies**
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

No more than two courses from a single department can be applied to the minor. No more than 3 credits can be applied to both Mason Core (p. 135) requirements and the minor.

**Requirements**

**Minor Requirements**
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 377) tab.

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAIS 201</td>
<td>Introduction to Native American and Indigenous Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

**Electives**
Select five electives (15 credits) from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

1 Special topics courses and summer field work offerings, when relevant, may be used to fulfill elective credits for the minor with prior written approval of the NAIS coordinator.

**Professional Writing Minor**

**Banner Code: PW**

**Academic Advising**

A487 Robinson Hall
Fairfax Campus

Website: english.gmu.edu/programs/la-minor-la-pw

This minor provides students with opportunities to learn and apply advanced strategies for writing academic, professional, and civic documents. Students examine the theoretical, interdisciplinary, and professional aspects of writing and develop their expository, persuasive, organizational, and stylistic skills through close analysis of rhetorical situations and the features and approaches of successful writing. The strong communication and analytical skills developed while earning this minor contribute to student success in a wide variety of professional careers as well as graduate education.

The minor is a valuable asset for students interested in working in media organizations, trade and professional associations, and non-profit organizations related to the arts, schools, and social change. It is also beneficial to students interested in careers in business, science, engineering, accounting, and many others that demand strong writing and communication skills for promotion and advancement.

**Admissions & Policies**

**Policies**
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
## Professional and Technical Writing Graduate Certificate

### Banner Code: LA-CERG-PTW

**Academic Advising**

A487 Robinson Hall
Fairfax Campus

Website: english.gmu.edu/programs/la-cerg-pwr

The graduate certificate in professional and technical writing provides students with coursework in nonfiction writing in specific genres, current writing practices and theories of writing in organizational settings, research methods in professional writing, and nonfiction literature.

The graduate certificate in professional and technical writing may only be pursued on a part-time basis.

### Admissions & Policies

#### Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in professional writing and rhetoric, see Application Requirements and Deadlines (http://english.gmu.edu/programs/LA-CERG-PWR/application).

#### Policies

The certificate may be pursued concurrently with any of several programs in English and elsewhere. Part of the coursework toward the certificate may be applied to those degrees with the approval of the director of the degree program. Students pursuing this certificate must complete 18 credits of English graduate courses with a minimum grade of 3.00 in each course.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

### Requirements

#### Certificate Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 378) tab.

#### Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 501</td>
<td>Introduction to Professional Writing and Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 502</td>
<td>Research Methods in Rhetoric and Professional Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 503</td>
<td>Theory and Practice of Editing</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 505</td>
<td>Document Design</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>
ENGH 501 Introduction to Professional Writing and Rhetoric should be taken in the first semester of study, if possible.

**Emphasis in Technical Writing or Proposal Writing**
Take courses from one of the following emphases:

**Technical Writing Emphasis**
- ENGH 613 Technical Communication
- Select one elective ENGH course (3 credits) chosen in consultation with an advisor (p. 1476)

**Proposal Writing Emphasis**
- ENGH 509 Proposal Writing and Development
- ENGH 689 Advanced Proposal Writing

**Total Credits**: 6

---

**Teaching English as a Second Language Graduate Certificate**

Banner Code: LA-CERG-TESL

Academic Advising
A487 Robinson Hall
Fairfax Campus

Website: english.gmu.edu/programs/la-cerg-tesl

The graduate certificate in teaching English as a second language (TESL) prepares students to teach non-native speakers of English in the United States or abroad. Certificate courses fulfill, in part, requirements for an endorsement in English as a second language to the Virginia state teaching credential. Students who want to earn this endorsement should consult with an advisor.

The certificate may be pursued concurrently with any of several degree programs offered through the College of Education and Human Development, the English Department, and the Modern and Classical Languages Department. Part of the coursework toward the certificate may be applied toward degrees in those departments.

The graduate certificate in teaching English as a second language may be pursued on a part-time or full-time basis.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Teaching_English_As_Second_Language/Gedt.html).

---

**Admissions & Policies**

**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in teaching English as a second language, see Application Requirements and Deadlines (http://linguistics.gmu.edu/programs/LA-CERG-TESL/application).

**Requirements**

**Certificate Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 379) tab.

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 520</td>
<td>Introduction to Linguistics ¹</td>
<td>3</td>
</tr>
<tr>
<td>LING 521</td>
<td>Applied Linguistics: Teaching English as a</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Second Language</td>
<td></td>
</tr>
<tr>
<td>LING 522</td>
<td>Modern English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>LING 523</td>
<td>English Phonetics</td>
<td>3</td>
</tr>
<tr>
<td>LING 525</td>
<td>Practicum in ESL</td>
<td>3</td>
</tr>
<tr>
<td>LING 582</td>
<td>Second Language Acquisition</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

¹ This course may be waived if student is concurrently pursuing the English, MA with a concentration in linguistics.

---

**Policies**

Students pursuing this certificate must complete 18 credits, earning a minimum grade of 3.00 in each course.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

---

**Teaching English as a Second Language Minor**

Banner Code: TESL

Academic Advising
A487 Robinson Hall
Fairfax Campus

Website: english.gmu.edu/programs/la-minor-engl-tesl

This minor helps prepare undergraduate students to teach non-native speakers of English in the United States or abroad. This course of study combines linguistic theory, second language acquisition theory, and ESL teaching methodology.

The minor may be pursued concurrently with any undergraduate major. English majors concentrating in linguistics can apply up to nine credits in LING used for the major to the TESL minor.

---

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 379) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 306</td>
<td>General Linguistics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>LING 307</td>
<td>English Grammar</td>
<td>3</td>
</tr>
<tr>
<td>LING 521</td>
<td>Applied Linguistics: Teaching English as a Second Language 1</td>
<td>3</td>
</tr>
<tr>
<td>LING 523</td>
<td>English Phonetics 1</td>
<td>3</td>
</tr>
<tr>
<td>LING 582</td>
<td>Second Language Acquisition 1</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

1 Students must have approval from the linguistics director to register for 500-level courses.

Elective
Select one elective course from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core)</td>
</tr>
<tr>
<td>COMM 305</td>
<td>Foundations of Intercultural Communication (Mason Core)</td>
</tr>
<tr>
<td>ENGH 318</td>
<td>Introduction to Cultural Studies</td>
</tr>
<tr>
<td>LING 450</td>
<td>Introduction to Sociolinguistics</td>
</tr>
<tr>
<td>LING 485</td>
<td>Semantics and Pragmatics</td>
</tr>
<tr>
<td>LING 486</td>
<td>Syntax I</td>
</tr>
<tr>
<td>LING 490</td>
<td>Generative Phonology</td>
</tr>
<tr>
<td>LING 499</td>
<td>Independent Study</td>
</tr>
<tr>
<td>LING 525</td>
<td>Practicum in ESL 2</td>
</tr>
</tbody>
</table>

Total Credits 3

1 Other relevant courses may be applied to the minor with the prior written approval of the director.

2 Students must have approval from the linguistics director to register for 500-level courses.

Writing and Rhetoric, PhD

Banner Code: LA-PHD-WRTR

Academic Advising

A487 Robinson Hall
Fairfax Campus

Email: wrphd@gmu.edu
Website: http://english.gmu.edu/programs/la-phd-wrtr

The doctoral program in writing and rhetoric offers a curriculum that emphasizes theoretical, practical, and productive approaches to composition, professional writing, and public rhetoric. The program is built on the premise that writing and teaching in twenty-first century organizations require the rigorous, integrated study of rhetoric, technology, pedagogy, culture, and research methodologies. In addition to our core curriculum, the program’s proximity to Washington, D.C. makes it uniquely situated to provide opportunities for research and internships that go beyond and enrich the student’s writing and rhetoric coursework.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants to the PhD in writing and rhetoric must already have earned a master’s degree in a relevant field before being admitted to the program.

For further information specific to the PhD in writing and rhetoric, see Application Requirements and Deadlines (http://english.gmu.edu/programs/la-phd-wrtr/application) on the college website.

Policies

For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit

Students must have a master’s degree before being admitted to the PhD in writing and rhetoric. Most students receive a reduction of study of 30 credits based on their previous master’s degree.

Program Requirements

To receive the PhD in writing and rhetoric, students complete a minimum of 78 credits of coursework, 48 beyond the master’s degree. Beyond the basic coursework, a dissertation is required.

Requirements

Degree Requirements
Total credits: 78

Doctoral Coursework

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 720</td>
<td>Histories of Institutional Rhetorics</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 722</td>
<td>Composition Pedagogies and Programs in Context</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 724</td>
<td>Professional Writing Theory and Research</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 726</td>
<td>Rhetorical Theory and Public Spaces</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Required Research Methods Course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 702</td>
<td>Research Methods in Rhetoric and Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Primary Focus Area

With a faculty advisor, students complete any combination of the following courses totaling 12 credits. The selected courses should form
a consistent area of research around a specific object, practice, method, set of theories, or sub-field. 

Select four from the following:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 822</td>
<td>Studies in Composition</td>
<td>1</td>
</tr>
<tr>
<td>ENGH 824</td>
<td>Studies in Professional Writing</td>
<td>1</td>
</tr>
<tr>
<td>ENGH 826</td>
<td>Studies in Public Rhetorics</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 12

1 May be repeated up to four times when topic differs.

Secondary Focus Area 

The selected courses form a consistent secondary area of research that supports the student's primary area and developing research interests. It is strongly suggested that the secondary focus courses be taken in other programs or disciplines.

Select 3 courses from another program or discipline (see below) and/or the primary area courses, with faculty advisor approval:

Anthropology (p. 1119)  
Art and Visual Technology (p. 1152)  
Communication (p. 1286)  
Cultural Studies (p. 1381)  
Education (p. 155)  
English (p. 1476)  
History (p. 1628)  
Linguistics (p. 1694)  
Literature (p. 350)  
Modern and Classical Languages (p. 414)  
Public Policy (p. 906)  
Sociology (p. 1923)  
Women and Gender Studies (p. 2027)

Total Credits 9

Electives  

Students receiving a reduction of credit of less than 30 will complete the remaining credits through additional elective courses chosen in consultation with an advisor.

Total Credits 0-30

Advancement to Candidacy  

Prior to beginning dissertation research (normally after completion of 66 hours of coursework), students will take a written examination, successful completion of which will demonstrate a qualification for advancement to candidacy. The examination will cover foundation knowledge acquired in the writing and rhetoric core courses and in the student's area of primary focus.

Dissertation  

The dissertation process, which begins after the student has completed 66 credit hours and passed the written qualifying exam, includes an oral exam on the dissertation proposal, the production of the dissertation, and an oral defense of the dissertation. The student's progress at all stages will be evaluated by the dissertation committee. The dissertation should use theoretical, historical, qualitative, and/or quantitative methods to address a rhetorical problem within an institutional or public context that is framed within a disciplinary field. While these projects are often multidisciplinary in approach, they should address a gap in a discipline's research as well as solve a public rhetorical problem.

Once enrolled in ENGH 998 Doctoral Dissertation Proposal, students in this degree program must maintain continuous registration in ENGH 998 Doctoral Dissertation Proposal or ENGH 999 Doctoral Dissertation each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in ENGH 999 Doctoral Dissertation, students must follow the university's continuous registration policy as specified in the Academic Policies section of the catalog. Students who defend in the summer must be registered for at least 1 credit of ENGH 999 Doctoral Dissertation.

At least 3 credits of  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 998</td>
<td>Doctoral Dissertation Proposal (3 credits required)</td>
<td>3</td>
</tr>
</tbody>
</table>

At least 9 credits of  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 999</td>
<td>Doctoral Dissertation (minimum of 9 credits)</td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credits 12

Department of History and Art History  

B359 Robinson Hall  
Fairfax Campus  
Phone: 703-993-1250  
Website: historyarthistory.gmu.edu

The department offers a number of degree programs, including undergraduate majors and minors in both history and art history, traditional and accelerated MA programs in both history and art history, and a PhD in history. Additional programs include an MA in the history of decorative arts, a dual MA in art history and arts management, and a graduate certificate in digital public humanities. Additional undergraduate minors coordinated by the department include the ancient Mediterranean art and archaeology minor and the Asia-Pacific and Northeast Asian studies minor. The minor in sport and American culture is offered jointly by the Department of History and Art History and the School of Recreation, Health and Tourism.

Undergraduate Programs  

History  

Students in the history BA study a variety of places, from Africa to Asia to the Americas, Europe, and the Middle East, and historical time periods, from Greek and Roman antiquity to the late twentieth-century. They learn to interpret and evaluate the past by analyzing a variety of sources, from historical books and novels to images, films, oral interviews, newspapers, and other texts.

History majors have the opportunity to study with faculty who are internationally known for their work on the use of technology in the study of history. They can do an internship with one of them in the Center for History and New Media or at places like the Smithsonian Institution, the Library of Congress, or one of many other institutions in the Washington, D.C. area. There are also many opportunities to study abroad while earning credit towards the history major.
Advising

Students majoring or minoring in history are advised by the undergraduate director and a team of faculty advisors. History majors are urged to discuss their program of study periodically with the director.

Bachelor’s/Accelerated Master’s Programs

MA in History

The department offers highly qualified undergraduate majors in history the opportunity to apply to an accelerated master’s degree program in history. If accepted, students will be able to earn both the undergraduate and graduate degrees after satisfactory completion of 144 credits. The BA and MA earned separately require 120 and 30 credits respectively.

MEd in Curriculum and Instruction (concentration in secondary education history and social science)

The Department of History and Art History (p. 381) and the Graduate School of Education (p. 155) jointly offer an accelerated MEd option (p. 161) for history majors. A BA in History and an MEd in Curriculum and Instruction with a concentration in secondary education history and social science can be earned after satisfactory completion of 149 credits.

Art History

The department offers highly qualified undergraduates in any major the opportunity to apply to an accelerated master’s degree program in art history. If accepted, students will be able to earn both the undergraduate and graduate degrees after satisfactory completion of 144 credits, generally within five years.

Graduate Programs

History

The department offers a master’s and a doctoral degree in history. In both programs, students select a specialization in American history, European history, or world history. Master’s degree students choose from one of five concentrations: predoctoral history, applied history, enrichment, higher education, or teaching. Doctoral students focus their studies in one of four areas: college/university teaching, new media and information technology, public and applied history, or preprofessional development.

Graduate students in history have the opportunity to take courses in new media, studying with faculty who are internationally known for their use of technology in the study of history. Many students work alongside the faculty in the Center for History and New Media, a leader in the use of digital media and computer technology to democratize history. The center uses digital media and technology to preserve and present history online, transform scholarship across the humanities, and advance historical education and understanding.

Students can do an internship in applied history at one of the many institutions in the Washington, D.C. area or study abroad while earning credit towards their degrees.

Art History

The department offers a richly interdisciplinary master’s degree in art history. It draws on faculty strengths in traditional research and new media and the vast cultural resources of the Washington, D.C. area. Students learn methods of art historical analysis, a variety of art historical interpretations, and practical applications of the field. The program places a special emphasis on the development of skills in new media, museology, and pre-professional internships - program features that are unique to this region.

The master’s degree in art history is designed to meet the needs of a student population with diverse interests and career goals. Because of the focus on skill building in traditional research as well as new media, graduates of this program have the tools necessary for independent research, professional work, and the dissemination of knowledge in art history.

The department also offers a master’s degree in the history of decorative arts. It is offered in partnership with The Smithsonian Associates and presents students with the challenge of integrating the history of the decorative arts into the study of art history and cultural studies as a whole. Students take courses in decorative arts, design history and theory, material culture, and museology. This program prepares students for employment at museums, historic organizations, and in the commercial art and design marketplace. It is also excellent preparation for a number of doctoral programs.

Funding

The department offers teaching and research assistantships, which are awarded on a competitive basis. Other sources of funding such as grants, loans, and employment on campus are also available. Students awarded assistantships must register for a minimum of six credits a semester and show satisfactory progress toward their degree.

Faculty

Department Faculty

Professor Emeriti

Bakhash, Censer, Deshmukh, ffolloti, Henriques, Horton, Jensen, Lytton, Petrik, Wade (history); Mattusch, Todd (art history)

Robinson Professors

Crew (history); Hinton (art history)

Professors

J. T. Censer, Holt, Karush, Kelly, Kierner, Landsberg, O’Malley, Robertson, Schrag, Sherwin, Smith, Steams, Zagarri (history), DeCaroli (art history)

Associate Professors

Barnes, Bristol, Carton, Chang, Collins, Copelman, Hamdani, Hamner, Jordan, Lair, Leon, Platt (chair), Ritterhouse, Scully, Takats (history); Butler, Greet (director)

Assistant Professors

Cowan, Genetin-Pilawa, Hooper, Lebovic, Mullen, Park, Yilmaz (history); Ho, Williamson (art history)

Affiliate Associate Professors

Schrum (history)

Affiliate Professor

Wiggins (history)

Term Faculty

Elzey, Manuel-Scott, McCord, Orens, Schulze (history); Bauman, DeArmendi, Gregg (art history)
# Programs

- Ancient Mediterranean Art and Archaeology Minor
- Art History Minor
- Art History, BA
- Art History, MA
- Asia-Pacific and Northeast Asian Studies Minor
- Digital Public Humanities Graduate Certificate
- History Minor
- History of Decorative Arts, MA
- History, BA
- History, MA
- History, PhD

## Ancient Mediterranean Art and Archaeology Minor

**Banner Code:** ARTM

**Academic Advising**

B359 Robinson Hall  
Fairfax Campus

Website: historyarthistory.gmu.edu/programs/la-minor-la-artm

This interdisciplinary minor is for students with diverse interests in the material culture of the ancient world. Coursework combines the study of archaeology, literature, art, history, philosophy, myth, and religion. The scope of the minor is not limited to Greece and Rome but touches on all the ancient civilizations of the Mediterranean and the heirs of late antiquity such as Byzantium and early Islam.

The minor represents foundation work crucial to graduate study in traditional departments of classical, near Eastern, or Mediterranean art and archaeology. Through this minor, students are given credit for acquiring practical linguistic skills and archaeological field experience as well as scholarly background. Students should consult with the director for help in choosing a program of study that will complement their major.

**Faculty**

Butler, Cherubin, Gregg, Williamson (coordinator), Winkler

## Admissions & Policies

### Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

## Requirements

### Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 383) tab.

Of the 18 credits required for the minor, at least 3 credits must be taken in ARTH and at least 9 credits must be taken outside of ARTH.

### Core Courses

Select one course (3 credits) from one of the following options:

<table>
<thead>
<tr>
<th>Option 1: A course in Classical Greek:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GREE 150 Classical Greek I</td>
</tr>
<tr>
<td>GREE 160 Classical Greek II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option 2: A course in Ancient Literature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 102 Symbols and Stories in Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CLAS 250 Classical Mythology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CLAS 260 The Legacy of Greece and Rome (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>RELI 211 Religions of the West (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option 3: A course in Latin or a modern research language:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a course in any relevant language beyond the language requirement for the BA in the College of Humanities and Social Sciences (p. 414)</td>
</tr>
</tbody>
</table>

**Total Credits**

3

*For information on how to complete this requirement, students should consult with the director of the minor.*

### Seminar

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>ARTH 420 Advanced Studies in Ancient Art</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 430 Advanced Studies in Medieval or Islamic Art</td>
</tr>
</tbody>
</table>

**Total Credits**

3

*If topic pertains to region and period.*

### Practicum

Students can also use archaeological field work done for credit to fulfill this requirement.

Select 3-6 credits from the following:

<table>
<thead>
<tr>
<th>ARTH 394 The Museum (Mason Core) (p. 135)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 322 Pirates, Conquest, and Death: Archaeology and Globalism since 1500</td>
</tr>
<tr>
<td>ARTH 393 Art History Internships</td>
</tr>
<tr>
<td>ANTH 325 Field Techniques in Archaeology</td>
</tr>
<tr>
<td>ANTH 420 Interpretation in Archaeology</td>
</tr>
<tr>
<td>ANTH 430 Research Methods in Archaeology</td>
</tr>
</tbody>
</table>

**Total Credits**

3-6

*If content of internship pertains to region and period. Requires the prior written approval of the director.*

### Electives

Select two to three electives (6-9 credits) from the following:

**Total Credits**

6-9
ARTH 324  Warfare, Violence, and Sacrifice in Antiquity

ARTH 319  Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)

ARTH 320  Art of the Islamic World (Mason Core) (p. 135)

ARTH 321  Greek Art and Archaeology (Mason Core) (p. 135)

ARTH 322  Roman Art and Archaeology (Mason Core) (p. 135)

ARTH 324  From Alexander the Great to Cleopatra: The Hellenistic World (Mason Core) (p. 135)

ARTH 333  Early Christian and Byzantine Art (Mason Core) (p. 135)

CLAS 340  Greek and Roman Epic (Mason Core) (p. 135)

CLAS 350  Greek and Roman Tragedy (Mason Core) (p. 135)

CLAS 360  Greek and Roman Comedy (Mason Core) (p. 135)

CLAS 370  Greek and Roman Historians

CLAS 380  Greek and Roman Novels (Mason Core) (p. 135)

CLAS 390  Topics in Classical Literature and Culture

HIST 301  Classical Greece

HIST 302  Classical Rome

HIST 480  Alexander the Great

PHIL 301  History of Western Philosophy: Ancient

RELI 352  Judaism from Exile to Talmud

RELI 381  Beginnings of Christianity

Total Credits 6-9

Other courses pertaining to the region and period, including ARTH 399 Special Topics in the History of Art, may be used to fulfill this requirement with the prior written approval of the director.

Art History Minor

Banner Code: ARTH

Academic Advising

B359 Robinson Hall
Fairfax Campus

Website: historyarthistory.gmu.edu/programs/la-minor-hist-arth

This minor covers a broad spectrum of periods, cultures, and themes, with an emphasis on historical context.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. A maximum of 6 credits of ARTH 398 Study Abroad in the History of Art may be applied to the minor with permission of department.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 384) tab.

Students are strongly encouraged to participate in a study abroad program. ARTH 394 The Museum (Mason Core) (p. 135) is not required for the minor but is strongly encouraged.

Coursework

Select one to two 100- or 200-level courses in art history 3-6 (p. 1143)

Select four to five 300- or 400-level courses in art history 12-15 (p. 1143)

Total Credits 18

Art History, BA

Banner Code: LA-BA-AH

B359 Robinson Hall
Fairfax Campus

Website: historyarthistory.gmu.edu/programs/la-ba-ah

Art History emphasizes the analysis of visual data in a historical context. Faculty expertise extends to many world regions—the United States, Latin America, Europe, the Mediterranean, South and Southeast Asia, China, and the Islamic world—and over all historical periods. Students apply what they learn through internship opportunities available in the Washington DC area, including the world-famous collections of the National Gallery of Art and the Smithsonian Institutions. Students go on to work in areas including museums, arts institutions, galleries, government and managerial positions. They also pursue further studies in fields including art history, library science, design technology, historic preservation, and fashion.

Admissions & Policies

Policies

Students pursuing this degree must complete 33 to 34 credits within the major, with a minimum GPA of 2.00. Up to 6 credits in art history internships may be applied toward ARTH requirements for the major, with permission of the art history undergraduate director. A maximum of 6 credits of ARTH 398 Study Abroad in the History of Art may be applied to the major with permission of department.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).
## Requirements

### Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 384) tab.

All art history majors are encouraged to pursue internships in art history (ARTH 393 Art History Internships) in their junior or senior year. Students strongly encouraged to participate in a study abroad program. Students contemplating graduate study in art history should acquire a reading knowledge of French, German, or other appropriate research languages in consultation with an advisor.

### Core Courses in the Major

Select one survey course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 200</td>
<td>History of Western Art I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 201</td>
<td>History of Western Art II (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 394</td>
<td>The Museum (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Select five courses from ARTH courses at the 300 level (p. 1143) 15

Total Credits 21

1 In addition to ARTH (p. 1143) courses, art history majors may use one 300-level HIST (p. 1628) course to fulfill this requirement.

### 400-Level ARTH Courses

Select two from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 400</td>
<td>Historiography and Methods of Research in Art History (Topic Varies)</td>
</tr>
<tr>
<td>ARTH 420</td>
<td>Advanced Studies in Ancient Art</td>
</tr>
<tr>
<td>ARTH 430</td>
<td>Advanced Studies in Medieval or Islamic Art</td>
</tr>
<tr>
<td>ARTH 440</td>
<td>RS: Advanced Studies in Renaissance and Baroque Art</td>
</tr>
<tr>
<td>ARTH 460</td>
<td>RS: Advanced Studies in 20th-Century European Art</td>
</tr>
<tr>
<td>ARTH 471</td>
<td>Advanced Studies in Art of the United States</td>
</tr>
<tr>
<td>ARTH 472</td>
<td>RS: Advanced Studies in 20th-Century Latin American Art</td>
</tr>
<tr>
<td>ARTH 474</td>
<td>Advanced Studies in Contemporary Art</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
</tr>
<tr>
<td>ARTH 495</td>
<td>RS: Objects and Archives in Art History</td>
</tr>
<tr>
<td>ARTH 499</td>
<td>Advanced Studies in Art History</td>
</tr>
</tbody>
</table>

### Art and Visual Technology Course

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 103</td>
<td>Introduction to the Artist’s Studio (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 104</td>
<td>Two-Dimensional Design and Color (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 222</td>
<td>Drawing I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 232</td>
<td>Painting I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 243</td>
<td>Printmaking I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 252</td>
<td>Darkroom Photography I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 253</td>
<td>Digital Photography I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 262</td>
<td>Sculpture I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 392</td>
<td>Gallery Practices</td>
</tr>
</tbody>
</table>

### Elective in the Major

Select one elective from any art history course (p. 1143) 3

Total Credits 3

### Writing-Intensive Requirement

The university requires all students to complete at least one course designated as “writing intensive” in their majors at the 300 level or above. Students majoring in art history fulfill the university’s writing-intensive requirement by successfully completing any 400-level ARTH (p. 1143) course.

### Upper Level Requirement

Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

### College Level Requirements for the BA Degree

In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

#### Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL</td>
<td></td>
</tr>
<tr>
<td>RELI</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits from the following: 3

1 Note that the following courses may not be used to fulfill this requirement:

- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.
### Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)</td>
<td>3</td>
</tr>
</tbody>
</table>

ANTH (p. 1119)
CRIM (p. 1372)
ECON (p. 1413)
GOVT (p. 1588)
HIST (p. 1628)
LING (p. 1694)
PSYC (p. 1844)
SOCI (p. 1923)

Or choose from the following GGS courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
<td></td>
</tr>
</tbody>
</table>

The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
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<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

### Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by:</td>
<td></td>
</tr>
</tbody>
</table>

Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)

Or achieving a satisfactory score on an approved proficiency test

Or completing the following ASL three course sequence:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDSE 115</td>
<td>American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td>EDSE 116</td>
<td>American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core)</td>
<td>3</td>
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<td>DANC 118</td>
<td>World Dance (Mason Core)</td>
<td>3</td>
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<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core)</td>
<td>3</td>
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<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core)</td>
<td>3</td>
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<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
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<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
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<td>GGS 101</td>
<td>Major World Regions (Mason Core)</td>
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<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
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</tr>
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<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
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<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
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</tr>
<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
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<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
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<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
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<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
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<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core)</td>
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<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core)</td>
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<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core)</td>
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<td>HIST 262</td>
<td>Survey of African History (Mason Core)</td>
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<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core)</td>
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<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core)</td>
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<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
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<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
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<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
</tr>
<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core)</td>
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<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core)</td>
<td>3-6</td>
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<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
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<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
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<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur'an and Hadith</td>
<td>3</td>
</tr>
<tr>
<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>
RUSS 354  Contemporary Post-Soviet Life (Mason Core) (p. 135)  3

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tr>
<td></td>
<td>Foundation Requirements</td>
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<tr>
<td>Written Communication (p. 135)</td>
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<td>6</td>
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<tr>
<td>Oral Communication (p. 136)</td>
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<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning (p. 136)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Information Technology (p. 136)</td>
<td></td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td>Arts (p. 137)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding (p. 139)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Literature (p. 140)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Natural Science (p. 141)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Western Civilization/World History (p. 143)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone Requirement</td>
<td></td>
</tr>
<tr>
<td>Synthesis/Capstone (p. 143)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

Additional Electives

Any remaining electives may be completed with electives to bring the degree total to 120

Honors in the Major

Eligibility

 Majors who have completed 75 credits (a minimum of 15 credits in art history, with 6 credits taken at Mason) with an overall GPA of 3.50 and a GPA of 3.80 in art history are eligible to apply to graduate with honors in art history. Eligible students should apply to the undergraduate director by November 15 or April 15 with a statement of application including the names of two references from Mason art history faculty members. Transfer students should also submit transcripts. Not all applicants who meet the minimum requirements are guaranteed acceptance into honors in the major.

Honors Requirements

Students pursuing honors in the major complete ARTH 492 Honors Directed Readings and ARTH 493 Honors Directed Research, linked individualized courses that culminate in a research paper. Students must have completed at least one course in the field (or with the professor) chosen for these honors courses. ARTH 492 Honors Directed Readings should be taken before ARTH 493 Honors Directed Research, but they may be taken concurrently. To graduate with honors in the major, students must earn a minimum GPA of 3.50 in honors courses and a minimum GPA of 3.50 in art history courses applied to the degree. The two honors courses (6 credits) may be applied toward the requirement of 33- to 34-credits in art history, but they cannot replace the 6 required credits in the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ARTH 400  Historiography and Methods of Research</td>
<td></td>
</tr>
<tr>
<td></td>
<td>in Art History (Topic Varies)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 420 Advanced Studies in Ancient Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 430 Advanced Studies in Medieval or Islamic Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 440 RS: Advanced Studies in Renaissance and Baroque Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 460 RS: Advanced Studies in 20th-Century European Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 471 Advanced Studies in Art of the United States</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 472 RS: Advanced Studies in 20th-Century Latin American Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 474 Advanced Studies in Contemporary Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 482 RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 495 RS: Objects and Archives in Art History</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>ARTH 499 Advanced Studies in Art History</td>
<td>3</td>
</tr>
</tbody>
</table>

Accelerated Master’s

The accelerated master’s program listed below specifies the BA in art history as a feeder degree for its program. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason. In addition, as a student with a BA in art history you may be particularly interested in the accelerated MA in art history (p. 390).

Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview

Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).
Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**
- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477).

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

**Accelerated Option Requirements**
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

**Code**
**Title**
**Credits**

Select two from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td></td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

6

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td></td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Art History, MA**

**Banner Code: LA-MA-AH**

**Academic Advising**
B359 Robinson Hall
Fairfax Campus
Website: historyarthistory.gmu.edu/programs/la-ma-ah

Art history MA students combine traditional research with the application of new media, while accessing the opportunities offered through the cultural resources of the Washington, D.C. area. The program emphasizes new media skills, museum studies, and pre-professional internship training. Students study a broad range of art-historical periods, theory, and research methods. Faculty specialize in periods from ancient to contemporary in time periods, and in areas covering Europe, North and South America, Asia, and the Middle East. Graduates are well-prepared for art museum and gallery professional work, where a master's degree is now routinely required, or for further study in doctoral programs.

**Admissions & Policies**

**Admissions**

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66) section of this catalog. For information specific to the MA in art history, see Application Requirements and Deadlines (http://historyarthistory.gmu.edu/programs/la-ma-ah/application).

**Policies**
For policies governing all graduate degrees, see Graduate Policies (p. 87).
This program does not permit a reduction of credit based on a previously-conferred graduate degree.

### Requirements

#### Degree Requirements

Total credits: 30

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 389) tab.

#### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 600</td>
<td>Methods and Research in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 601</td>
<td>Colloquium in Art History</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 599</td>
<td>Special Topics in Art History and the Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>or ARTH 699</td>
<td>Topics in Art History</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 9

#### Applied Preprofessional Learning

Three credits in one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 593</td>
<td>Internship in Art History and the Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 594</td>
<td>The Museum</td>
<td></td>
</tr>
<tr>
<td>or Other coursework approved by the program director</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

1. Students who enter the MA program through the accelerated MA option, and received credit for ARTH 394 The Museum (Mason Core) (p. 135) as an undergraduate, are expected to fulfill this requirement with an internship or alternate course rather than ARTH 594 The Museum.

#### Technology and New Media

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 696</td>
<td>Clio Wired: An Introduction to History and New Media</td>
<td>3</td>
</tr>
<tr>
<td>or HIST 697</td>
<td>Creating History in New Media</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

#### Electives

Select four to five electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST courses (p. 1628)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH courses (p. 1143)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVT courses (p. 1152)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH courses (p. 1119)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CULT courses (p. 1381)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12-15

1. Students who choose to write a thesis complete 12 elective credits; others complete 15.
2. Students may choose electives in AVT, ANTH, or CULT with prior written permission of the graduate director.

#### Research Language Proficiency

Students must demonstrate reading ability in one relevant research language that must be approved by the graduate director. To meet this requirement, students must either achieve a satisfactory score on a proficiency exam or present coursework equivalent to a grade of B or better in an intermediate-level foreign language course (210 or higher at George Mason).

#### Written Comprehensive Exam

Students who do not pass may retake the exam once, following the original process. The second exam must be taken within 12 months of the first exam.

#### Optional Thesis

Students who choose to write a thesis should be aware of the policies governing theses as stated in AP.6.9.3 Master's Thesis (p. 91) policies. They must follow the thesis enrollment policy (p. 91) of the university and once enrolled in ARTH 799 Master's Thesis, maintain continuous enrollment.

Three credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 799</td>
<td>Master's Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

### Accelerated Master's

#### Bachelor's Degree (any)/Art History, Accelerated MA

#### Application Requirements

Highly qualified undergraduates in any major who have taken at least two 300-level art history courses with a minimum grade of B+ in each may apply to the accelerated master's degree in art history. If accepted, students will be able to earn a bachelor's degree in their chosen major and a master's degree in art history after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program.

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MA in art history, see Application Requirements and Deadlines on the departmental web site.

#### Accelerated Option Requirements

Applicants accepted to the accelerated MA program must have completed 90 credits including two 300-level ARTH courses with a minimum grade of B+ in each.

While undergraduate students, accelerated master’s students complete two graduate courses (two ARTH 599 Special Topics in Art History and the Decorative Arts courses on different topics or one ARTH 599 Special Topics in Art History and the Decorative Arts and one ARTH 699 Topics in Art History course) as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework and earn a grade of B or better (3.00 or higher) in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students...
must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

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**Asia-Pacific and Northeast Asian Studies Minor**

**Banner Code:** APNS

**Academic Advising**

B359 Robinson Hall
Fairfax Campus

Website: historyarthistory.gmu.edu/programs/LA-MINOR-LA-APNS

This interdisciplinary minor is for students whose interests focus on the humanities and social sciences and Asia’s role in global systems and the cultural mosaic of human experience.

Asia is the birthplace of many great religious and cultural traditions. It is a region in rapid and profound transformation. With half of the world’s population and half of its land mass, Asia is destined to play an increasingly important role in the global economy and world politics. This minor will give students a better understanding of an important region of the world, broaden their perspective, and provide an edge in seeking jobs in various government agencies, international organizations, private businesses, law firms, and non-profit organizations that deal with Asia. It prepares students for graduate studies in the humanities or social sciences. This minor complements many majors including history, anthropology, communication, economics, and government and politics.

**Faculty**

Butler, Chang, Cuong, DeCaroli, Hinton, H. Nguyen (co-director), Lin, Paden, Platt (co-director), Ro, Wan, Zhang

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**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and nine of the 18 credits required must be at the 300 and 400 level. Three credits of Chinese, Korean, or Japanese at the intermediate level (200-level) or above may be applied to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

---

**Requirements**

**Minor Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 391) tab.

It is recommended that students interested in this minor take language courses in Chinese (p. 1256), Korean (p. 1691), or Japanese (p. 1687).

**Core Courses**

Select two core courses (6 credits) from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
</tr>
<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 6

**Electives**

Select four electives (12 credits) from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 310</td>
<td>Survey of Chinese Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 311</td>
<td>Modern Chinese Literature in Translation (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 470</td>
<td>Special Topics in Chinese Studies</td>
</tr>
<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
</tr>
<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
</tr>
<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
</tr>
<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>RELI 317</td>
<td>Daoism</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
</tr>
</tbody>
</table>

Total Credits 12
Any course from the list of core course options not used to fulfill that requirement may be used as an elective course. Other electives are possible, including special topics courses when focused on this region (e.g. GOVT 490 Synthesis Seminar (Mason Core) (p. 135), HIST 387 Topics in Global History (Mason Core) (p. 135), HNRS 122 Reading the Arts (Topic Varies), HNRS 230 Cross-Cultural Perspectives (Topic Varies)) and approved study abroad courses or internships, when relevant, with prior written approval of the director.

Digital Public Humanities Graduate Certificate

Banner Code: LA-CERG-DPH

Academic Advising
B359 Robinson Hall
Fairfax Campus
Website: http://historyarthistory.gmu.edu/programs/LA-CERG-DPH

The graduate certificate in digital public humanities is a fully online program that trains students in a wide range of digital tools that are in increasingly high demand in humanities careers. Students will use these tools in developing their own digital projects, thus enhancing their professional portfolio. Students will also gain professional experience through an internship with the Smithsonian Institution, focused on applying skills learned from coursework. Internships will be coordinated remotely, allowing students to work from their locations.

The graduate certificate in digital public humanities may be pursued on a part-time basis only.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in cognitive neuroscience, see Application Requirements and Deadlines (http://historyarthistory.gmu.edu/programs/la-cerg-dph/application).

Policies

Students pursuing this certificate must complete 15 credits of history graduate courses with a minimum grade of 3.00 in each course.

For policies governing all certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 392) tab.

Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 680</td>
<td>Introduction to Digital Humanities</td>
<td>3</td>
</tr>
<tr>
<td>HIST 689</td>
<td>Teaching and Learning History in the Digital Age</td>
<td>3</td>
</tr>
<tr>
<td>HIST 694</td>
<td>Digital Public History</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Internship Requirement

Six credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 794</td>
<td>Internship in Applied History</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 6

History Minor

Banner Code: HIST

Academic Advising
B359 Robinson Hall
Fairfax Campus
Website: historyarthistory.gmu.edu/programs/la-minor-hist-hist

The history minor allows majors in other disciplines to round out their education by completing a three-course concentration in the history of a world region and taking three additional history courses of their own choosing. History minors have opportunities to conduct independent research, engage in globally relevant activities through coursework and language study at Mason and abroad, and prepare for their future careers through internships and other college-to-career activities.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. Of the 18 credits applied to the minor, 12 credits must be at the 300 or 400-level.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 392) tab.

Core Courses

Select three courses (9 credits) concentrated in a region or topic. (p. 394)

Total Credits: 9

Students choose courses to meet this requirement that are concentrated in a region or topic. The region or topic should relate, if possible, to their major. Lists of courses, by region, can be found in the BA in history.
Electives
Select three electives (9 credits) in History (p. 1628)

Total Credits 9

In addition to HIST (p. 1628) courses, students may use HNRS 240 Reading the Past (Topic Varies) to fulfill this requirement.

History of Decorative Arts, MA

Banner Code: LA-MA-HDA

Academic Advising
B359 Robinson Hall
Fairfax Campus
Website: historyarthistory.gmu.edu/programs/la-ma-hda

The MA in the history of decorative arts is offered in partnership with The Smithsonian Associates. It presents students with the challenge of integrating the history of the decorative arts into the study of art history and cultural studies as a whole. Students take courses in decorative arts, design history and theory, material culture, and museology.

The program prepares students for employment at museums, historic organizations, and in the commercial art and design marketplace. It is also excellent preparation for a number of doctoral programs.

Admissions & Policies

Policies
To receive the MA in the history of decorative arts students must complete 48 graduate credits with a minimum GPA of 3.0. A maximum of 9 credits from other institutions may be transferred into this program or may be reduced based on a previously conferred graduate degree. Reduction or transfer of credit is subject to the approval of the director and the dean.

For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 48

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 570</td>
<td>Proseminar in History of Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 571</td>
<td>Survey of Decorative Arts I</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 572</td>
<td>Survey of Decorative Arts II</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 630</td>
<td>Material Culture Studies</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 640</td>
<td>European Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 650</td>
<td>Global Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 660</td>
<td>Museum Studies</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 799</td>
<td>Master's Thesis</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Electives

Students choose electives in consultation with an advisor. Courses with variable topics may be repeated for credit when the topic varies. A total of 6 credits of independent study and 6 credits of internship each may be applied to the degree.

Students may apply 3 or 6 credits of thesis in place of 1 or 2 elective courses. Students who do not complete a thesis complete 24 elective credits and a comprehensive examination.

Select six to eight electives (18-24 credits) from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 593</td>
<td>Internship in Art History and the Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 594</td>
<td>The Museum</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 596</td>
<td>Independent Study</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 599</td>
<td>Special Topics in Art History and the Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 610</td>
<td>Theory of Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 620</td>
<td>Topics in Individual Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 630</td>
<td>Material Culture Studies</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 640</td>
<td>European Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 650</td>
<td>Global Decorative Arts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 660</td>
<td>Museum Studies</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 670</td>
<td>Design and Design History</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 18-24

Examination or Thesis
Students must successfully pass a comprehensive examination or complete a 3-6 credit thesis.

Examination
The purpose of the comprehensive examination is to test the student’s familiarity with the important objects and literature relating to one major and one minor field. Fields are defined by country, medium, and century. The student is expected to be conversant with bibliographic references, be able to evaluate information critically, and be able to recognize objects, makers, and styles. The exam consists of a one-hour oral component on the major and minor fields followed by an essay on the major field.

Thesis
A thesis requires a minimum of 1 semester. Students who undertake a 3-credit thesis take 3 fewer elective credits. Students who undertake a 6-credit thesis register for 3 credits the first semester and 3 credits the second semester; they take 6 fewer elective credits.

Once enrolled in ARTH 799 Master's Thesis, students are required to maintain continuous registration until the thesis is submitted to and accepted by the University Library. The continuous registration policy is specified in the Academic Policies section of the catalog.
History, BA

Banner Code: LA-BA-HIST

B359 Robinson Hall
Fairfax Campus

Website: historyarthistory.gmu.edu/programs/la-ba-hist

The BA in history looks at the range of human experience: how people have lived in the past, how they live and coexist in the present, and the links between the two. Students learn to interpret the past by examining a variety of original sources: newspapers, letters and diaries, literature, government records, images, films, oral interviews, and more. Majors hone their skills in collecting, interpreting, and communicating information. Majors move on to careers in government, law, and management, as well as teaching and graduate study.

Admissions & Policies

Policies

Students pursuing this degree must complete 36 credits within the major with at least 18 credits at the 300 and 400 levels. Additional credits of history in excess of 36 may be presented as elective credits to be counted toward graduation. Students must have a minimum GPA of 2.00 in courses applied to the major.

HIST 300 Introduction to Historical Method (Mason Core) (p. 135) and HIST 499 RS: Senior Seminar in History (Mason Core) (p. 135) may not be used to satisfy the geographic distribution requirements in U.S. history, European history, and global, Latin American, African, Asian, or Middle Eastern history. No more than 3 credits of ARTH coursework may apply to the History BA. For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 394) tab.

Before registering, students should see an advisor to help plan their history program to meet Mason Core (p. 135) and college-level requirements. The advisor also can help students choose electives or a minor.

Major without Concentration

HIST 300 Introduction to Historical Method (Mason Core) (p. 135) 3
HIST 499 RS: Senior Seminar in History (Mason Core) (p. 135) 3

Total Credits 6

U.S. History

Select two courses from the following: 6

HIST 122 Development of Modern America (Mason Core) (p. 135)
HIST 311 Postwar United States, 1945-1973
HIST 332 United States since 1973
HIST 333 The Automobile in the United States
HIST 335 The African American Experience in the United States: African Background to 1885
HIST 336 The African American Experience in the United States: Reconstruction to the Present
HIST 337 Race and Gender in American Sports
HIST 338 History of College Athletics
HIST 339 History of Baseball
HIST 340 Basketball and the American Experience
HIST 341 History of Sport in the United States
HIST 342 History of the Olympics and the United States
HIST 350 U.S. Women's History
HIST 351 History of the Old South
HIST 352 The South since 1865
HIST 370 War and American Society
HIST 373 The Civil War and Reconstruction
HIST 377 The Vietnam War
HIST 378 History of Aviation
HIST 380 Uncovering the U.S. Past Through Film
HIST 389 Topics in U.S. History
HIST 391 History of Virginia to 1800
HIST 392 History of Virginia Since 1800
HIST 401 Colonial America
HIST 403 Revolutionary Era in American History, 1763-1812
HIST 404 Jacksonian America, 1812-1854

Total Credits 6

European History

Select two courses from the following: 6

HIST 100 History of Western Civilization (Mason Core) (p. 135)
HIST 101 Foundations of Western Civilization
HIST 102 Development of Western Civilization
HIST 301 Classical Greece
HIST 302 Classical Rome
HIST 304 Western Europe in the Middle Ages
HIST 305 The Renaissance
HIST 306 The Reformation
HIST 307 Old Regime and Revolutionary Europe
HIST 308 Nineteenth-Century Europe
HIST 309 Europe in Crisis: 1914-1948
HIST 312 Nationalism in Eastern Europe
HIST 314 History of Germany
HIST 322 Modern Britain
HIST 326 Stalinism
Global, Latin American, African, Asian, or Middle Eastern History
Approved courses in history used to fulfill the Mason Core requirement in global understanding and the college-level requirement in non-Western culture may be used to fulfill this requirement.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 125</td>
<td>Introduction to World History (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 202</td>
<td>Freshman/Sophomore Seminar in Global History</td>
<td></td>
</tr>
<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td></td>
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<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
<td></td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
<td></td>
</tr>
<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 359</td>
<td>Modern Iraq</td>
<td></td>
</tr>
<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td></td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td></td>
</tr>
<tr>
<td>HIST 384</td>
<td>Global History of Christianity</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

Electives in the Major
Students may also meet the elective requirement by completing an optional concentration.

Select four electives in history
Total Credits: 12

Major with Concentration
Concentration in Digital History (HISD)
In this concentration, students explore and develop skills in using digital methods for the research, analysis, and presentation of history. Students interested in graduate education or careers in the digital humanities and new media or in working with digital methods in museums, archives, and other public history institutions should consider this concentration.

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 300</td>
<td>Introduction to Historical Method (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 499</td>
<td>RS: Senior Seminar in History (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 390</td>
<td>The Digital Past (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Select three electives with at least 6 credits in HIST from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 395</td>
<td>Topics in Digital History</td>
<td></td>
</tr>
<tr>
<td>ENGH 375</td>
<td>Web Authoring and Design</td>
<td></td>
</tr>
<tr>
<td>ENGH 376</td>
<td>Rhetoric and New Media</td>
<td></td>
</tr>
<tr>
<td>INTS 345</td>
<td>Introduction to Multimedia</td>
<td></td>
</tr>
<tr>
<td>other coursework, including internships, approved by the program director</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 18

U.S. History
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 121</td>
<td>Formation of the American Republic (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 122</td>
<td>Development of Modern America (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>HIST 331</td>
<td>Postwar United States, 1945-1973</td>
<td></td>
</tr>
<tr>
<td>HIST 332</td>
<td>United States since 1973</td>
<td></td>
</tr>
<tr>
<td>HIST 333</td>
<td>The Automobile in the United States</td>
<td></td>
</tr>
<tr>
<td>HIST 335</td>
<td>The African American Experience in the United States: African Background to 1885</td>
<td></td>
</tr>
</tbody>
</table>
HIST 336  The African American Experience in the United States: Reconstruction to the Present
HIST 337  Race and Gender in American Sports
HIST 338  History of College Athletics
HIST 339  History of Baseball
HIST 340  Basketball and the American Experience
HIST 341  History of Sport in the United States
HIST 342  History of the Olympics and the United States
HIST 350  U.S. Women's History
HIST 351  History of the Old South
HIST 352  The South since 1865
HIST 370  War and American Society
HIST 373  The Civil War and Reconstruction
HIST 377  The Vietnam War
HIST 378  History of Aviation
HIST 380  Uncovering the U.S. Past Through Film
HIST 389  Topics in U.S. History
HIST 391  History of Virginia to 1800
HIST 392  History of Virginia Since 1800
HIST 401  Colonial America
HIST 403  Revolutionary Era in American History, 1763-1812
HIST 404  Jacksonian America, 1812-1854

Total Credits 6

European History
Select two courses from the following:

HIST 100  History of Western Civilization (Mason Core) (p. 135)
HIST 101  Foundations of Western Civilization
HIST 102  Development of Western Civilization
HIST 301  Classical Greece
HIST 302  Classical Rome
HIST 304  Western Europe in the Middle Ages
HIST 305  The Renaissance
HIST 306  The Reformation
HIST 307  Old Regime and Revolutionary Europe
HIST 308  Nineteenth-Century Europe
HIST 309  Europe in Crisis: 1914-1948
HIST 312  Nationalism in Eastern Europe
HIST 314  History of Germany
HIST 322  Modern Britain
HIST 326  Stalinism
HIST 327  The Soviet Union and Russia Since World War II
HIST 328  Rise of Russia (Mason Core) (p. 135)
HIST 329  Modern Russia and the Soviet Union (Mason Core) (p. 135)
HIST 388  Topics in European History
HIST 426  The Russian Revolution
HIST 436  European Society and Culture: 19th and 20th Centuries

Total Credits 6

HIST 480  Alexander the Great

Total Credits 6

1  Used to fulfill the Mason Core requirement in Western civilization may also fulfill 3 credits of this requirement

Global, Latin American, African, Asian, or Middle Eastern History
Approved courses in history used to fulfill the Mason Core requirement in global understanding and the college-level requirement in non-Western culture may be used to fulfill this requirement.

Select two courses from the following:

HIST 125  Introduction to World History (Mason Core) (p. 135)
HIST 202  Freshman/Sophomore Seminar in Global History
HIST 251  Survey of East Asian History (Mason Core) (p. 135)
HIST 252  Survey of East Asian History (Mason Core) (p. 135)
HIST 261  Survey of African History (Mason Core) (p. 135)
HIST 262  Survey of African History (Mason Core) (p. 135)
HIST 271  Survey of Latin American History (Mason Core) (p. 135)
HIST 272  Survey of Latin American History (Mason Core) (p. 135)
HIST 281  Survey of Middle Eastern Civilization (Mason Core) (p. 135)
HIST 282  Survey of Middle Eastern Civilization (Mason Core) (p. 135)
HIST 353  History of Traditional China
HIST 354  Modern China
HIST 356  Modern Japan (Mason Core) (p. 135)
HIST 357  Postwar Japan (Mason Core) (p. 135)
HIST 358  Post-1949 China (Mason Core) (p. 135)
HIST 359  Modern Iraq
HIST 360  History of South Africa (Mason Core) (p. 135)
HIST 364  Revolution and Radical Politics in Latin America (Mason Core) (p. 135)
HIST 365  Conquest and Colonization in Latin America (Mason Core) (p. 135)
HIST 366  Comparative Slavery
HIST 367  History, Fiction, and Film in Latin America
HIST 384  Global History of Christianity
HIST 387  Topics in Global History (Mason Core) (p. 135)
HIST 460  Modern Iran (Mason Core) (p. 135)
HIST 461  Arab-Israeli Conflict
HIST 462  Women in Islamic Society (Mason Core) (p. 135)
HIST 465  The Middle East in the 20th Century

Total Credits 6
Concentration in Public History (HISP)
In this concentration, students explore a variety of issues related to preserving historical materials and presenting historical information to a broader public. Students interested in graduate education in public history or in working in public history institutions such as museums, libraries, archives, and historic sites should consider this concentration.

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>HIST 300</td>
<td>Introduction to Historical Method (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 499</td>
<td>RS: Senior Seminar in History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 396</td>
<td>Introduction to Public History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 390</td>
<td>The Digital Past (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 399</td>
<td>Internship</td>
<td>3 (1)</td>
</tr>
</tbody>
</table>

Select one elective from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 397</td>
<td>Topics in Public History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 380</td>
<td>Uncovering the U.S. Past Through Film</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 394</td>
<td>The Museum (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 370</td>
<td>Introduction to Documentary (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

other coursework, not including internships, approved by the program director

Total Credits: 18

1 Students work individually with the department’s internship coordinator to find appropriate internships. HIST 399 may be repeated up to a maximum of 9 credits, and students in the public history concentration are encouraged to take more than 3 credits of internships, with additional credits beyond the first 3 counting as general electives.

U.S. History
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 121</td>
<td>Formation of the American Republic (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 122</td>
<td>Development of Modern America (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 331</td>
<td>Postwar United States, 1945-1973</td>
<td>3</td>
</tr>
<tr>
<td>HIST 332</td>
<td>United States since 1973</td>
<td>3</td>
</tr>
<tr>
<td>HIST 333</td>
<td>The Automobile in the United States</td>
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<td>HIST 335</td>
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<tr>
<td>HIST 336</td>
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<tr>
<td>HIST 337</td>
<td>Race and Gender in American Sports</td>
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<td>History of Baseball</td>
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<tr>
<td>HIST 340</td>
<td>Basketball and the American Experience</td>
<td>3</td>
</tr>
<tr>
<td>HIST 341</td>
<td>History of Sport in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HIST 342</td>
<td>History of the Olympics and the United States</td>
<td>3</td>
</tr>
<tr>
<td>HIST 350</td>
<td>U.S. Women’s History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 351</td>
<td>History of the Old South</td>
<td>3</td>
</tr>
<tr>
<td>HIST 352</td>
<td>The South since 1865</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

U.S. History
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 370</td>
<td>War and American Society</td>
<td>3</td>
</tr>
<tr>
<td>HIST 373</td>
<td>The Civil War and Reconstruction</td>
<td>3</td>
</tr>
<tr>
<td>HIST 377</td>
<td>The Vietnam War</td>
<td>3</td>
</tr>
<tr>
<td>HIST 378</td>
<td>History of Aviation</td>
<td>3</td>
</tr>
<tr>
<td>HIST 380</td>
<td>Uncovering the U.S. Past Through Film</td>
<td>3</td>
</tr>
<tr>
<td>HIST 389</td>
<td>Topics in U.S. History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 391</td>
<td>History of Virginia to 1800</td>
<td>3</td>
</tr>
<tr>
<td>HIST 392</td>
<td>History of Virginia Since 1800</td>
<td>3</td>
</tr>
<tr>
<td>HIST 401</td>
<td>Colonial America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 403</td>
<td>Revolutionary Era in American History, 1763-1812</td>
<td>3</td>
</tr>
<tr>
<td>HIST 404</td>
<td>Jacksonian America, 1812-1854</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

European History
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 100</td>
<td>History of Western Civilization (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 101</td>
<td>Foundations of Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>HIST 102</td>
<td>Development of Western Civilization</td>
<td>3</td>
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<tr>
<td>HIST 301</td>
<td>Classical Greece</td>
<td>3</td>
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<tr>
<td>HIST 302</td>
<td>Classical Rome</td>
<td>3</td>
</tr>
<tr>
<td>HIST 304</td>
<td>Western Europe in the Middle Ages</td>
<td>3</td>
</tr>
<tr>
<td>HIST 305</td>
<td>The Renaissance</td>
<td>3</td>
</tr>
<tr>
<td>HIST 306</td>
<td>The Reformation</td>
<td>3</td>
</tr>
<tr>
<td>HIST 307</td>
<td>Old Regime and Revolutionary Europe</td>
<td>3</td>
</tr>
<tr>
<td>HIST 308</td>
<td>Nineteenth-Century Europe</td>
<td>3</td>
</tr>
<tr>
<td>HIST 309</td>
<td>Europe in Crisis: 1914-1948</td>
<td>3</td>
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<tr>
<td>HIST 312</td>
<td>Nationalism in Eastern Europe</td>
<td>3</td>
</tr>
<tr>
<td>HIST 314</td>
<td>History of Germany</td>
<td>3</td>
</tr>
<tr>
<td>HIST 322</td>
<td>Modern Britain</td>
<td>3</td>
</tr>
<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
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<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
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<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core)</td>
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<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 388</td>
<td>Topics in European History</td>
<td>3</td>
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<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
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<tr>
<td>HIST 436</td>
<td>European Society and Culture: 19th and 20th Centuries</td>
<td>3</td>
</tr>
<tr>
<td>HIST 480</td>
<td>Alexander the Great</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

1 Used to fulfill the Mason Core requirement in Western civilization may also fulfill 3 credits of this requirement

Global, Latin American, African, Asian, or Middle Eastern History
Approved courses in history used to fulfill the Mason Core requirement in global understanding and the college-level requirement in non-Western culture may be used to fulfill this requirement.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 125</td>
<td>Introduction to World History (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6
### Concentration in Global History (HISG)

In this concentration, students explore the interconnected histories of major world regions beyond the United States and Europe. Students interested in graduate education in global history or careers in government or business or with non-governmental organizations or other employers operating in the international arena should consider this concentration. Students in the global history concentration are especially encouraged to study abroad as part of their undergraduate program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>HIST 202</td>
<td>Freshman/Sophomore Seminar in Global History</td>
</tr>
<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
</tr>
<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 359</td>
<td>Modern Iraq</td>
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<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
</tr>
<tr>
<td>HIST 384</td>
<td>Global History of Christianity</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135) (depending on topic)</td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
</tr>
</tbody>
</table>

**Total Credits:** 6

### Asian History

- HIST 251: Survey of East Asian History (Mason Core) (p. 135)
- HIST 252: Survey of East Asian History (Mason Core) (p. 135)
- HIST 353: History of Traditional China
- HIST 354: Modern China
- HIST 356: Modern Japan (Mason Core) (p. 135)
- HIST 357: Postwar Japan (Mason Core) (p. 135)
- HIST 358: Post-1949 China (Mason Core) (p. 135)
- HIST 387: Topics in Global History (Mason Core) (p. 135) (depending on topic)

### African History

- HIST 261: Survey of African History (Mason Core) (p. 135)
- HIST 262: Survey of African History (Mason Core) (p. 135)
- HIST 360: History of South Africa (Mason Core) (p. 135)
- HIST 366: Comparative Slavery
- HIST 387: Topics in Global History (Mason Core) (p. 135) (depending on topic)

### Latin American History

- HIST 271: Survey of Latin American History (Mason Core) (p. 135)
- HIST 272: Survey of Latin American History (Mason Core) (p. 135)
- HIST 364: Revolution and Radical Politics in Latin America (Mason Core) (p. 135)
- HIST 365: Conquest and Colonization in Latin America (Mason Core) (p. 135)
- HIST 366: Comparative Slavery
- HIST 367: History, Fiction, and Film in Latin America
- HIST 387: Topics in Global History (Mason Core) (p. 135) (depending on topic)

### Middle Eastern & North African History

- HIST 281: Survey of Middle Eastern Civilization (Mason Core) (p. 135)

Select five courses chosen from the following lists. No more than 3 credits of ARTH coursework may apply to the History BA.
**Individualized Concentration (IND)**
Students who wish to design their own concentration must submit a one-page proposal and create a curriculum plan to be approved by the program director. This option may be particularly appropriate for students who want to focus on U.S. history or European history without emphasis on digital or public history methods.

All students in the individualized concentration will be required to complete 15-18 credits of breadth requirements modeled on the geographic distribution coursework in the history BA without concentration. For their remaining 12-15 credits in history, students will work with the program director to plan coursework that explores their chosen concentration across time periods and geographical lines as appropriate.

**Writing-Intensive Requirement**
The university requires all students to complete at least one course designated as "writing intensive" in their majors at the 300 level or above. Students majoring in history may fulfill this requirement by successfully completing:

- HIST 300 Introduction to Historical Method (Mason Core) (p. 135)
- or HIST 499 RS: Senior Seminar in History (Mason Core) (p. 135)

**Upper Level Requirement**
Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

**College Level Requirements for the BA Degree**
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

**Philosophy or Religious Studies**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL (p. 1818)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Note:**

1. Three of the five courses must be chosen from one of the following areas: Asian, African, Latin American, Middle Eastern and North African, or Russian and Central Asian history.

2. Working individually with their instructor for an upper-level HIST course, students may pursue historical reading or other work to develop skills in an appropriate foreign language in which they have already met the CHSS requirement for intermediate-level proficiency.

3. Students should choose courses in history at the 300- or 400-levels to meet this requirement if they need to complete the 18-credit, upper-level history requirement. In addition to HIST courses, students may apply HNRS 240 Reading the Past (Topic Varies) and/or one 300-level ARTH course not counted above toward this requirement. In total, no more than 3 credits of ARTH may be applied to the history BA.
Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement) 1

ANTH (p. 1119)
CRIM (p. 1372)
ECON (p. 1413)
GOVT (p. 1588)
HIST (p. 1628)

LING (p. 1694)
PSYC (p. 1844)
SOCI (p. 1923)

Or choose from the following GGS courses:

GGS 101 Major World Regions (Mason Core) (p. 135)
GGS 103 Human Geography (Mason Core) (p. 135)
GGS 110 Introduction to Geoinformation Technologies
GGS 301 Political Geography
GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
GGS 304 Population Geography (Mason Core) (p. 135)
GGS 305 Economic Geography
GGS 306 Urban Geography
GGS 315 Geography of the United States
GGS 316 Geography of Latin America
GGS 320 Geography of Europe
GGS 325 Geography of North Africa and the Middle East
GGS 330 Geography of the Soviet Succession States
GGS 357 Structures in Urban Governance and Planning
GGS 380 Geography of Virginia

1 The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

2 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

Intermediate-level proficiency in one foreign language, fulfilled by: 1

Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)

Or achieving a satisfactory score on an approved proficiency test

Or completing the following ASL three course sequence:

EDSE 115 American Sign Language (ASL) I
EDSE 116 American Sign Language (ASL) II

EDSE 219 American Sign Language (ASL) III

1 Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

ANTH 114 Introduction to Cultural Anthropology (Mason Core) (p. 135)
ANTH 300 Civilizations
ANTH 301 Native North Americans
ANTH 302 Peoples and Cultures of Latin America (Mason Core) (p. 135)
ANTH 303 Peoples and Cultures of the Andes
ANTH 306 Peoples and Cultures of Island Asia (Mason Core) (p. 135)
ANTH 307 Ancient Mesoamerica (Mason Core) (p. 135)
ANTH 308 Peoples and Cultures of the Middle East (Mason Core) (p. 135)
ANTH 309 Peoples and Cultures of India (Mason Core) (p. 135)
ANTH 313 Myth, Magic, and Mind (Mason Core) (p. 135)
ANTH 314 Zombies
ANTH 316 Peoples and Cultures of the Caribbean (Mason Core) (p. 135)
ANTH 323 Digging and Dealing in the Dead: Ethics in Archaeology
ANTH 330 Peoples and Cultures of Selected Regions: Non-Western
ANTH 332 Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)
ANTH 381 Medical Anthropology
ANTH 383 Cities of the Global South
ANTH 396 Issues in Anthropology: Social Sciences (Mason Core) (p. 135)
ARAB 360 Topics in Arabic Cultural Production
ARAB 420 Survey of Arabic Literature
ARAB 440 Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)
ARTH 203 Survey of Asian Art (Mason Core) (p. 135)
ARTH 204 Survey of Latin American Art (Mason Core) (p. 135)
ARTH 206 Survey of African Art (Mason Core) (p. 135)
ARTH 318 Art and Archaeology of Ancient Egypt
ARTH 319 Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core)</td>
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<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core)</td>
<td>3</td>
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<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core)</td>
<td>3</td>
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<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core)</td>
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<td>ARTH 385</td>
<td>Arts of Japan (Mason Core)</td>
<td>3</td>
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<td>ARTH 386</td>
<td>The Silk Road (Mason Core)</td>
<td>3</td>
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<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
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<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core)</td>
<td>3</td>
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<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
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<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core)</td>
<td>3</td>
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<td>DANC 118</td>
<td>World Dance (Mason Core)</td>
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<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core)</td>
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<td>ECON 362</td>
<td>African Economic Development (Mason Core)</td>
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<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
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<td>GGS 101</td>
<td>Major World Regions (Mason Core)</td>
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<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
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<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
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<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<td>GGS 399</td>
<td>Select Topics in GGS</td>
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<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
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<td>Government and Politics of the Middle East and North Africa</td>
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<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
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<td>GOVT 340</td>
<td>Central Asian Politics</td>
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<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
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<td>GOVT 345</td>
<td>Islam and Politics</td>
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<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
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<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<td>HIST 326</td>
<td>Stalinism</td>
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<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
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<td>Rise of Russia (Mason Core)</td>
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<td>Modern Russia and the Soviet Union (Mason Core)</td>
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<td>History of Traditional China</td>
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<td>Modern China</td>
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<td>Modern Japan (Mason Core)</td>
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<td>History of South Africa (Mason Core)</td>
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<td>Conquest and Colonization in Latin America (Mason Core)</td>
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<td>HIST 366</td>
<td>Comparative Slavery</td>
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<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
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<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core)</td>
<td>3-6</td>
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<td>HIST 426</td>
<td>The Russian Revolution</td>
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<td>HIST 460</td>
<td>Modern Iran (Mason Core)</td>
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<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
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<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core)</td>
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<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core)</td>
<td>3</td>
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<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core)</td>
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<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core)</td>
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<td>RELI 211</td>
<td>Religions of the West (Mason Core)</td>
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<td>RELI 212</td>
<td>Religions of Asia (Mason Core)</td>
<td>3</td>
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<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
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<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
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<td>RELI 313</td>
<td>Hinduism (Mason Core)</td>
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<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
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<td>RELI 315</td>
<td>Buddhism (Mason Core)</td>
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<td>RELI 337</td>
<td>Mysticism: East and West</td>
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<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
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<td>RELI 374</td>
<td>Islamic Thought (Mason Core)</td>
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<td>RELI 375</td>
<td>Qur’an and Hadith</td>
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<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
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<td>Islam, Democracy, and Human Rights</td>
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<td>Comparative Study of Religions (Mason Core)</td>
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<td>RUSS 353</td>
<td>Russian Civilization (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>
Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundation Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
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<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
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<td></td>
<td>Literature (p. 140)</td>
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<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
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<td></td>
<td>Western Civilization/World History (p. 143)</td>
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<td></td>
<td>Synthesis/Capstone Requirement 1</td>
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<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

Additional Electives
Any remaining credits may be completed with electives to bring the degree total to 120.

Honors

Honors in the Major
History majors who have completed 75 credits (! minimum of 15 in history; 6 of which must have been taken at Mason) with an overall GPA of 3.50 and a GPA of 3.50 in history courses are eligible to apply to graduate with honors in history. Applicants must have completed or be enrolled in HIST 300 Introduction to Historical Method (Mason Core) (p. 135). The statement of application should include references from at least one Mason history faculty member. If a major part of the student’s work includes transfer credit, transcripts may be required. Not all applicants who meet the minimum requirements are guaranteed acceptance into honors in the major.

Students pursuing honors in the major will take a two-semester course sequence: HIST 490 Honors Directed Readings and HIST 491 Honors Directed Research. HIST 490 Honors Directed Readings will focus on the design of a major research project and HIST 491 Honors Directed Research will focus on completing that project. To graduate with honors in the major, students must earn a minimum GPA of 3.50 in the honors courses and a minimum GPA of 3.50 in history courses applied to the degree. A grade of B or higher in HIST 490 Honors Directed Readings is required to proceed to HIST 491 Honors Directed Research. The two honors courses (6 credits) may be applied to the requirement of 36 credits in history and successful completion of HIST 491 Honors Directed Research satisfies the seminar course requirement in place of HIST 499 RS: Senior Seminar in History (Mason Core) (p. 135).

Accelerated Master’s

The accelerated master’s programs in the list below specify the BA in history as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/ #filter=filter_27&filter_24) with accelerated programs at George Mason.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>History, BA/History, Accelerated MA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overview</td>
<td></td>
</tr>
</tbody>
</table>
|               | Highly-qualified Mason undergraduates may apply to the accelerated master’s degree program and obtain both a BA (p. 394) and a MA in history (p. 406) after satisfactory completion of 144 credits. The BA (p. 394) and MA (p. 406) earn separately require 120 and 30 credits respectively. If accepted into the program, they must have completed 90 credits including HIST 300 Introduction to Historical Method (Mason Core) (p. 135) with a minimum grade of B+ before they can enter the program.

Interested students should contact the Director of Undergraduate Programs for details about the application process.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in history, see Application Requirements and Deadlines (http://historyarthistory.gmu.edu/programs/la-ma-acel-hist/application) on the departmental web site.

Accelerated Option Requirements
Applicants accepted to the accelerated MA program must have completed 90 credits including HIST 300 Introduction to Historical Method (Mason Core) (p. 135) with a minimum grade of B+ as a condition to entry into the program.

While undergraduate students, accelerated master’s students complete two graduate courses (HIST 610 The Study and Writing of History and one additional 3 credit HIST course at the 500-level or 600-level), as indicated on their Accelerated Master’s Program Application, with a minimum grade of 3.00 in each course. These credits cannot replace HIST 499 RS: Senior Seminar in History (Mason Core) (p. 135). Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework and earn
a B or better (3.00 or higher) in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional credits of HIST courses at the 500-level or 600-level as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Bachelor’s Degree (selected)/Middle East and Islamic Studies, Accelerated MA
Overview
Highly-qualified undergraduates pursuing a BA in select majors (listed below) may apply to the accelerated master’s degree in Middle East and Islamic studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in Middle East and Islamic studies after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- government and international politics (p. 917)
- global affairs (p. 509)
- history (p. 394)
- religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- sociology (p. 494)
- anthropology (p. 484)

It is preferred, though not required, that the student have a minor in Middle East studies or Islamic studies.

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Middle East and Islamic studies, see Application Requirements and Deadlines (http://meis.gmu.edu/programs/la-ma-acel-meis).

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics (when content focus is the Middle East)</td>
<td></td>
</tr>
<tr>
<td>GOVT 733</td>
<td>Islam and Politics</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
</tbody>
</table>

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

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<tr>
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<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
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</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
</tbody>
</table>

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview

Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477)s.

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

Accelerated Option Requirements

While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>RELI 630</td>
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<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

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</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights. If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master's in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384),

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
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<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
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<tr>
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<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>
Interdisciplinary Studies (p. 574), and Communication (p. 305).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
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</tbody>
</table>

Total Credits 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

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<td>Special Topics</td>
<td>6</td>
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<td>WMST 640</td>
<td>Women and Global Issues</td>
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</tr>
</tbody>
</table>

Total Credits 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with
the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

History, MA

Banner Code: LA-MA-HIST

Academic Advising

B359 Robinson Hall
Fairfax Campus

Website: historyarthistory.gmu.edu/programs/la-ma-hist

The History MA is at the forefront of both traditional historical study and innovative digital approaches to the past. Students select from a variety of course topics while also selecting an area of historical specialization that accommodates their interests and furthers their career objectives. Students come to the program with diverse career objectives, and the program is designed with that diversity in mind. Students take classes in which they discuss history alongside future academics, public historians, teachers, military officers, non-profit professionals, government officials, and entrepreneurs.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://historyarthistory.gmu.edu/programs/application/LA-MA-HIST) on the departmental website.

Policies

For policies governing all graduate degrees, see Graduate Policies (p. 87).

Foundation Courses

Students may be required to take up to 12 additional credits of foundation courses, which cover broad thematic areas (HIST 601 Themes in U.S. History I, HIST 602 Themes in U.S. History II, HIST 605 Themes in European History I, HIST 606 Themes in European History II), to remedy gaps in their undergraduate preparation. If required as foundational, these credits cannot be applied toward the credits required for the degree.

If foundation courses are not required at admission, students in the concentrations in enrichment and teaching may apply up to one thematic course (3 credits) toward their degree. Students in the other concentrations may not apply these courses toward their degree.

Reduction of Credit

The program does not permit a reduction of credit based on a previously conferred graduate degree. Students may apply no more than 6 credits earned through study abroad courses toward their degree.

Requirements

Degree Requirements

Total credits: 30 or 36

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 406) tab.

Students pursuing this degree must complete the requirements for one of the concentrations below. The concentrations in higher education and teaching require 36 credits, all others require 30 credits.

Concentration in Predoctoral History (AH1, EH1, WH1)

This concentration is for students planning to pursue doctoral studies. Students choose one of three geographic specializations and a chronological or thematic minor field within that specialization. Students complete coursework and a research seminar in their geographic specialization and an additional independent project or thesis in their minor field.

Required Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 610</td>
<td>The Study and Writing of History</td>
<td>3</td>
</tr>
</tbody>
</table>

Must be taken within the first 9 credits

Specialization

Students complete one of the following geographic specializations.

Specialization in U.S. History

Select four courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 613</td>
<td>The Colonial Origins of American Society</td>
</tr>
<tr>
<td>HIST 618</td>
<td>The Age of Jackson, 1815-1854</td>
</tr>
<tr>
<td>HIST 620</td>
<td>Development of the Early Republic, 1783-1815</td>
</tr>
<tr>
<td>HIST 631</td>
<td>Era of the American Revolution</td>
</tr>
<tr>
<td>HIST 661</td>
<td>Religion in North America to 1870</td>
</tr>
<tr>
<td>HIST 615</td>
<td>Problems in American History (when topic applies and with department approval)</td>
</tr>
</tbody>
</table>

Other appropriate course with department approval

1861-1914

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>HIST 617</td>
<td>Topics in the American Civil War Era</td>
</tr>
<tr>
<td>HIST 622</td>
<td>U.S. South Since 1865</td>
</tr>
<tr>
<td>HIST 629</td>
<td>The Gilded Age and Progressive Era</td>
</tr>
<tr>
<td>HIST 633</td>
<td>Reconstruction</td>
</tr>
<tr>
<td>HIST 662</td>
<td>U.S. Religion since 1870</td>
</tr>
<tr>
<td>HIST 615</td>
<td>Problems in American History (when topic applies and with department approval)</td>
</tr>
</tbody>
</table>

Other appropriate course with department approval

1914 World War I to the Present

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 622</td>
<td>U.S. South Since 1865</td>
</tr>
<tr>
<td>HIST 623</td>
<td>Recent U.S. History, 1945 to Present</td>
</tr>
<tr>
<td>HIST 634</td>
<td>Interwar America: 1918-1939</td>
</tr>
<tr>
<td>HIST 662</td>
<td>U.S. Religion since 1870</td>
</tr>
<tr>
<td>HIST 677</td>
<td>The Vietnam War</td>
</tr>
</tbody>
</table>
HIST 615 Problems in American History (when topic applies and with department approval)
Other appropriate course with department approval

1 Select at least 3 credits from each group

Specialization in European History
Select four courses from the following: ¹ ²

**Ancient, Medieval, Early Modern to 1789**
HIST 642 Humanism and the Renaissance
HIST 643 Religion and Society in the Reformation Era
HIST 644 Society and Culture in Early Modern Europe
HIST 645 The Russian Revolution and the Origins of the Soviet State
HIST 635 Problems in European History (when topic applies and with department approval)

Other appropriate course with department approval

**1789-1914**
HIST 637 Great Britain: Empire to Commonwealth, 1870-1970
HIST 639 Society and Politics in Western Europe, 1750-1914
HIST 640 Metropolitan Cities of Europe in the Nineteenth and Twentieth Centuries
HIST 635 Problems in European History (when topic applies and with department approval)

Other appropriate course with department approval

**1914 to the Present**
HIST 637 Great Britain: Empire to Commonwealth, 1870-1970
HIST 640 Metropolitan Cities of Europe in the Nineteenth and Twentieth Centuries
HIST 645 The Russian Revolution and the Origins of the Soviet State
HIST 635 Problems in European History (when topic applies with department approval)

Other appropriate course with department approval

¹ Select at least 3 credits from each group.

Specialization in World History
Select four courses from the following: ¹ ²

**World**
HIST 510 Approaches to Modern World History

**Africa**
HIST 565 Problems in African History
Other appropriate course with department approval

**Asia**
HIST 555 Problems in Asian History
Other appropriate course with department approval

**Middle East**
HIST 575 Approaches to Middle East and Islamic History
HIST 585 Problems in Middle Eastern History

Other appropriate course with department approval

Latin America
HIST 525 Problems in Latin American History
Other appropriate course with department approval

¹ Select at least 3 credits from two regions.

Research Seminar in a Geographic Specialization
Select one research seminar from the following: ³

HIST 711 Research Seminar in U.S. History
HIST 731 Research Seminar in European History
HIST 751 Research Seminar in Comparative World History

Total Credits ³

Minor Field Concentration
In consultation with the graduate director and other faculty, students identify a chronological or topical subspecialty and select two courses that relate directly to that subspecialty.

Total Credits ⁶

Language Proficiency
Language proficiency sufficient to conduct primary source research in the student’s intended area of concentration, as demonstrated by thesis or independent research project.

Project or Thesis
Select 6 credits of Project or Thesis

Project and additional elective
HIST 798 Directed Research and Writing in History ¹

Additional 3 credits from Specialization

Thesis
HIST 799 Thesis

Total Credits ⁶

¹ Requires the completion of a major paper that is a substantial and original contribution to historical knowledge on the model of an article in a scholarly journal. If students choose to take , they complete an additional 3 credits in their specialization.

Concentration in Applied History (AH2, EH2, WH2)
This concentration is for students seeking expertise in applied history fields, such as archival management, museum studies, historic preservation, and historical editing. It is also suitable for professionally employed historians who desire to further their careers.

**Required Course**
HIST 610 The Study and Writing of History ¹

Total Credits ³

¹ Must be taken within the first 9 credits

Specialization
Students complete one of the following geographic specializations.

Specialization in U.S. History
Select four courses from the following: ¹ ²

**Origins to 1861**
HIST 613 The Colonial Origins of American Society
### 1861-1914
- **HIST 617** Topics in the American Civil War Era
- **HIST 622** U.S. South Since 1865
- **HIST 629** The Gilded Age and Progressive Era
- **HIST 633** Reconstruction
- **HIST 662** U.S. Religion since 1870
- **HIST 615** Problems in American History (when topic applies and with department approval)

### 1914 World War I to the Present
- **HIST 622** U.S. South Since 1865
- **HIST 623** Recent U.S. History, 1945 to Present
- **HIST 634** Interwar America: 1918-1939
- **HIST 662** U.S. Religion since 1870
- **HIST 677** The Vietnam War
- **HIST 615** Problems in American History (when topic applies and with department approval)

### Specialization in World History
Select four courses from the following: 12

**World**
- **HIST 510** Approaches to Modern World History

**Africa**
- **HIST 565** Problems in African History

**Asia**
- **HIST 555** Problems in Asian History

**Middle East**
- **HIST 575** Approaches to Middle East and Islamic History
- **HIST 585** Problems in Middle Eastern History

**Latin America**
- **HIST 525** Problems in Latin American History

### Research Seminar in a Specialization
Select one research seminar from the following: 3
- **HIST 711** Research Seminar in U.S. History
- **HIST 731** Research Seminar in European History
- **HIST 751** Research Seminar in Comparative World History

### Applied History
These include courses in historic preservation, museum studies, archives, historical editing, or new media and information technology.

Select two to three courses from the following: 6-9
- **HIST 680** Introduction to Digital Humanities
- **HIST 685** Topics in Applied History
- **HIST 688** Topics in History and New Media
- **HIST 689** Teaching and Learning History in the Digital Age
- **HIST 690** The Administration of Archives and Manuscripts
- **HIST 691** Museum Studies
- **HIST 692** Historical Editing
- **HIST 693** Historic Preservation
- **HIST 694** Digital Public History
- **HIST 695** History Symposium
HIST 696  Clio Wired: An Introduction to History and New Media
HIST 697  Creating History in New Media
HIST 698  Programming in History and New Media

Other appropriate course with department approval

Total Credits 6-9

Internship
If students chose to do a 3-credit internship, they will take an additional 3 credits in applied history course work from the list of courses above (HIST 680 - HIST 698).

HIST 794  Internship in Applied History  3-6

Total Credits 3-6

Proficiency in a Relevant Research Tool
Demonstrated by course work or exam in computers, statistics, or a modern foreign language

Concentration in Applied History with New Media and Information Technology Emphasis (AH4, EH4, WH4)
Students pursuing this concentration take:

Required Course
HIST 610  The Study and Writing of History  1  3

Total Credits 3

1  Must be taken within the first 9 credits

Specialization
Students complete one of the following geographic specializations.

Specialization in U.S. History
Select four courses from the following:  1  12

Origins to 1861
HIST 613  The Colonial Origins of American Society
HIST 618  The Age of Jackson, 1815-1854
HIST 620  Development of the Early Republic, 1783-1815
HIST 631  Era of the American Revolution
HIST 661  Religion in North America to 1870
HIST 615  Problems in American History (when topic applies and with department approval)

Other appropriate course with department approval

1861-1914
HIST 617  Topics in the American Civil War Era
HIST 622  U.S. South Since 1865
HIST 629  The Gilded Age and Progressive Era
HIST 633  Reconstruction
HIST 662  U.S. Religion since 1870
HIST 615  Problems in American History (when topic applies and with department approval)

Other appropriate course with department approval

1914 World War I to the Present
HIST 622  U.S. South Since 1865
HIST 623  Recent U.S. History, 1945 to Present
HIST 634  Interwar America: 1918-1939
HIST 662  U.S. Religion since 1870
HIST 677  The Vietnam War
HIST 615  Problems in American History (when topic applies and with department approval)

Other appropriate course with department approval

1  Select at least 3 credits from each group.

Specialization in European History
Select four courses from the following:  1  12

Ancient, Medieval, Early Modern to 1789
HIST 642  Humanism and the Renaissance
HIST 643  Religion and Society in the Reformation Era
HIST 644  Society and Culture in Early Modern Europe
HIST 645  The Russian Revolution and the Origins of the Soviet State
HIST 635  Problems in European History (when topic applies and with department approval)

Other appropriate course with department approval

1789-1914
HIST 637  Great Britain: Empire to Commonwealth, 1870-1970
HIST 639  Society and Politics in Western Europe, 1750-1914
HIST 640  Metropolitan Cities of Europe in the Nineteenth and Twentieth Centuries
HIST 635  Problems in European History (when topic applies and with department approval)

Other appropriate course with department approval

1914 to the Present
HIST 637  Great Britain: Empire to Commonwealth, 1870-1970
HIST 640  Metropolitan Cities of Europe in the Nineteenth and Twentieth Centuries
HIST 645  The Russian Revolution and the Origins of the Soviet State
HIST 635  Problems in European History (when topic applies and with department approval)

Other appropriate course with department approval

1  Select at least 3 credits from each group.

Specialization in World History
Select four courses from the following:  1  12

World
HIST 510  Approaches to Modern World History

Africa
HIST 565  Problems in African History
Other appropriate course with department approval

Asia
HIST 555  Problems in Asian History
Other appropriate course with department approval

Middle East
HIST 575  Approaches to Middle East and Islamic History
HIST 585  Problems in Middle Eastern History
Other appropriate course with department approval

Latin America
HIST 525  Problems in Latin American History
Other appropriate course with department approval

1  Select at least 3 credits from two regions.

Research Seminar in a Specialization
Select one research seminar from the following:

HIST 711  Research Seminar in U.S. History
HIST 731  Research Seminar in European History
HIST 751  Research Seminar in Comparative World History

Total Credits 3

New Media and Information Technology
Select two courses in new media and information technology

HIST 794  Internship in Applied History

Total Credits 6

1  Students should consult the department for relevant courses.

Internship in Information Technology
If students chose to do a 3-credit internship, they will take an additional 3 credits in applied history course work from courses numbered HIST 680 - HIST 698.

HIST 794  Internship in Applied History 3-6

Total Credits 3-6

Proficiency in a Relevant Research Tool
Demonstrated by course work or exam in computer science, statistics, information technology, or a modern foreign language

Concentration in Enrichment (AH3, EH3, WH3)
This concentration is for students who want to study history for intellectual self-fulfillment or vocational reasons. It allows more flexibility in the selection of courses and does not have a foreign language requirement.

Required Course
HIST 610  The Study and Writing of History 1 3

Total Credits 3

1  Must be taken within the first 9 credits.

Specialization
Students complete one of the following specializations.

Specialization in U.S. History
Select four courses from the following: 1 12

Origins to 1861
HIST 613  The Colonial Origins of American Society
HIST 618  The Age of Jackson, 1815-1854
HIST 620  Development of the Early Republic, 1783-1815

HIST 631  Era of the American Revolution
HIST 661  Religion in North America to 1870
HIST 615  Problems in American History (when topic applies and with department approval)

Other appropriate course with department approval

1861-1914
HIST 617  Topics in the American Civil War Era
HIST 622  U.S. South Since 1865
HIST 629  The Gilded Age and Progressive Era
HIST 633  Reconstruction
HIST 662  U.S. Religion since 1870
HIST 615  Problems in American History (when topic applies and with department approval)

Other appropriate course with department approval

1914 World War I to the Present
HIST 622  U.S. South Since 1865
HIST 623  Recent U.S. History, 1945 to Present
HIST 634  Interwar America: 1918-1939
HIST 662  U.S. Religion since 1870
HIST 677  The Vietnam War
HIST 615  Problems in American History (when topic applies and with department approval)

Other appropriate course with department approval

Select four courses from the following: 1

1  Select at least 3 credits from each group.

Specialization in European History

Ancient, Medieval, Early Modern to 1789
HIST 642  Humanism and the Renaissance
HIST 643  Religion and Society in the Reformation Era
HIST 644  Society and Culture in Early Modern Europe
HIST 645  The Russian Revolution and the Origins of the Soviet State
HIST 635  Problems in European History (when topic applies and with department approval)

Other appropriate course with department approval

1789-1914
HIST 637  Great Britain: Empire to Commonwealth, 1870-1970
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HIST 635  Problems in European History (when topic applies and with department approval)

Other appropriate course with department approval

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HIST 640  Metropolitan Cities of Europe in the Nineteenth and Twentieth Centuries
HIST 645  The Russian Revolution and the Origins of the Soviet State
HIST 635  Problems in European History (when topic applies with department approval)
Other appropriate course with department approval

Select at least 3 credits from each group.

Specialization in World History
Select four courses from the following: ^1

World
HIST 510  Approaches to Modern World History

Africa
HIST 565  Problems in African History
Other appropriate course with department approval

Asia
HIST 555  Problems in Asian History
Other appropriate course with department approval
Middle East
HIST 575  Approaches to Middle East and Islamic History
HIST 585  Problems in Middle Eastern History
Other appropriate course with department approval

Latin America
HIST 525  Problems in Latin American History
Other appropriate course with department approval

Select at least 3 credits from two regions.

Research Seminar in a Specialization
Select one research seminar from the following: ^2

HIST 711  Research Seminar in U.S. History
HIST 731  Research Seminar in European History
HIST 751  Research Seminar in Comparative World History

Total Credits

Course in a Field Outside of Geographic Specialization
Select one course from U.S., European, or world history (listed above) that is not in their chosen specialization.

Total Credits

Elective Courses
Students can choose to pursue a Thesis in lieu of two electives

Select three elective courses

Thesis
HIST 799  Thesis
Select one elective course

Total Credits

Concentration in Higher Education (HEDU)
The concentration in higher education is intended for students who want to teach history at community college. It includes coursework in both history and education, including a course on college teaching. Students are required to take at least one history course in each of three areas (U.S., European, and world history), and they are encouraged to take two courses in each area to prepare them to teach the U.S., western civilization, and world history survey courses most commonly offered at the community college level.

HIST 610  The Study and Writing of History ^1

Total Credits

Additional Courses in History
Select six courses in history ^1

Total Credits

Research Seminar
Select one course from the following: ^2

HIST 711  Research Seminar in U.S. History
HIST 731  Research Seminar in European History
HIST 751  Research Seminar in Comparative World History

Total Credits

Graduate Education
Select four courses from the following: ^3

HE 602  College Teaching
HE 685  Practicum
Six credits of HE electives

Total Credits

Concentration in Teaching (HS4)
This concentration offers students interested in a career in secondary education the option to devote part of their History MA to graduate coursework that can be applied toward the requirements for licensure in the Commonwealth of Virginia. Students who have an interest in obtaining licensure to teach should meet with a pre-Education advisor in the College Of Education and Human Development at the beginning of their program to create a plan for completion of the required content-coursework prerequisites (Endorsements). You can view information here: https://cehd.gmu.edu/endorse/ or contact the Pre-Education Advising Coordinator at endorse@gmu.edu. Students seeking licensure must also enroll in the Secondary Education Licensure Graduate Certificate program (E1-CERG-SELC), a state-approved educator preparation program. Upon completion of the discipline-specific content competencies coursework; the MA in History, concentration in teaching; and the Secondary Education Licensure Graduate Certificate, students will be eligible for recommendation for an initial teaching license in Secondary Education History and Social Science.

Required Course
HIST 610  The Study and Writing of History ^1

Total Credits

^1 Must be taken within the first 9 credits.
History
Select six courses in history, at least one course each from U.S., European, and world history

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 300 Introduction to Historical Method (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 499 RS: Senior Seminar in History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 711 Research Seminar in U.S. History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 731 Research Seminar in European History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 751 Research Seminar in Comparative World History</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

Reserve Graduate Credit
Students may take up to 6 additional credits of HIST courses at the 500-level or 600-level as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

College of Education and Human Development Graduate Courses
EDCI 567 Teaching Social Studies in the Secondary School | 3
EDUC 522 Foundations of Secondary Education | 3
EDUC 619 Literacy in Content Areas | 3
EDUC 672 Human Development and Learning: Secondary Education | 3

Total Credits 12

Accelerated Master's

History, BA/History, Accelerated MA
Overview
Highly-qualified Mason undergraduates may apply to the accelerated master's degree program and obtain both a BA (p. 394) and a MA in history (p. 406) after satisfactory completion of 144 credits. The BA (p. 394) and MA (p. 406) earned separately require 120 and 30 credits respectively. If accepted into the program, they must have completed 90 credits including HIST 300 Introduction to Historical Method (Mason Core) (p. 135) with a minimum grade of B+ before they can enter the program.

Interested students should contact the Director of Undergraduate Programs for details about the application process.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in history, see Application Requirements and Deadlines (http://historyarthistory.gmu.edu/programs/la-ma-acel-hist/application) on the departmental web site.

Accelerated Option Requirements
Applicants accepted to the accelerated MA program must have completed 90 credits including HIST 300 Introduction to Historical Method (Mason Core) (p. 135) with a minimum grade of B+ as a condition to entry into the program.

While undergraduate students, accelerated master's students complete two graduate courses (HIST 610 The Study and Writing of History and one additional 3 credit HIST course at the 500-level or 600-level), as indicated on their Accelerated Master's Program Application, with a minimum grade of 3.00 in each course. These credits cannot replace HIST 499 RS: Senior Seminar in History (Mason Core) (p. 135). Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework and earn a B or better (3.00 or higher) in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional credits of HIST courses at the 500-level or 600-level as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

History, PhD
Banner Code: LA-PHD-HIST

Academic Advising
B359 Robinson Hall
Fairfax Campus
Website: historyarthistory.gmu.edu/programs/la-phd-hist

The PhD prepares students for careers in college teaching, digital media, publishing, educational administration, public history, and historical research. Students gain expertise in conventional historical methods and web-based technologies. Major fields include U.S. history, European history, and world history; minor fields are chosen by the student and may include such areas as public history, constitutional studies, and new media and information technology.

Depending on career goals and interests, students can also focus their degrees in one of four areas of emphases.

Emphases Areas
College and University Teaching
This emphasis is for students who are seeking a career in teaching or research at the community college, college, or university level.

New Media and Information Technology
Although all students in the program take some courses in new media, students in this emphasis seek careers specifically in new media (publishing, education, or a college or university history department where they would serve as the department's lead person in new media
Public and Applied History
This emphasis prepares students for work in applied areas of history, such as museums, archives, federal government work, preservation, and editing, or helps students already working in those areas to advance. In some cases, students will do advanced course work in their field of work; in other cases, they will acquire knowledge or skills that will foster their professional work (such as nonprofit management).

Professional Development
This emphasis responds to the needs of students who have already launched a career and want a doctoral degree to further career goals or fulfill personal intellectual goals. Candidates who need flexible scheduling will be advised on a case-by-case basis.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information see Application Requirements and Deadlines (http://historyarthistory.gmu.edu/programs/application/LA-PHD-HIST) on the departmental web site.

Policies
For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit
For students entering the doctoral program with a master’s degree, the number of required credits may be reduced by a maximum of 30 credits, subject to approval of the program faculty and the dean. Requests for reduction of credit are reviewed only after acceptance to the doctoral program.

Requirements

Degree Requirements
Total credits: 72

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 413) tab.

Students will be terminated from the program if they receive more than one unsatisfactory grade (C or F). No more than 6 credits earned through study abroad courses may be applied towards the degree.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 610</td>
<td>The Study and Writing of History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 696</td>
<td>Clio Wired: An Introduction to History and New Media</td>
<td>3</td>
</tr>
<tr>
<td>HIST 697</td>
<td>Creating History in New Media</td>
<td>3</td>
</tr>
<tr>
<td>HIST 810</td>
<td>History Doctoral Colloquium (Students take 1 credit a semester until they advance to candidacy or reach a maximum of 6 credits.)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one seminar course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 711</td>
<td>Research Seminar in U.S. History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 731</td>
<td>Research Seminar in European History</td>
<td>3</td>
</tr>
<tr>
<td>HIST 751</td>
<td>Research Seminar in Comparative World History</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 16

Major Field
Select 15 credits of courses in one of three possible fields:

- U.S. History
- European History
- Comparative World History

Total Credits 15

Minor Fields
Select two minor fields and take 9 credits in each ¹

Total Credits 18

¹ Minor fields may include areas such as public history, constitutional studies, and new media and information technology.

Doctoral Research Skills
Students must demonstrate basic competency in computers. Students whose research requires knowledge of a foreign language must also demonstrate a reading knowledge of one foreign language. The department sets specific research skills requirements for students, depending on their field of study.

Comprehensive Exam
Students need to pass a comprehensive exam that consists of a written field exam for each minor field and an oral exam for the major field.

Advancement to Candidacy
To advance to candidacy, students must complete all course work required on their approved program of study. Students must also successfully complete and pass an oral comprehensive exam in a major field and written examinations in two minor fields. In addition, students must have a dissertation committee appointed by the Dean’s Office as well as an approved proposal. Evidence of the approved proposal must be on file in the Dean’s Office before a student can be advanced to candidacy.

Dissertation
Once enrolled in HIST 998 Doctoral Dissertation Proposal, students in this degree program must maintain continuous registration in HIST 998 Doctoral Dissertation Proposal or HIST 999 Doctoral Dissertation Research each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in HIST 999 Doctoral Dissertation Research, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of HIST 999 Doctoral Dissertation Research.

Students who complete less than 6 credits of HIST 810 History Doctoral Colloquium must take additional credits of HIST 998 Doctoral
Dissertation Proposal or HIST 999 Doctoral Dissertation Research to reach the 72 credits required for the program.

Students may apply to this degree a minimum of 3 and a maximum of 6 credits of HIST 998 Doctoral Dissertation Proposal and a minimum of 15 credits of HIST 999 Doctoral Dissertation Research.

<table>
<thead>
<tr>
<th>Dissertation Research</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 998 Doctoral Dissertation Proposal (minimum of 3 credits)</td>
<td></td>
</tr>
<tr>
<td>HIST 999 Doctoral Dissertation Research (minimum of 15 credits)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 18

**Department of Modern and Classical Languages**

336 Aquia Building
Fairfax Campus

Phone: 703-993-1220
Website: mcl.gmu.edu

**Undergraduate Programs**

The department offers a BA in foreign languages with concentrations in Arabic, Chinese, French, and Spanish.

**Concentrations**

The concentration in Arabic has an emphasis on developing strong language skills, including literacy and oral communication, along with an in-depth understanding of modern Arabic culture and society. Students concentrating in Arabic are expected to gain fluency in Modern Standard Arabic and a working knowledge of at least one Arabic dialect. Additionally, students will graduate with a strong background in Arab intellectual history, literature, and culture.

The concentration in Chinese enables students to become proficient in listening, speaking, reading, and writing Chinese while learning about Chinese literature, history, traditions, and culture. Students in this program are encouraged to study abroad or to do an internship. Students in Chinese are also encouraged to complete a double major.

The concentration in French is designed for students who want to increase their proficiency in French language and culture while learning about the history, politics, and economics of the many French-speaking countries around the world. Students can take a study abroad course or spend a summer in Paris or Quebec, earning credit towards their degree. They can participate in the many French-speaking activities sponsored by Mason’s French Club.

The concentration in Spanish enables students to become proficient in speaking, reading, and writing Spanish while learning about Latin American, Latino and Spanish languages practices, literatures, histories, and cultures. Students are encouraged to do an internship or service learning project, where they can draw on their knowledge of Spanish and gain valuable work experience while working for social change in their communities. Students have many opportunities to study Spanish abroad for as long as a week and as long as a semester and at the same time, earn credit toward their degree.

All concentrations prepare students for teaching careers at the secondary school level, graduate study in languages, and research and professional work in government and private enterprise.

Faculty in the department participate in the interdisciplinary Russian and Eurasian Studies, BA and the Latin American Studies, BA.

**Foreign Languages with a Second Major**

Majors in foreign language are encouraged to complete a second major in another field. Students who want to pursue a second undergraduate major should plan a program of study in consultation with advisors from both degrees and be familiar with the relevant policies on more than one major. See the Academic Policies section of the catalog.

**Minors**

Language majors are encouraged to complete a minor in another field.

The department offers minors in Arabic, Chinese, French, German, Latin, Russian, Spanish, Classical Studies, Italian Studies, Japanese Studies, and Korean Studies. They are available to students in any major at Mason. Except for Classical Studies, all the minors have as a prerequisite the completion of 250 (or equivalent) in the relevant language.

**Bachelor’s/Accelerated Master’s Programs**

The department offers highly qualified undergraduates concentrating in Spanish the opportunity to apply to an accelerated master’s degree program in Foreign Languages with a concentration in Spanish or a concentration in Spanish/bilingual-multicultural education. If accepted, students will be able to earn an undergraduate degree and a graduate degree in Foreign Languages after satisfactory completion of 144-150 credits, sometimes within five years.

**Graduate Programs**

The department offers a distinctive interdisciplinary master’s degree in foreign languages designed to meet the needs and interests of prospective and practicing teachers and other professionals. It also prepares students for doctoral study at other institutions. Within the master’s degree, students choose one of four concentrations: French, Spanish, French and Spanish, and Spanish/bilingual-multicultural education.

**Funding**

The department has a limited number of teaching assistantships for highly qualified graduate students with excellent language preparation. Students develop valuable language teaching experience by working with faculty experts in language teaching pedagogy.

**Faculty**

**Department Faculty**

**Professors**

Berroa, Winkler

**Associate Professors**

Carreño-Rodríguez, Christensen, Leeman, Levine, Markx, Olson, Rabin, Roman-Mendoza, Vivancos-Pérez, Zhang

**Assistant Professors**

Chanethom, Greenberg, Hemmann, Pichichero, Repinecz, Serafini, Sun
Term Assistant Professors
Al Seoudi, Balasch, Bonilla, Dudnik, Fujiwara, Hussein, Jung, Romaniuc, Sweet, Vikis

Term Instructors
Ashraf-Hassan, Burns, Chen, Guglielmi

Programs

• Arabic Minor
• Chinese Minor
• Classical Studies Minor
• Foreign Languages, BA
• Foreign Languages, MA
• French Minor
• German Studies Minor
• Italian Studies Minor
• Japanese Studies Minor
• Korean Studies Minor
• Latin Minor
• Russian Minor
• Spanish Minor

Arabic Minor
Banner Code: ARBC

Academic Advising
336 Aquia Building
Fairfax Campus
Email: language@gmu.edu
Website: mcl.gmu.edu/programs/LA-MINOR-MCL-ARAB

The minor has an emphasis on developing strong language skills: oral communication and the reading of texts. Students are also introduced to important works of Arabic literature and culture. A minor in Arabic can easily and effectively be combined with majors in other disciplines. It is especially valuable in combination with global affairs, international relations, security, journalism, philosophy, and religion.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. Students must complete 18 credits beyond the intermediate proficiency level with a minimum grade of 2.00 in each course. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Core Courses
Select three courses from the following: 9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARAB 330</td>
<td>Reading and Conversation I</td>
</tr>
<tr>
<td>ARAB 331</td>
<td>Reading and Conversation II</td>
</tr>
<tr>
<td>ARAB 350</td>
<td>Media Arabic I (Written Media)</td>
</tr>
<tr>
<td>ARAB 351</td>
<td>Media Arabic II (Spoken Media) (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARAB 390</td>
<td>Translation Methods: Arabic to English</td>
</tr>
</tbody>
</table>

Total Credits 9

400-level Language Course
Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
</tr>
<tr>
<td>ARAB 430</td>
<td>Advanced Arabic Grammar</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 3

Electives

Additional ARAB Course
Select one additional ARAB course (3 credits) from any 300 or 400-level course taught in Arabic (p. 1141) 3

Total Credits 3

English
Select one course in English from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARAB 325</td>
<td>Major Arab Writers/Stories (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
</tr>
<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur’an and Hadith</td>
</tr>
</tbody>
</table>

Total Credits 3

Chinese Minor

Banner Code: CHIN

Academic Advising
336 Aquia Building
Fairfax Campus
Email: language@gmu.edu
Website: mcl.gmu.edu/programs/LA-MINOR-MCL-CHIN
Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. Students must complete 18 credits beyond CHIN 250 Gateway to Advanced Chinese (or equivalent) with a minimum grade of 2.00 in each course. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 416) tab.

Students complete coursework with a language emphasis or a history and cultural emphasis.

Language Emphasis

Select three courses in language from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 300</td>
<td>Reading Skills Development</td>
</tr>
<tr>
<td>CHIN 301</td>
<td>Advanced Grammar and Syntax</td>
</tr>
<tr>
<td>CHIN 305</td>
<td>Chinese for the Business World</td>
</tr>
<tr>
<td>CHIN 480</td>
<td>Fourth-Year Chinese I</td>
</tr>
<tr>
<td>CHIN 481</td>
<td>Fourth-Year Chinese II</td>
</tr>
</tbody>
</table>

Select two courses in content taught in Chinese from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core)</td>
</tr>
<tr>
<td>CHIN 355</td>
<td>Readings in Chinese Poetry and Poetics (Mason Core)</td>
</tr>
<tr>
<td>CHIN 365</td>
<td>Readings in Chinese Fiction after Mao</td>
</tr>
<tr>
<td>CHIN 475</td>
<td>Chinese Popular Culture (Mason Core)</td>
</tr>
</tbody>
</table>

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 310</td>
<td>Survey of Chinese Literature (Mason Core)</td>
</tr>
<tr>
<td>CHIN 311</td>
<td>Modern Chinese Literature in Translation (Mason Core)</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core)</td>
</tr>
<tr>
<td>CHIN 470</td>
<td>Special Topics in Chinese Studies</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core)</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core)</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
</tr>
</tbody>
</table>

Total Credits: 18

History and Cultural Emphasis

Select two courses in language from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 300</td>
<td>Reading Skills Development</td>
</tr>
<tr>
<td>CHIN 301</td>
<td>Advanced Grammar and Syntax</td>
</tr>
<tr>
<td>CHIN 480</td>
<td>Fourth-Year Chinese I</td>
</tr>
<tr>
<td>CHIN 481</td>
<td>Fourth-Year Chinese II</td>
</tr>
</tbody>
</table>

Select two courses in content taught in Chinese from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 305</td>
<td>Chinese for the Business World</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core)</td>
</tr>
<tr>
<td>CHIN 355</td>
<td>Readings in Chinese Poetry and Poetics (Mason Core)</td>
</tr>
<tr>
<td>CHIN 365</td>
<td>Readings in Chinese Fiction after Mao</td>
</tr>
<tr>
<td>CHIN 475</td>
<td>Chinese Popular Culture (Mason Core)</td>
</tr>
</tbody>
</table>

Select two courses taught in English from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 310</td>
<td>Survey of Chinese Literature (Mason Core)</td>
</tr>
<tr>
<td>CHIN 311</td>
<td>Modern Chinese Literature in Translation (Mason Core)</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core)</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core)</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
</tr>
</tbody>
</table>

Total Credits: 18

1 Relevant courses offered by other department may be allowed with Chinese program director’s approval.

Classical Studies Minor

Banner Code: CLA

Academic Advising

336 Aquia Building
Fairfax Campus

Email: language@gmu.edu
Website: mcl.gmu.edu/programs/LA-MINOR-MCL-CLA/requirements

The minor is designed for students who wish to become familiar with Classical cultures and broaden their knowledge of the foundations of Western civilization. It is especially relevant to students who are studying other areas of the humanities such as English, languages, comparative literature, history, art history, philosophy, or religious studies. The requirements of the minor provide flexibility so students can choose courses that are relevant to their primary interests.
Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum grade of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 417) tab.

Core Courses

Classics

CLAS 250 Classical Mythology (Mason Core) (p. 135) 3

Select one from the following:

CLAS 260 The Legacy of Greece and Rome (Mason Core) (p. 135) 3
CLAS 340 Greek and Roman Epic (Mason Core) (p. 135)
CLAS 350 Greek and Roman Tragedy (Mason Core) (p. 135)
CLAS 360 Greek and Roman Comedy (Mason Core) (p. 135)
CLAS 370 Greek and Roman Historians

Total Credits 6

Classical History

Select one course from the following:

HIST 301 Classical Greece 3
HIST 302 Classical Rome
HIST 388 Topics in European History (when the topic deals with antiquity)
HIST 480 Alexander the Great

Total Credits 3

Classical Art History or Classical Philosophy

Select one course from the following:

ARTH 321 Greek Art and Archaeology (Mason Core) (p. 135) 3
ARTH 322 Roman Art and Archaeology (Mason Core) (p. 135)
ARTH 333 Early Christian and Byzantine Art (Mason Core) (p. 135)
ARTH 399 Special Topics in the History of Art (when the topic is relevant to Classical art history)
ARTH 420 Advanced Studies in Ancient Art

Total Credits 6

Electives

Electives may be chosen from any of the courses above not used to fulfill another requirement for the minor. 6

Total Credits 6

Foreign Languages, BA

Banner Code: LA-BA-FRLN

336 Aquia Building
Fairfax Campus

Email: language@gmu.edu
Website: mcl.gmu.edu/programs/LA-BA-FRLN

The BA in Foreign Languages prepares students for teaching, graduate study in languages and cultures, research, professional work, as well as service in government, nonprofits, or business. Our graduates are particularly valued for their multilingual and cross-cultural knowledge. Majors are encouraged to complete a minor or a second major in another field. Concentrations are offered in Arabic, Chinese, French and Spanish. Minors are offered in Arabic, Chinese, Classical Studies, French, German Studies, Italian Studies, Japanese Studies, Latin, Russian and Spanish.

Double majors in foreign language and another subject should plan a program of study with advisors from both disciplines and follow the steps outlined in AP.5.3.3 Second Bachelor’s Degree (p. 86).

Admissions & Policies

Policies

Students pursuing this degree must complete 30-33 credits within the major, with a minimum GPA of 2.00.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 417) tab.

Concentrations in the Major

In addition to the other college and university requirements for a degree, provided in the tabs below, students pursuing this degree complete a 30-33 credit concentration chosen from the following:

Concentration in Arabic (ARBC)

The concentration in Arabic has an emphasis on developing strong language skills, including literacy and oral communication, along with an in-depth understanding of modern Arabic culture and society. Students concentrating in Arabic are expected to gain fluency in Modern Standard Arabic and a working knowledge of at least one Arabic dialect.
Additionally, students will graduate with a strong background in Arab intellectual history, literature, and culture.

Students pursuing the concentration in Arabic must complete a minimum of 30 credits in Arabic at the 300 level and above, each with a minimum grade of 2.00. Only two courses (6 credits) taught in English may be applied to the major. Students are highly encouraged to participate in study abroad.

A minor in Arabic is also offered, which can easily and effectively be combined with majors in other disciplines, such as global affairs, international relations, government, journalism, philosophy, and religion.

Core Courses
Select eight courses from the following: 24

ARAB 330 Reading and Conversation I
ARAB 331 Reading and Conversation II
ARAB 350 Media Arabic I (Written Media)
ARAB 351 Media Arabic II (Spoken Media) (Mason Core) (p. 135)
ARAB 375 Study Abroad - Arab World
ARAB 380 Arabic Dialects
ARAB 390 Translation Methods: Arabic to English
ARAB 420 Survey of Arabic Literature
ARAB 430 Advanced Arabic Grammar
ARAB 440 Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)
ARAB 498 Independent Study

Electives
Select two courses from the following: 6

ARAB 325 Major Arab Writers/Stories (Mason Core) (p. 135)
ARAB 360 Topics in Arabic Cultural Production
ANTH (p. 1119) 1
ARTH (p. 1143) 1
ENGH (p. 1476) 1
GOVT (p. 1588) 1
HIST (p. 1628) 1
PHIL (p. 1818) 1
RELI (p. 1904) 1
SOCI (p. 1923) 1

Total Credits 30

1 Requires approval of advisor and the director; relevant courses only.

Concentration in Chinese (CHIN)
The concentration in Chinese prepares students for research and professional work in government and private enterprise, teaching careers at the secondary school level, and graduate study in Chinese. Language majors with the Chinese concentration are encouraged to complete a minor or, if possible, a second major in another field.

Students pursuing the concentration in Chinese must complete a minimum of 30 credits in Chinese at the 300 level and above, each with a minimum grade of 2.00. Students are expected to complete a balanced program that includes courses in language, culture and civilization, and literature. Only two courses (6 credits) taught in English may be applied to the major. Students are highly encouraged to participate in study abroad.

A minor in Chinese (p. 415) is also offered, which can easily and effectively be combined with majors in other disciplines, such as global affairs, international relations, government, journalism, philosophy, and religion.

Core Courses
Select eight courses from the following: 24

CHIN 300 Reading Skills Development
CHIN 301 Advanced Grammar and Syntax
CHIN 305 Chinese for the Business World
CHIN 318 Introduction to Classical Chinese (Mason Core) (p. 135)
CHIN 355 Readings in Chinese Poetry and Poetics (Mason Core) (p. 135)
CHIN 365 Readings in Chinese Fiction after Mao
CHIN 475 Chinese Popular Culture (Mason Core) (p. 135)
CHIN 480 Fourth-Year Chinese I
CHIN 481 Fourth-Year Chinese II

Electives
Select two courses from the following: 6

CHIN 310 Survey of Chinese Literature (Mason Core) (p. 135)
CHIN 311 Modern Chinese Literature in Translation (Mason Core) (p. 135)
CHIN 320 Contemporary Chinese Film
CHIN 325 Major Chinese Writers (Mason Core) (p. 135)
CHIN 328 Asian American Women Writers (Mason Core) (p. 135)
CHIN 470 Special Topics in Chinese Studies
CHIN 490 Internship in Chinese Studies
ANTH (p. 1119) 1
ARTH (p. 1143) 1
GOVT (p. 1588) 1
HIST (p. 1628) 1
PHIL (p. 1818) 1
RELI (p. 1904) 1
SOCI (p. 1923) 1

Total Credits 30

1 Requires approval of advisor and the director; relevant courses only.

Concentration in French (FRN)
Students pursuing the concentration in French must complete a minimum of 33 credits in French at the 300 level and above, each with a minimum grade of 2.00. No more than one course (3 credits) conducted in English may be used to fulfill requirements for the concentration. Students are expected to complete a balanced program that includes courses in language, culture and civilization, and literature.

Advanced Language Course
FREN 309 Reading and Writing Skills Development 6

Literature and Civilization
FREN 370  French Civilization, Culture, and Literature: Ancient Gaul to 1789  3
FREN 371  French Civilization, Culture, and Literature: 1789 to the Present  3

FREN at the 300-level or Above
Select three courses in FREN at the 300-level or above (p. 1546)  9

FREN at the 400-level or above
Select four courses in FREN at the 400-level or above (p. 1546)  12

Total Credits  33

Concentration in Spanish (SPN)
With more than 400 million people speaking Spanish worldwide - nearly 40 million in the US - and the growing influence of Hispanic cultures around the globe, knowledge of Spanish and the Spanish-speaking world has never been more important. The Spanish courses and degree programs provide students with the opportunity for language development and interdisciplinary study of the cultures, film, history, linguistics and literature of the 20 Spanish-speaking countries, including the United States. Students can also receive Spanish credit through participation study-abroad programs.

Students pursuing the concentration in Spanish must complete a minimum of 33 credits in Spanish courses at the 300-level and above, each with a minimum grade of 2.00. Only one course taught in English (3 credits) may be applied toward the concentration.

Core Courses
Select one or two courses from the following:  6
SPAN 305  Spanish in Context I  
& SPAN 306  Spanish in Context II
SPAN 309  Intensive Spanish in Context
SPAN 315  Spanish for Heritage Speakers (and one additional 3-credit SPAN course)

Additional Required Courses
SPAN 370  Spanish Writing and Stylistics  3
SPAN 385  Introduction to Spanish Linguistics  3
SPAN 390  Introduction to Hispanic Literary Analysis  3

Spanish at the 400 Level
Select four courses in Spanish at the 400 level (p. 1939)  12

Electives
Select two courses from the following:  6
SPAN courses at the 300- or 400- level (p. 1939)
FRLN 385  Multilingualism, Identity, and Power (Mason Core) (p. 135)

Total Credits  33

Writing-Intensive Requirement
The university requires all students to complete at least one course designated “writing intensive” in their majors at the 300 level or above. Students majoring in foreign language may fulfill this requirement by successfully completing CHIN 480 Fourth-Year Chinese I, FREN 309 Reading and Writing Skills Development, or SPAN 370 Spanish Writing and Stylistics.

Upper Level Requirement
Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies
Code  Title  Credits
Select 3 credits from the following:  3
PHIL (p. 1818)  1
RELI (p. 1904)

1 Note that the following courses may not be used to fulfill this requirement:
• PHIL 323 Classical Western Political Theory
• PHIL 324 Modern Western Political Theory
• PHIL 327 Contemporary Western Political Theory
• PHIL 393 Humanities College to Career
• PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences
Code  Title  Credits
Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)  3
ANTH (p. 1119)
CRIM (p. 1372)
ECON (p. 1413)
GOVT (p. 1588)
HIST (p. 1628)  2
LING (p. 1694)
PSYC (p. 1844)
SOCI (p. 1923)

Or choose from the following GGS courses:
GGS 101  Major World Regions (Mason Core) (p. 135)
GGS 103  Human Geography (Mason Core) (p. 135)
GGS 110  Introduction to Geoinformation Technologies
GGS 301  Political Geography
GGS 303  Geography of Resource Conservation (Mason Core) (p. 135)
GGS 304  Population Geography (Mason Core) (p. 135)
GGS 305  Economic Geography
GGS 306  Urban Geography
Foreign Languages, BA

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
<td></td>
</tr>
</tbody>
</table>

1 The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

2 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by: ¹</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or achieving a satisfactory score on an approved proficiency test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or completing the following ASL three course sequence:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EDSE 115 American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EDSE 116 American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EDSE 219 American Sign Language (ASL) III</td>
<td></td>
</tr>
</tbody>
</table>

¹ Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
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<td>CHIN 325</td>
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<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
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<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
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<td>FREN 454</td>
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<td>GGS 316</td>
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</table>
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GGS 330  Geography of the Soviet Succession States  3
GGS 399  Select Topics in GGS  3
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HIST 252  Survey of East Asian History (Mason Core) (p. 135)  3
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HIST 262  Survey of African History (Mason Core) (p. 135)  3
HIST 271  Survey of Latin American History (Mason Core) (p. 135)  3
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JAPA 310  Japanese Culture in a Global World (Mason Core) (p. 135)  3
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RELI 365  Muhammad: Life and Legacy  3
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RELI 375  Qur’an and Hadith  3
RELI 379  Islamic Law, Society, and Ethics  3
RELI 387  Islam, Democracy, and Human Rights  3
RELI 490  Comparative Study of Religions (Mason Core) (p. 135)  3
RUSS 353  Russian Civilization (Mason Core) (p. 135)  3
RUSS 354  Contemporary Post-Soviet Life (Mason Core) (p. 135)  3

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundation Requirements</strong></td>
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<tr>
<td>Written Communication (p. 135)</td>
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<td>Oral Communication (p. 136)</td>
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<tr>
<td>Quantitative Reasoning (p. 136)</td>
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<tr>
<td>Information Technology (p. 136)</td>
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<td>3-7</td>
</tr>
<tr>
<td><strong>Core Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts (p. 137)</td>
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<td>3</td>
</tr>
<tr>
<td>Global Understanding (p. 139)</td>
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<td>3</td>
</tr>
<tr>
<td>Literature (p. 140)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
Accelerated Master's Program Application with a minimum grade of 3.00 in Spanish 502 Hispanic Sociolinguistics) as indicated on their Bachelor's/Accelerated Master's Transition Form and are admitted to graduate studies. Students must maintain a minimum cumulative GPA of 3.25 in all courses in each course. Once admitted to the accelerated master's pathway, students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Additional Elective Courses
Any remaining credits may be completed with elective courses to bring the degree total to 120.

Accelerated Master's

The accelerated master's programs in the list below specify the BA in foreign languages with a Spanish concentration as a feeder degree for their programs. It is important to note, however, that many accelerated master's programs are available for any bachelor's degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Foreign Languages, BA (Spanish Concentration)/Foreign Languages, Accelerated MA (Spanish Concentration)

Overview
Highly-qualified Mason undergraduates may apply to the accelerated master's degree. If accepted, students may earn both a bachelor's degree (p. 417) and a master's degree in foreign languages with a concentration in Spanish (p. 423) after satisfactory completion of 144 credits.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Foreign Languages (Spanish concentration) (p. 423), see Application Requirements on the departmental website (http://mcl.gmu.edu).

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses (SPAN 510 Methods of Literary and Cultural Studies and SPAN 502 Hispanic Sociolinguistics) as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Foreign Languages, BA (Spanish Concentration)/Foreign Languages, Accelerated MA (Spanish/Bilingual-Multicultural Education Concentration)

Overview
Highly-qualified Mason undergraduates may apply to the accelerated master's degree. If accepted, students may earn both a bachelor's degree in foreign languages with a concentration in Spanish (p. 417) and a master's degree in foreign languages with a concentration in Spanish/Bilingual-Multicultural Education (p. 423) after satisfactory completion of 150 credits.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Foreign Languages (Spanish/Bilingual Multicultural Education concentration) (p. 423), see Application Requirements on the departmental website (http://mcl.gmu.edu).

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses (SPAN 510 Methods of Literary and Cultural Studies and SPAN 502 Hispanic Sociolinguistics) as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.
Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Foreign Languages, MA

Banner Code: LA-MA-FRLN

Academic Advising
336 Aquia Building
Fairfax Campus
Email: language@gmu.edu
Website: mcl.gmu.edu/programs/LA-MA-FRLN-FRN

The foreign languages MA aims to enhance the linguistic and cultural proficiency of students through courses in sociolinguistics and second language acquisition, film studies, cultural studies and literary studies. Students may select from four concentrations: French, Spanish, French and Spanish, and Spanish/bilingual-multicultural education. Located only miles from Washington, D.C., students take advantage of the program’s existing relationships with schools, embassies, federal agencies, and international businesses—providing opportunity for internships and other educational experiences outside the classroom.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://mcl.gmu.edu/programs/application/LA-MA-FRLN) on the departmental website.

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies.

Requirements

Degree Requirements

Total credits: 30-42

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Each concentration has a different number of required credits. In all four concentrations, 6 of the total credits may be earned with a thesis. Regardless of the concentration selected, all students must meet the core and distribution requirements given below and pass a comprehensive exam or write a thesis.

Concentration in French (FRN)

18 credits must be in courses with the subject code FREN.

Literature

Select two courses in literature chosen in consultation with an advisor and cover two different literary periods or Francophone regions.

French Language and Linguistics

Select two courses in French language and linguistics chosen in consultation with an advisor.

French

Select two additional courses in French literature or language in consultation with an advisor.

Electives

Select four electives in consultation with an advisor. A maximum of 6 credits may be used for directed reading and research or thesis.

FREN 798 Directed Reading and Thesis Research
FREN 799 Thesis

Total Credits 30

Concentration in Spanish (SPN)

Required Core Courses

SPAN 502 Hispanic Sociolinguistics 3
SPAN 510 Methods of Literary and Cultural Studies 3

Latino, Latin American, or Spanish cultures, literatures, or linguistics

Select any five courses with the SPAN subject code. 15

Electives

Select three electives in consultation with an advisor. 2

SPAN 798 Directed Reading and Research
SPAN 799 Thesis

Total Credits 30

1 Students must take the core courses within their first 15 credits.

2 They can include additional courses in Latin American or Spanish culture, linguistics, or literature, courses with the subject code FRLN, up to 6 credits of courses in related fields, and up to 6 credits of thesis research and writing. Students who do not complete their thesis during one semester of SPAN 799 will need to register for additional credits. Independent studies courses are not available for graduate students of Spanish.

Concentration in Spanish and French (SF)

French

Select six required courses (not electives) specified under the concentration in French.

Latino, Latin American, or Spanish cultures, literatures, or linguistics

Take the two required core courses specified under the concentration in Spanish, plus four electives with the SPAN subject code.

Electives
Select two electives with the FREN, FRLN, and SPAN subject codes. 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 798</td>
<td>Directed Reading and Thesis Research</td>
</tr>
<tr>
<td>SPAN 798</td>
<td>Directed Reading and Research</td>
</tr>
<tr>
<td>FREN 799</td>
<td>Thesis</td>
</tr>
<tr>
<td>SPAN 799</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

Total Credits: 42

1 Students who elect to complete a thesis may apply 6 credits of 798 and 799 to fulfill this requirement.

**Concentration in Spanish/Bilingual-Multicultural Education (SBM)**

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
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<tbody>
<tr>
<td>SPAN 502</td>
<td>Hispanic Sociolinguistics</td>
</tr>
<tr>
<td>SPAN 510</td>
<td>Methods of Literary and Cultural Studies</td>
</tr>
</tbody>
</table>

Latino, Latin American or Spanish cultures, literatures, or linguistics

Select four courses with the SPAN subject code. 12

**Education Courses**

Select two courses from the following list in consultation with an advisor. 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 511</td>
<td>Child and Adolescent Development in Global Contexts</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
</tr>
<tr>
<td>EDCI 516</td>
<td>Bilingualism and Language Acquisition Research</td>
</tr>
<tr>
<td>EDCI 520</td>
<td>Assessment of Language Learners</td>
</tr>
<tr>
<td>EDCI 560</td>
<td>Methods of Teaching in Foreign/World Languages</td>
</tr>
<tr>
<td>EDCI 684</td>
<td>Advanced Methods of Teaching Foreign/Second Languages in PK-12 Schools</td>
</tr>
<tr>
<td>EDRD 620</td>
<td>Reading/Writing in Foreign/World Languages</td>
</tr>
</tbody>
</table>

**Electives**

Select four electives in consultation with an advisor. 12

Total Credits: 36

1 Students must take the core courses within their first 15 credits.

2 Students who elect to complete a thesis may apply 6 credits of 798 and 799 to fulfill this requirement.

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**Accelerated Master's**

**Foreign Languages, BA (Spanish Concentration)/Foreign Languages, Accelerated MA (Spanish Concentration)**

**Overview**

Highly-qualified Mason undergraduates may apply to the accelerated master's degree. If accepted, students may earn both a bachelor's degree (p. 417) and a master's degree in foreign languages with a concentration in Spanish after satisfactory completion of 144 credits.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Foreign Languages (Spanish concentration) (p. 423), see Application Requirements on the departmental website (http://mcl.gmu.edu).

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete two graduate courses (SPAN 510 Methods of Literary and Cultural Studies and SPAN 502 Hispanic Sociolinguistics) as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Foreign Languages, BA (Spanish Concentration)/Foreign Languages, Accelerated MA (Spanish/Bilingual-Multicultural Education Concentration)**

**Overview**

Highly-qualified Mason undergraduates may apply to the accelerated master's degree. If accepted, students may earn both a bachelor's degree in foreign languages with a concentration in Spanish (p. 417) and a master's degree in foreign languages with a concentration in Spanish/Bilingual-Multicultural Education (p. 423) after satisfactory completion of 150 credits.
Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Foreign Languages (Spanish/Bilingual Multicultural Education concentration) (p. 423), see Application Requirements on the departmental website (http://mcl.gmu.edu).

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses (SPAN 510 Methods of Literary and Cultural Studies and SPAN 502 Hispanic Sociolinguistics) as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/ Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

French Minor

Banner Code: FRN

Academic Advising

336 Aquia Building
Fairfax Campus
Website: mcl.gmu.edu/programs/LA-MINOR-MCL-FRN/

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete 18 credits beyond FREN 250 Gateway to Advanced French (or equivalent) with a minimum grade of 2.00 in each course. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 425) tab.

Core Courses

Advanced Language Course

FREN 309 Reading and Writing Skills Development 6

Total Credits 6

Literature and Civilization

Select two courses from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 340</td>
<td>Francophone Identities</td>
</tr>
<tr>
<td>FREN 370</td>
<td>French Civilization, Culture, and Literature: Ancient Gaul to 1789</td>
</tr>
<tr>
<td>FREN 371</td>
<td>French Civilization, Culture, and Literature: 1789 to the Present</td>
</tr>
</tbody>
</table>

Total Credits 6

Elective Courses

Select two elective courses in FREN at the 300 level or above (p. 1546) 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 309</td>
<td>Reading and Writing Skills Development</td>
</tr>
</tbody>
</table>

Total Credits 6

1 FREN 325 Major French Writers (Topic Varies) (Mason Core) (p. 135) and FREN 329 Problems of Western Civilization in French Literature (Mason Core) (p. 135) cannot be used to fulfill this requirement. Students choose electives in consultation with an advisor. These courses must be conducted in French.

German Studies Minor

Banner Code: GRMS

Academic Advising

336 Aquia Building
Fairfax Campus
Website: mcl.gmu.edu/programs/LA-MINOR-MCL-GRM/

The emphasis of the minor is on developing strong language skills: oral communication and the reading of texts. Students are introduced to important works of German literature and to the culture of German-speaking countries.

A German Studies minor can easily and effectively be combined with majors in other disciplines. It is especially valuable in combination with business, computer science, international studies, history, music, philosophy, or another language.
**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor. Students pursuing this minor must complete 18 credits beyond GERM 250 Gateway to Advanced German (or equivalent) with a minimum grade of 2.00 in each course. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

A maximum of two courses (6 credits) conducted in English can be applied to the minor.

**Requirements**

**Minor Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 426) tab.

**Core Courses**

**Language Courses**

Select three courses from the following: 9

- GERM 310 Conversation and Composition
- GERM 316 German for the Business World
- GERM 318 Translation of Texts
- GERM 370 German Through the Arts
- GERM 415 Advanced Grammar and Style
- GERM 418 Advanced Composition

Total Credits 9

**Literature and Culture Courses**

Select two courses from the following: 6

- GERM 301 Culture and Civilization
- GERM 325 Major Writers (Mason Core) (p. 135)
- GERM 340 Survey of German Literature
- GERM 355 Readings in Poetry (Topic Varies)
- GERM 365 Readings in Narrative Prose
- GERM 375 Readings in Drama
- GERM 442 The Age of Goethe
- GERM 444 The Literature of Romanticism
- GERM 450 Modern Literature: 1880-1925
- GERM 451 Modern Literature: 1925 to the Present
- GERM 480 Special Topics

Total Credits 6

**Elective**

Select one course from the following: 3

- ITAL 300- or 400-Level Course (p. 1575)
- HIST 306 The Reformation
- HIST 308 Nineteenth-Century Europe
- HIST 309 Europe in Crisis: 1914-1948
- HIST 314 History of Germany
- PHIL 325 Karl Marx’s Social and Political Thought
- PHIL 335 Nineteenth-Century Philosophy
- PHIL 340 Hermeneutic Philosophy
- MUSI 332 Music History in Society II
- MUSI 338 Music History in Society A

Total Credits 3

1. The courses listed may apply to the minor with prior written approval of the advisor.

**Italian Studies Minor**

**Banner Code:** ITLN

**Academic Advising**

336 Aquia Building
Fairfax Campus

Website: mcl.gmu.edu/programs/la-minor-mcl-itln

The minor enables students to advance their Italian language skills and to study Italian culture, history, and literature from an interdisciplinary perspective.

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 426) tab.

Students complete coursework with a language emphasis or a history and culture emphasis. Special topics courses, such as HIST 388 Topics in European History, GOVT 520 Political Theory, and RELI 235 Religion and Literature (Mason Core) (p. 135), when relevant, may be applied to the minor with prior written approval of the coordinator.

**Language Emphasis**

Select five language courses from the following repeatable courses: 15

- ITAL 330 Advanced Italian: Language and Culture I
- ITAL 331 Advanced Italian Language and Culture II
- ITAL 340 Italian through Arts
- ITAL 360 Southern Italy
  or ITAL 420 Global and Local Italy

Select one course in Italian literature and film in translation from the following: 3

- ITAL 320 Topics in Italian Film and Literature (Mason Core) (p. 135)
Japanese Studies Minor
Banner Code: JPNS

Academic Advising
336 Aquia Building
Fairfax Campus
Website: mcl.gmu.edu/programs/LA-MINOR-MCL-JPNS/requirements

The minor enables students to advance their Japanese language skills and develop a sound understanding of Japanese culture and history from a global perspective.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. Special topics courses, when relevant, may be applied to the minor with prior written approval of the director. Students who wish to declare this minor need to obtain the signature of the director.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Japanese Language
Select four courses from the following:

JAPA 330  Advanced Reading and Speaking I
JAPA 331  Advanced Reading and Speaking II
JAPA 350  Readings in Japanese Culture
JAPA 440  Integrated Study of Japanese Language and Society I
JAPA 441  Integrated Study of Japanese Language and Society II

Japanese and Japan-Related History
Select one course from the following:

HIST 251  Survey of East Asian History (Mason Core) (p. 135)
HIST 252  Survey of East Asian History (Mason Core) (p. 135)
HIST 356  Modern Japan (Mason Core) (p. 135)
HIST 357  Postwar Japan (Mason Core) (p. 135)
ARTH 385  Arts of Japan (Mason Core) (p. 135)

Elective Course
Select one course from the following:

ARTH 482  RS: Advanced Studies in Asian Art
CHIN 328  Asian American Women Writers (Mason Core) (p. 135)
GOVT 333  Government and Politics of Asia
GOVT 433  Political Economy of East Asia
JAPA 310  Japanese Culture in a Global World (Mason Core) (p. 135)
JAPA 320  Japanese Cinema
JAPA 340  Topics in Japanese Literature (Mason Core) (p. 135)
JAPA 350  Readings in Japanese Culture (if not used to fulfill the Japanese language requirement)
RELI 212  Religions of Asia (Mason Core) (p. 135)
RELI 315  Buddhism (Mason Core) (p. 135)

Total Credits 18

History and Culture Emphasis

Japanese Language
Select four courses from the following:

JAPA 330  Advanced Reading and Speaking I
JAPA 331  Advanced Reading and Speaking II
JAPA 350  Readings in Japanese Culture
JAPA 440  Integrated Study of Japanese Language and Society I
JAPA 441  Integrated Study of Japanese Language and Society II

Japanese and Japan-Related History
Select one course from the following:

HIST 251  Survey of East Asian History (Mason Core) (p. 135)
HIST 252  Survey of East Asian History (Mason Core) (p. 135)
HIST 356  Modern Japan (Mason Core) (p. 135)
HIST 357  Postwar Japan (Mason Core) (p. 135)
ARTH 385  Arts of Japan (Mason Core) (p. 135)

Elective Course
Select one course from the following:

ARTH 482  RS: Advanced Studies in Asian Art
CHIN 328  Asian American Women Writers (Mason Core) (p. 135)
GOVT 333  Government and Politics of Asia
GOVT 433  Political Economy of East Asia
JAPA 310  Japanese Culture in a Global World (Mason Core) (p. 135)
JAPA 320  Japanese Cinema
JAPA 340  Topics in Japanese Literature (Mason Core) (p. 135)
JAPA 350  Readings in Japanese Culture (if not used to fulfill the Japanese language requirement)
RELI 212  Religions of Asia (Mason Core) (p. 135)
RELI 315  Buddhism (Mason Core) (p. 135)

Total Credits 18

History and Culture Emphasis

Japanese Language
Select two courses from the following:

JAPA 330  Advanced Reading and Speaking I
JAPA 331  Advanced Reading and Speaking II

Japanese and Japan-Related History
Select one course from the following:

HIST 251  Survey of East Asian History (Mason Core) (p. 135)
HIST 252  Survey of East Asian History (Mason Core) (p. 135)
HIST 356  Modern Japan (Mason Core) (p. 135)
HIST 357  Postwar Japan (Mason Core) (p. 135)
ARTH 385  Arts of Japan (Mason Core) (p. 135)

Elective Course
Select one course from the following:

ARTH 482  RS: Advanced Studies in Asian Art
CHIN 328  Asian American Women Writers (Mason Core) (p. 135)
GOVT 333  Government and Politics of Asia
GOVT 433  Political Economy of East Asia
JAPA 310  Japanese Culture in a Global World (Mason Core) (p. 135)
JAPA 320  Japanese Cinema
JAPA 340  Topics in Japanese Literature (Mason Core) (p. 135)
JAPA 350  Readings in Japanese Culture (if not used to fulfill the Japanese language requirement)
RELI 212  Religions of Asia (Mason Core) (p. 135)
RELI 315  Buddhism (Mason Core) (p. 135)

Total Credits 18
Korean Studies Minor

Banner Code: KRNS

Academic Advising
336 Aquia Building
Fairfax Campus
Website: mcl.gmu.edu/

The minor in Korean studies focuses on the acquisition of Korean linguistic and cultural knowledge from various language and interdisciplinary courses.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Latin Minor

Banner Code: LATN

Academic Advising
336 Aquia Building
Fairfax Campus
Website: mcl.gmu.edu/programs/LA-MINOR-MCL-LATN/requirements

The minor offers students the opportunity to develop and refine their knowledge of the Latin language by reading classical Latin literature. Students gain an understanding and appreciation of the literature, culture, and intellectual achievements of Roman antiquity that have contributed to the development of Western civilization.

A Latin minor complements majors in literature, language, history, philosophy, and the arts, all of which find their roots in classical antiquity. Majors in the natural and the social sciences are also strengthened by the historical perspective and the advanced training in language and terminology afforded by the minor in Latin.
Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. Students must complete 18 credits in Latin beyond the intermediate proficiency level with a minimum grade of 2.00 in each course. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 429) tab.

Coursework
Students complete 18 credits of the following courses which vary in content and may be repeated for credit when content is different.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATN 351</td>
<td>Roman Prose Literature</td>
</tr>
<tr>
<td>LATN 352</td>
<td>Roman Poetry</td>
</tr>
<tr>
<td>LATN 451</td>
<td>Studies in Roman Literature</td>
</tr>
<tr>
<td>LATN 452</td>
<td>Studies in Roman Literature</td>
</tr>
</tbody>
</table>

Total Credits: 18

Core Courses

Language
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 302</td>
<td>Russian Conversation and Composition</td>
</tr>
<tr>
<td>RUSS 303</td>
<td>Russian Advanced Conversation</td>
</tr>
<tr>
<td>RUSS 380</td>
<td>Advanced Russian I</td>
</tr>
<tr>
<td>RUSS 381</td>
<td>Advanced Russian II</td>
</tr>
</tbody>
</table>

Total Credits: 9

Literature
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 310</td>
<td>Readings in Russian Literature</td>
</tr>
<tr>
<td>RUSS 311</td>
<td>Contemporary Russian Short Fiction</td>
</tr>
</tbody>
</table>

Total Credits: 3

Additional Course
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core)</td>
</tr>
<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core)</td>
</tr>
</tbody>
</table>

Total Credits: 3

Elective
Select one elective at the 3xx level or above 1

Total Credits: 3

1 This course must be conducted in Russian.

Spanish Minor

Banner Code: SPN

Academic Advising
336 Aquia Building
Fairfax Campus

Website: mcl.gmu.edu/programs/LA-MINOR-MCL-SPN

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. Students must complete 18 credits beyond SPAN 250 Gateway to Advanced Spanish (or equivalent) with a minimum grade of 2.00 in each course. One course taught in English may be applied toward the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 429) tab.

Core Courses

Language
Select one or two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 302</td>
<td>Spanish Conversation and Composition</td>
</tr>
<tr>
<td>SPAN 303</td>
<td>Spanish Advanced Conversation</td>
</tr>
<tr>
<td>SPAN 380</td>
<td>Advanced Spanish I</td>
</tr>
<tr>
<td>SPAN 381</td>
<td>Advanced Spanish II</td>
</tr>
</tbody>
</table>

Total Credits: 9

Literature
Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 310</td>
<td>Readings in Spanish Literature</td>
</tr>
<tr>
<td>SPAN 311</td>
<td>Contemporary Spanish Short Fiction</td>
</tr>
</tbody>
</table>

Total Credits: 3

Total Credits: 12

Elective
Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 353</td>
<td>Spanish Civilization (Mason Core)</td>
</tr>
<tr>
<td>SPAN 354</td>
<td>Contemporary Post-Soviet Life (Mason Core)</td>
</tr>
</tbody>
</table>

Total Credits: 3

1 This course must be conducted in Spanish.
SPAN 305  Spanish in Context I
& SPAN 306 and Spanish in Context II
SPAN 309  Intensive Spanish in Context
SPAN 315  Spanish for Heritage Speakers (and one elective course in Spanish)

Total Credits  6

Two Additional Courses
SPAN 370  Spanish Writing and Stylistics  3
Select one from the following:
SPAN 385  Introduction to Spanish Linguistics  3
SPAN 388  Introduction to Latina/o Studies (Mason Core) (p. 135)
SPAN 390  Introduction to Hispanic Literary Analysis

Total Credits  6

Electives
Select two courses from the following:
SPAN courses at the 300- or 400-level. (p. 1939)  6
FRLN 385  Multilingualism, Identity, and Power (Mason Core) (p. 135)

Total Credits  6

Department of Philosophy
Phone: 703-993-1290
Website: philosophy.gmu.edu

Undergraduate Programs
The department offers a bachelor’s degree in philosophy, which covers the major issues and areas in philosophy. It is intended to serve the needs of students who wish to pursue graduate studies in philosophy or emphasize philosophy while acquiring a broad liberal arts education. Majors in philosophy take courses in a variety of philosophical traditions and study logic, ethics, and social and political philosophy. With the skills of critical thinking, clear writing, and analytical reasoning that are the hallmark of philosophy majors, students are well-prepared for a wide range of careers including law, government service, or graduate study.

The philosophy program can complement other interests of students when they complete a second major in another field. Students who plan to pursue more than one undergraduate major should work out a program of study in consultation with advisors from both majors and be familiar with the relevant policies for completing more than one major. See Undergraduate Policies.

In addition to the general degree in philosophy, students can choose a concentration in philosophy and law. This concentration offers philosophy majors the opportunity to focus their study of philosophy in a way that prepares them for the study of the law.

Minors
The department offers a minor in philosophy and a minor in philosophy and law. These minors are available to students in any major. The department, in cooperation with the Schar School of Policy and Government, coordinates the interdisciplinary minor in political philosophy.

Bachelor’s/Accelerated Master’s Program
The department offers highly qualified undergraduate majors in philosophy the opportunity to apply to an accelerated master’s degree program in philosophy. If accepted, students will be able to earn both the undergraduate and graduate degrees after satisfactory completion of 145 credits, generally within five years.

Graduate Programs
The department offers a master’s degree in traditional and contemporary philosophy as well as specialized concentrations in philosophy and cultural theory and ethics and public affairs. The degree is designed for students who want to further their professional goals or foster their intellectual development. It provides a solid preparation for advanced work in philosophy or other fields such as women and gender studies, cultural studies, or law. The degree provides grounding in the history of philosophy, ethics, metaphysics, epistemology, contemporary continental thought, contemporary analytic philosophy, and philosophy of science.

The focus on traditional and contemporary philosophy of the master’s degree program provides students with a historical and pluralistic approach to philosophical questions. The concentration in ethics and public affairs gives students the opportunity to explore the ethical and philosophical issues that arise in such fields of study and work as business, health care, scientific research, biomedical technology, and public policy. The concentration in philosophy and cultural theory provides students with a distinctive and important theoretical foundation for doctoral work in cultural studies.

Students are encouraged to pursue opportunities beyond the classroom such as study abroad, professional internships, and research with faculty members.

Faculty

Department Faculty
Professors
Light

Professors Emeriti
Bergoffen, De Nys, Fletcher, Holman, McDermott, Paden, Sagoff, Skousgaard

Associate Professors
Cherubin, Eckenwiler, Froman, Jones, Kinnaman

Assistant Professors
DiTeresi

Research Assistant Professor
Peterson

Term Professors
Boyd, Brandhorst

Adjunct Professors
Evans, Faruggia, Hersch, Kirilov, Kirkpatrick, Kuykendall, Sojka, Walker
Programs

• Philosophy Minor
• Philosophy and Law Minor
• Philosophy, BA
• Philosophy, MA
• Political Philosophy Minor

Philosophy Minor

Banner Code: PHIL

Academic Advising

B465 Robinson Hall
Fairfax Campus

Website: http://philosophy.gmu.edu/programs/la-minor-phil-phil

Students can take a general minor or one organized around specific emphases, each of which stresses a different aspect of philosophy. The emphasis in the history of philosophy is particularly useful to students in the humanities, especially those who wish to pursue graduate study. The emphasis in reality, knowledge, and science is especially beneficial for students majoring in the human and natural sciences. The emphasis in social and political philosophy is recommended for students who plan to pursue a career in law or politics.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. No course may be used to fulfill more than one requirement.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 431) tab.

Core Courses

Logic

PHIL 173 Logic and Critical Thinking 3
or PHIL 376 Symbolic Logic 3

Total Credits 6

History of Philosophy

PHIL 301 History of Western Philosophy: Ancient 3
PHIL 303 History of Western Philosophy: Modern 3

Total Credits 6

Electives

Select three electives in philosophy. At least 6 of the elective credits must be at the 300 level or above. (p. 1818)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 305</td>
<td>Philosophy of Law</td>
</tr>
<tr>
<td>PHIL 332</td>
<td>Modern Western Political Theory</td>
</tr>
<tr>
<td>PHIL 335</td>
<td>Karl Marx's Social and Political Thought</td>
</tr>
<tr>
<td>PHIL 337</td>
<td>Contemporary Western Political Theory</td>
</tr>
<tr>
<td>PHIL 338</td>
<td>Philosophy, Sex, and Gender</td>
</tr>
</tbody>
</table>

Total Credits 9

Students may choose to focus their three electives in one of the optional emphases below.

Emphasis in History of Philosophy

Select one course in the history of philosophy from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 305</td>
<td>Philosophy of Law</td>
</tr>
<tr>
<td>PHIL 332</td>
<td>Modern Western Political Theory</td>
</tr>
<tr>
<td>PHIL 335</td>
<td>Karl Marx's Social and Political Thought</td>
</tr>
<tr>
<td>PHIL 337</td>
<td>Contemporary Western Political Theory</td>
</tr>
</tbody>
</table>

Select two elective courses (6 credits) in philosophy (p. 1818)

Emphasis in Reality, Knowledge, and Science

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 337</td>
<td>Twenty-first Century Continental Thought: Phenomenology</td>
</tr>
<tr>
<td>PHIL 340</td>
<td>Hermeneutic Philosophy</td>
</tr>
<tr>
<td>PHIL 357</td>
<td>Philosophy of the Social Sciences</td>
</tr>
<tr>
<td>PHIL 371</td>
<td>Philosophy of Natural Sciences</td>
</tr>
<tr>
<td>PHIL 373</td>
<td>Theory of Knowledge</td>
</tr>
<tr>
<td>PHIL 374</td>
<td>Philosophy of Mind</td>
</tr>
<tr>
<td>PHIL 377</td>
<td>Darwin: Biology and Beyond (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PHIL 378</td>
<td>Reason, Science and Faith in the Modern Age (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Select one elective course (3 credits) in philosophy (p. 1818)

Emphasis in Social and Political Philosophy

Select three courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 311</td>
<td>Philosophy of Law</td>
</tr>
<tr>
<td>PHIL 323</td>
<td>Classical Western Political Theory</td>
</tr>
<tr>
<td>PHIL 324</td>
<td>Modern Western Political Theory</td>
</tr>
<tr>
<td>PHIL 325</td>
<td>Karl Marx's Social and Political Thought</td>
</tr>
<tr>
<td>PHIL 327</td>
<td>Contemporary Western Political Theory</td>
</tr>
<tr>
<td>PHIL 338</td>
<td>Philosophy, Sex, and Gender</td>
</tr>
</tbody>
</table>

Philosophy and Law Minor

Banner Code: PHLW

Academic Advising

B465 Robinson Hall
Fairfax Campus

Website: philosophy.gmu.edu/programs/la-minor-phil-phil

This minor offers students a course of study that emphasizes the philosophical analysis of legal issues. It acquaints students with the rich
tradition of philosophical argument dealing with the justification of law, its relation to moral theory, the justifications for punishment, and the concepts of justice, rights, liberty, and legal responsibility. In addition, an education in philosophy stresses intellectual skills that are important in the study of law.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 432) tab.

Core Courses

PHIL 173 Logic and Critical Thinking 3
PHIL 301 History of Western Philosophy: Ancient 3
PHIL 303 History of Western Philosophy: Modern 3
PHIL 311 Philosophy of Law 3

Total Credits 12

Electives

Select two courses from the following: 1

PHIL 322 Classical Western Political Theory 3
or GOVT 323 Classical Western Political Theory
PHIL 324 Modern Western Political Theory 3
or GOVT 324 Modern Western Political Theory
PHIL 327 Contemporary Western Political Theory 3
or GOVT 327 Contemporary Western Political Theory
GOVT 428 Advanced Democratic Theory 3
GOVT 448 Ethics and International Politics 3

Total Credits 6

1 One elective course may be chosen from other coursework in philosophy with prior written approval of the undergraduate director.

Philosophy, BA

Banner Code: LA-BA-PHIL

B465 Robinson Hall
Fairfax Campus
Website: philosophy.gmu.edu/programs/la-ba-phil

The BA in philosophy examines how philosophers have answered some of the most enduring questions about human existence, while exploring how those answers continue to inform our thinking in the present. Students gain a deeper understanding of philosophy’s relevance to key contemporary issues—such as global warming, social justice and the defense of human rights, or the relationship between science and religion. Students can use this major as preparation for professions such as law or government service, as a pathway to graduate work, or to complement other interests by taking a double major in philosophy and a related field of study.

Admissions & Policies

Policies

Students pursuing this degree must complete at least 33 credits within the major, earning a minimum grade of 2.00 in each course. At least 21 credits must be at the 300 level or above, including at least 3 credits in PHIL 421 Seminar (Mason Core) (p. 135)/PHIL 422 Honors Seminar (Mason Core) (p. 135). If a course counts for the requirement in analytic or continental philosophy, and also for the ethics and political philosophy requirement, then both requirements are fulfilled with that course.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 432) tab.

Core Courses without Concentration

Logic

PHIL 173 Logic and Critical Thinking 3
or PHIL 376 Symbolic Logic 3

History of Philosophy

PHIL 301 History of Western Philosophy: Ancient 3
PHIL 303 History of Western Philosophy: Modern 3

Analytic Tradition

Select one course from the following: 1

PHIL 313 Philosophy of Religion 3
PHIL 332 Twentieth-Century Analytic Philosophy 3
PHIL 333 American Philosophy: Pragmatism 3
PHIL 338 Philosophy, Sex, and Gender 2
PHIL 355 Theories of Ethics 3
PHIL 356 Philosophy of Art 2
PHIL 357 Philosophy of the Social Sciences 2
PHIL 358 Ethics and Economics 3
PHIL 371 Philosophy of Natural Sciences 3
PHIL 373 Theory of Knowledge 3
PHIL 374 Philosophy of Mind 3
PHIL 411 Theories of Decision 3

Continental Tradition

Select one course from the following: 1

PHIL 313 Philosophy of Religion (with departmental approval) 3
PHIL 325 Karl Marx’s Social and Political Thought 3
### Nineteenth-Century Philosophy
- PHIL 335
- Nineteenth-Century Philosophy

### Twentieth-Century Continental Thought: Existentialism
- PHIL 336
- Twentieth-Century Continental Thought: Phenomenology

### Twentieth-Century Continental Thought: Phenomenology
- PHIL 336
- Philosophy, Sex, and Gender

### Hermeneutic Philosophy
- PHIL 336
- Philosophy of Art

### Philosophy of the Social Sciences
- PHIL 336
- Philosophy of the Social Sciences

### Ethics and Social and Political Philosophy

Select one course from the following:  
- PHIL 305: Business Ethics
- PHIL 309: Bioethics (Mason Core) (p. 135)
- PHIL 311: Philosophy of Law
- PHIL 323: Classical Western Political Theory
- PHIL 324: Modern Western Political Theory
- PHIL 325: Karl Marx's Social and Political Thought
- PHIL 327: Contemporary Western Political Theory
- PHIL 338: Philosophy, Sex, and Gender
- PHIL 343: Topics in Environmental Philosophy (Mason Core) (p. 135)
- PHIL 344: Ethical Issues in Global Health
- PHIL 355: Theories of Ethics
- PHIL 358: Ethics and Economics
- PHIL 411: Theories of Decision

Total Credits: 18

1. When the subject matter is appropriate and with the prior written approval of the undergraduate director, PHIL 391 Special Topics in Philosophy, PHIL 393 Seminar (Mason Core) (p. 135), or PHIL 425 Independent Study may be used to fulfill this requirement.

2. Only with departmental approval.

### Electives without Concentration

Select five or six electives from any philosophy courses including those listed above that are not used to meet another requirement.  

Total Credits: 15-18

1. If both the analytic or continental philosophy and the ethics and political philosophy requirements are met with the same course, the student will complete six elective courses.

### Optional Concentrations

Students interested in a degree in philosophy with a concentration will complete the coursework for one of the concentrations below.

#### Concentration in Philosophy and Law (PHLW)

The concentration in philosophy and law offers philosophy majors the opportunity to focus their study of philosophy in a way that prepares them for the study of the law.

In addition to the specific courses listed below, other relevant courses may be applied to the requirements for this concentration with prior written approval of the undergraduate director.

#### Logic
- PHIL 173: Logic and Critical Thinking
- PHIL 376: Symbolic Logic

#### History of Philosophy
- PHIL 301: History of Western Philosophy: Ancient
- PHIL 303: History of Western Philosophy: Modern

#### Analytic Tradition

Select one course from the following:  
- PHIL 313: Philosophy of Religion
- PHIL 325: Twentieth-Century Analytic Philosophy
- PHIL 333: American Philosophy: Pragmatism
- PHIL 338: Philosophy, Sex, and Gender
- PHIL 355: Theories of Ethics
- PHIL 356: Philosophy of Art
- PHIL 357: Philosophy of the Social Sciences
- PHIL 358: Ethics and Economics
- PHIL 371: Philosophy of Natural Sciences
- PHIL 373: Theory of Knowledge
- PHIL 374: Philosophy of Mind
- PHIL 411: Theories of Decision

#### Continental Tradition

Select one course from the following:  
- PHIL 313: Philosophy of Religion
- PHIL 325: Karl Marx's Social and Political Thought
- PHIL 335: Nineteenth-Century Philosophy
- PHIL 336: Twentieth-Century Continental Thought: Existentialism
- PHIL 337: Twentieth-Century Continental Thought: Phenomenology
- PHIL 338: Philosophy, Sex, and Gender
- PHIL 340: Hermeneutic Philosophy
- PHIL 356: Philosophy of Art
- PHIL 357: Philosophy of the Social Sciences

#### Philosophy and Law

Select two courses from the following:  
- PHIL 323: Classical Western Political Theory
- PHIL 324: Modern Western Political Theory
- PHIL 327: Contemporary Western Political Theory
- GOVT 428: Advanced Democratic Theory
- GOVT 448: Ethics and International Politics

#### Electives in Philosophy

Select three electives from any philosophy courses including those listed above that are not used to meet another requirement.  

Total Credits: 33

1. When the subject matter is appropriate and with the prior written approval of the undergraduate director, PHIL 391 Special Topics in Philosophy, PHIL 421 Seminar (Mason Core) (p. 135), PHIL 422 Honors Seminar (Mason Core) (p. 135), or PHIL 425 Independent Study may be used to fulfill this requirement.

2. Only with departmental approval.
Concentration in Philosophy, Politics, and Economics (PPE)

This is a high credit concentration for students interested in a program that explores the interdisciplinary connections between philosophy, political science, and economics.

Students pursuing this concentration, similar to all students pursuing a BA in philosophy, must complete at least 33 credits in philosophy earning a minimum grade of 2.00 in each course. No course may be used to fulfill more than one requirement. In addition to the specific courses listed below, other relevant courses may be applied to the requirements for this concentration with prior written approval of the undergraduate director.

Logic

<table>
<thead>
<tr>
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<tr>
<td>PHIL 173</td>
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<tr>
<td>or PHIL 376</td>
<td>Symbolic Logic</td>
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History of Philosophy

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<tr>
<td>PHIL 301</td>
<td>History of Western Philosophy: Ancient</td>
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</tr>
<tr>
<td>PHIL 303</td>
<td>History of Western Philosophy: Modern</td>
<td>3</td>
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</table>

Analytic Tradition

Select one course from the following: 1

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<th>Code</th>
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<tr>
<td>PHIL 313</td>
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<td>PHIL 333</td>
<td>American Philosophy: Pragmatism</td>
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</tr>
<tr>
<td>PHIL 338</td>
<td>Philosophy, Sex, and Gender</td>
<td>2</td>
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<td>PHIL 355</td>
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<td>PHIL 356</td>
<td>Philosophy of Art</td>
<td>2</td>
</tr>
<tr>
<td>PHIL 357</td>
<td>Philosophy of the Social Sciences</td>
<td>2</td>
</tr>
<tr>
<td>PHIL 358</td>
<td>Ethics and Economics</td>
<td>2</td>
</tr>
<tr>
<td>PHIL 371</td>
<td>Philosophy of Natural Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 373</td>
<td>Theory of Knowledge</td>
<td></td>
</tr>
<tr>
<td>PHIL 374</td>
<td>Philosophy of Mind</td>
<td></td>
</tr>
<tr>
<td>PHIL 411</td>
<td>Theories of Decision</td>
<td></td>
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</table>

Continental Tradition

Select one course from the following: 1

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHIL 313</td>
<td>Philosophy of Religion</td>
<td>2</td>
</tr>
<tr>
<td>PHIL 325</td>
<td>Karl Marx's Social and Political Thought</td>
<td></td>
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<tr>
<td>PHIL 335</td>
<td>Nineteenth-Century Philosophy</td>
<td></td>
</tr>
<tr>
<td>PHIL 336</td>
<td>Twentieth-Century Continental Thought: Existentialism</td>
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</tr>
<tr>
<td>PHIL 337</td>
<td>Twentieth-Century Continental Thought: Phenomenology</td>
<td></td>
</tr>
<tr>
<td>PHIL 338</td>
<td>Philosophy, Sex, and Gender</td>
<td>2</td>
</tr>
<tr>
<td>PHIL 340</td>
<td>Hermeneutic Philosophy</td>
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<td>PHIL 356</td>
<td>Philosophy of Art</td>
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<tr>
<td>PHIL 357</td>
<td>Philosophy of the Social Sciences</td>
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Required Courses for Concentration

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government</td>
<td>3</td>
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<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles</td>
<td>3</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT/PHIL 324</td>
<td>Modern Western Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT/PHIL 327</td>
<td>Contemporary Western Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 422</td>
<td>Constitutional Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 357</td>
<td>Philosophy of the Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>or PHIL 371</td>
<td>Philosophy of Natural Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 358</td>
<td>Ethics and Economics</td>
<td>3</td>
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<tr>
<td>ECON 412</td>
<td>Game Theory and Economics of Institutions</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 411</td>
<td>Theories of Decision</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 467</td>
<td>Current Issues in Economic Policy</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 460</td>
<td>Senior Seminar in Philosophy, Politics, and Economics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 54

1 When the subject matter is appropriate and with the prior written approval of the undergraduate director, PHIL 391 Special Topics in Philosophy, PHIL 421 Seminar (Mason Core) (p. 135), PHIL 422 Honors Seminar (Mason Core) (p. 135), or PHIL 425 Independent Study may be used to fulfill this requirement.

2 Only with departmental approval.

Writing-Intensive Requirement

The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. All senior seminars (PHIL 421 Seminar (Mason Core) (p. 135), PHIL 422 Honors Seminar (Mason Core) (p. 135)) in philosophy are writing intensive. Philosophy majors should consult the undergraduate director for other courses that can be taken to fulfill this requirement.

Upper Level Requirement

Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree

In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL (p. 1818) 1</td>
<td></td>
<td>3</td>
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<tr>
<td>RELI (p. 1904)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Note that the following courses may not be used to fulfill this requirement:

• PHIL 323 Classical Western Political Theory
• PHIL 324 Modern Western Political Theory
• PHIL 327 Contemporary Western Political Theory
• PHIL 333 Humanities College to Career
• PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.
Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)

ANTH (p. 1119)
CRIM (p. 1372)
ECON (p. 1413)
GOVT (p. 1588)
HIST (p. 1628)
LING (p. 1694)
PSYC (p. 1844)
SOCI (p. 1923)

Or choose from the following GGS courses:
GGS 101 Major World Regions (Mason Core) (p. 135)
GGS 103 Human Geography (Mason Core) (p. 135)
GGS 110 Introduction to Geoinformation Technologies
GGS 301 Political Geography
GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
GGS 304 Population Geography (Mason Core) (p. 135)
GGS 305 Economic Geography
GGS 306 Urban Geography
GGS 315 Geography of the United States
GGS 316 Geography of Latin America
GGS 320 Geography of Europe
GGS 325 Geography of North Africa and the Middle East
GGS 330 Geography of the Soviet Succession States
GGS 357 Structures in Urban Governance and Planning
GGS 380 Geography of Virginia

The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

Select 3 credits (additional to Mason Core Global Understanding requirement)

ANTH 114 Introduction to Cultural Anthropology (Mason Core) (p. 135)
ANTH 300 Civilizations
ANTH 301 Native North Americans
ANTH 302 Peoples and Cultures of Latin America (Mason Core) (p. 135)
ANTH 303 Peoples and Cultures of the Andes
ANTH 306 Peoples and Cultures of Island Asia (Mason Core) (p. 135)
ANTH 307 Ancient Mesoamerica (Mason Core) (p. 135)
ANTH 308 Peoples and Cultures of the Middle East (Mason Core) (p. 135)
ANTH 309 Peoples and Cultures of India (Mason Core) (p. 135)
ANTH 313 Myth, Magic, and Mind (Mason Core) (p. 135)
ANTH 314 Zombies
ANTH 316 Peoples and Cultures of the Caribbean (Mason Core) (p. 135)
ANTH 323 Digging and Dealing in the Dead: Ethics in Archaeology
ANTH 330 Peoples and Cultures of Selected Regions: Non-Western
ANTH 332 Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)
ANTH 381 Medical Anthropology
ANTH 383 Cities of the Global South
ANTH 396 Issues in Anthropology: Social Sciences (Mason Core) (p. 135)
ARAB 360 Topics in Arabic Cultural Production
ARAB 420 Survey of Arabic Literature
ARAB 440 Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)
ARTH 203 Survey of Asian Art (Mason Core) (p. 135)
ARTH 204 Survey of Latin American Art (Mason Core) (p. 135)
ARTH 206 Survey of African Art (Mason Core) (p. 135)
ARTH 318 Art and Archaeology of Ancient Egypt
ARTH 319 Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)

Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Non-Western Culture
Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

Intermediate-level proficiency in one foreign language, fulfilled by:

Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)
Or achieving a satisfactory score on an approved proficiency test
Or completing the following ASL three course sequence:
EDSE 115 American Sign Language (ASL) I
EDSE 116 American Sign Language (ASL) II
EDSE 219 American Sign Language (ASL) III

Foreign Language
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core)</td>
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<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core)</td>
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<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core)</td>
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<td>ARTH 384</td>
<td>Arts of China (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core)</td>
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<td>ARTH 386</td>
<td>The Silk Road (Mason Core)</td>
<td>3</td>
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<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
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<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core)</td>
<td>3</td>
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<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
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<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core)</td>
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<td>DANC 118</td>
<td>World Dance (Mason Core)</td>
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<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core)</td>
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<td>ECON 362</td>
<td>African Economic Development (Mason Core)</td>
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<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
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<td>GGS 101</td>
<td>Major World Regions (Mason Core)</td>
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<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
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<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
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<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<td>GGS 399</td>
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<td>Non-Western Political Theory</td>
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<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
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<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
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<td>GOVT 340</td>
<td>Central Asian Politics</td>
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<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
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<td>GOVT 345</td>
<td>Islam and Politics</td>
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<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
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<td>GOVT 433</td>
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<td>Survey of Latin American History (Mason Core)</td>
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<td>Survey of Middle Eastern Civilization (Mason Core)</td>
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<td>HIST 326</td>
<td>Stalinism</td>
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<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
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<td>HIST 328</td>
<td>Rise of Russia (Mason Core)</td>
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<td>Modern Russia and the Soviet Union (Mason Core)</td>
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<td>History of Traditional China</td>
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<td>Modern China</td>
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<td>Modern Japan (Mason Core)</td>
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<td>Postwar Japan (Mason Core)</td>
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<td>Post-1949 China (Mason Core)</td>
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<td>History of South Africa (Mason Core)</td>
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<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core)</td>
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<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core)</td>
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<td>HIST 366</td>
<td>Comparative Slavery</td>
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<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
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<td>HIST 387</td>
<td>Topics in Global History (Mason Core)</td>
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<td>HIST 426</td>
<td>The Russian Revolution</td>
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<td>Modern Iran (Mason Core)</td>
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<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
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<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core)</td>
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<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core)</td>
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<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core)</td>
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<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core)</td>
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<td>RELI 211</td>
<td>Religions of the West (Mason Core)</td>
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<td>RELI 212</td>
<td>Religions of Asia (Mason Core)</td>
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<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
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<tr>
<td>RELI 272</td>
<td>Islam</td>
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<td>RELI 313</td>
<td>Hinduism (Mason Core)</td>
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<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
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<td>RELI 315</td>
<td>Buddhism (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
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<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
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<td>RELI 374</td>
<td>Islamic Thought (Mason Core)</td>
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<tr>
<td>RELI 375</td>
<td>Qur'an and Hadith</td>
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<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
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<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
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<td>Comparative Study of Religions (Mason Core)</td>
<td>3</td>
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<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>
A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written Communication (p. 135)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning (p. 136)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Information Technology (p. 136)</td>
<td></td>
<td>3-7</td>
</tr>
<tr>
<td>Core Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts (p. 137)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding (p. 139)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Literature (p. 140)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Natural Science (p. 141)</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization/World History (p. 143)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Synthesis/Capstone Requirement 1</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Synthesis/Capstone (p. 143)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

Addition Electives

Any remaining credits may be completed with electives to bring the degree total to 120.

Honors

Honors in the Major

Highly-qualified students may apply to the honors program in the major. Students can apply in their second semester as a junior, before they have completed 90 credits and should have a minimum GPA of 3.50 in the major. Eligible students should submit a transcript, one letter of recommendation from a member of the philosophy faculty, and one writing sample, a paper from one of the student’s courses in philosophy.

Students pursuing honors in the major complete 6 credits of honors coursework chosen from PHIL 422 Honors Seminar (Mason Core) (p. 135) or PHIL 425 Independent Study. To graduate with honors in philosophy, students must complete these courses with a minimum GPA of 3.50.

Accelerated Master’s

The accelerated master’s programs in the list below specify the BA in philosophy as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Philosophy, BA/Philosophy, Accelerated MA

Overview

Highly qualified Mason philosophy majors may apply to the accelerated master’s degree program. If accepted, students will be able to earn a BA (p. 432) and a MA in philosophy (p. 440) after satisfactory completion of as few as 145 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in philosophy (p. 440), see Application Requirements and Deadlines (http://philosophy.gmu.edu/programs/application/LA-MA-ACEL-PHIL) on the departmental web site.

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete six credits of PHIL courses at the 600-level (chosen in consultation with the graduate program director and indicated on the Accelerated Master’s Program Application) with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferment of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements, taking 25 graduate credits beyond the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional credits of PHIL coursework at the 600-level as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)

Overview
Highly-qualified undergraduates in select majors may apply to the accelerated master's degree in interdisciplinary studies with a concentration in women and gender studies (p. 354). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's degree in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree.

To apply these credits to the master’s degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview
Highly-qualified undergraduates in select majors (see below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years.

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines on the departmental web site.
Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for
reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
</tr>
</tbody>
</table>

### Philosophy, MA

**Banner Code:** LA-MA-PHIL

**Academic Advising**

B465 Robinson Hall  
Fairfax Campus  
Email: philgrad@gmu.edu  
Website: philosophy.gmu.edu/programs/la-ma-phil

Students in the MA program in philosophy can choose a master’s degree with a focus on traditional and contemporary philosophy, or choose one of two concentrations: ethics and public affairs, or philosophy and cultural theory. Course offerings provide grounding in the history of philosophy, ethics, metaphysics, epistemology, contemporary continental thought, contemporary analytic philosophy, and philosophy of science. Students pursue the degree to satisfy intellectual interest and to further professional expertise. Graduates of the program move on to careers in law, technology, health care, education, and public service, or use the program to prepare for doctoral studies in philosophy.

### Admissions & Policies

#### Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MA in philosophy, see Application Requirements and Deadlines (http://philosophy.gmu.edu/programs/LA-MA-PHIL/application).

#### Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

### Requirements

#### Degree Requirements

Total credits: 31

Students pursuing this degree must successfully complete 31 credits, which may include a thesis. They may choose a course of study that focuses on traditional and contemporary philosophy or choose to complete one of three concentrations. Students need to identify an advisor on entering the program and meet regularly with that advisor during their course of study.

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

### MA with a Focus on Traditional and Contemporary Philosophy

The focus in traditional and contemporary philosophy is for students who want to deepen their understanding of philosophical issues and for students who are preparing to pursue doctoral studies in philosophy or related fields, e.g. political theory, gender studies.

Students may apply up to 9 credits from other departments toward the degree with focus on traditional and contemporary philosophy with prior written approval of their advisor.

#### Proseminar

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 600</td>
<td>Proseminar in Philosophy</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Ancient or Medieval Philosophy

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 603</td>
<td>Aristotle: Selected Works</td>
</tr>
<tr>
<td>PHIL 681</td>
<td>Figures and Topics in Ancient Philosophy</td>
</tr>
<tr>
<td>PHIL 721</td>
<td>Advanced Seminar in Philosophy</td>
</tr>
</tbody>
</table>

#### Modern Philosophy

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 608</td>
<td>Hegel’s Phenomenology of the Spirit</td>
</tr>
<tr>
<td>PHIL 682</td>
<td>Figures and Topics in Early Modern Philosophy</td>
</tr>
<tr>
<td>PHIL 721</td>
<td>Advanced Seminar in Philosophy</td>
</tr>
</tbody>
</table>

#### Contemporary Philosophy

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 615</td>
<td>Postmodernist Thought</td>
</tr>
<tr>
<td>PHIL 616</td>
<td>Phenomenology</td>
</tr>
<tr>
<td>PHIL 683</td>
<td>Contemporary Philosophical Figures</td>
</tr>
<tr>
<td>PHIL 694</td>
<td>Special Topics in Contemporary Philosophy</td>
</tr>
<tr>
<td>PHIL 721</td>
<td>Advanced Seminar in Philosophy</td>
</tr>
</tbody>
</table>

#### Advanced Seminar

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 720</td>
<td>Nietzsche and his Readers</td>
</tr>
<tr>
<td>PHIL 721</td>
<td>Advanced Seminar in Philosophy</td>
</tr>
<tr>
<td>PHIL 733</td>
<td>Current Issues in Cognitive Science</td>
</tr>
</tbody>
</table>

#### Electives in Philosophy

Select four to six electives in philosophy 12-18

#### Optional Thesis

Three or six credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 799</td>
<td>Thesis</td>
</tr>
</tbody>
</table>

Total Credits | 31

---

1. This course should be completed in the first fall semester in which the student is enrolled in the MA program.

2. May be taken when the topic is relevant and with approval of advisor.

3. Students who choose to write a thesis (3 or 6 credits) will take correspondingly fewer electives.

4. Students must follow the thesis enrollment policy of the university and once enrolled in PHIL 799 Thesis, maintain continuous enrollment as specified in Academic Policies.
Concentration in Ethics and Public Affairs (ETPA)
The concentration in ethics and public affairs is designed for professionals who want to combine the study of ethics and the analysis of social and public policies in a variety of settings, including business, health care, biomedical technology, law, or government.

Proseminar
PHIL 600  Proseminar in Philosophy 1  1

History of Philosophy 2
PHIL 640  History of Ethical Theory  3
PHIL 603  Aristotle: Selected Works  3
or PHIL 608  Hegel’s Phenomenology of the Spirit

Public Administration
PUAD 540  Public Policy Process  3

Ethics
Select three courses from the following: 3  9
PHIL 642  Biomedical Ethics
PHIL 643  Environmental Ethics
PHIL 644  Business and Organizational Ethics
PHIL 645  Research Ethics

Electives
Select two to four electives from the following or from other relevant courses: 4  6-12
PUAD 700  Ethics and Public Administration
HAP 714  Ethical Issues in Health Administration and Policy
EVPP 635  Environment and Society

Optional Thesis
Three or six credits of
PHIL 799  Thesis 5

Total Credits  31

1 This course should be completed in the first fall semester in which the student is enrolled in the MA program.
2 Depending on the topic, PHIL 681 Figures and Topics in Ancient Philosophy, PHIL 682 Figures and Topics in Early Modern Philosophy, or PHIL 721 Advanced Seminar in Philosophy may be applied to this concentration with prior written permission of the graduate director.
3 Other courses may be used to fulfill this requirement where appropriate and with prior written approval of the student’s academic advisor.
4 Students who choose to write a thesis (3 or 6 credits) will take correspondingly fewer electives. Students are encouraged to use courses from around the university in disciplines relevant to their areas of interest, subject to the prior written approval of their academic advisor.
5 Students must follow the thesis enrollment policy of the university and once enrolled in PHIL 799 Thesis, maintain continuous enrollment as specified in Academic Policies.

Concentration in Philosophy and Cultural Theory (PHCT)
The concentration in philosophy and cultural theory is especially for students interested in pursuing a doctorate in cultural studies. Students may apply up to 9 credits from other departments toward this concentration with prior written approval of their advisor.

Proseminar
PHIL 600  Proseminar in Philosophy 1  1

Ancient or Medieval Philosophy
Select one course from the following: 3
PHIL 603  Aristotle: Selected Works
PHIL 681  Figures and Topics in Ancient Philosophy
PHIL 721  Advanced Seminar in Philosophy 2

Modern Philosophy
Select one course from the following: 3
PHIL 608  Hegel’s Phenomenology of the Spirit
PHIL 682  Figures and Topics in Early Modern Philosophy
PHIL 721  Advanced Seminar in Philosophy 2

Contemporary Philosophy
Select one course from the following: 3
PHIL 615  Postmodernist Thought
PHIL 616  Phenomenology
PHIL 683  Contemporary Philosophical Figures
PHIL 694  Special Topics in Contemporary Philosophy
PHIL 721  Advanced Seminar in Philosophy 2

Advanced Seminar
Select one from the following: 3
PHIL 720  Nietzsche and his Readers
PHIL 721  Advanced Seminar in Philosophy
PHIL 733  Current Issues in Cognitive Science

Cultural Studies  6
CULT 802  Histories of Cultural Studies
Select one elective in consultation with an advisor.

Electives in Philosophy  6-12
Select two to four electives in philosophy 3

Optional Thesis
Three or six credits of
PHIL 799  Thesis 4

Total Credits  31

1 This course should be completed in the first fall semester in which the student is enrolled in the MA program.
2 May be taken when the topic is relevant and with approval of advisor.
3 Students who choose to write a thesis (3 or 6 credits) will take correspondingly fewer electives.
4 Students must follow the thesis enrollment policy of the university and once enrolled in PHIL 799 Thesis, maintain continuous enrollment as specified in Academic Policies.

Dual Degree Options

Dual Master’s
Students interested in pursuing a dual master’s program linking philosophy and another discipline should discuss their interest with the graduate program directors of both programs and review the university policies regarding Individualized Dual Master’s Degree Programs. Students approved to pursue dual master’s study linking the MA philosophy degree and the Interdisciplinary Studies, MAIS with a concentration in women and gender studies will complete WMST 630
Accelerated Master’s

Philosophy, BA/Philosophy, Accelerated MA

Overview
Highly qualified Mason philosophy majors may apply to the accelerated master’s degree program. If accepted, students will be able to earn a BA (p. 432) and a MA in philosophy (p. 440) after satisfactory completion of as few as 145 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in philosophy (p. 440), see Application Requirements and Deadlines (http://philosophy.gmu.edu/programs/application/LA-MA-ACEL-PHIL) on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete six credits of PHIL courses at the 600-level (chosen in consultation with the graduate program director and indicated on the Accelerated Master’s Program Application) with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements, taking 25 graduate credits beyond the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional credits of PHIL coursework at the 600-level as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Political Philosophy Minor

Banner Code: PPHL

Academic Advising
B465 Robinson Hall
Fairfax Campus

Website: philosophy.gmu.edu/programs/la-minor-la-pphl

The minor provides students with an intensive study of political philosophy and political theory. Students take courses in the history of political philosophy; the moral evaluation of political institutions; the ethical, social, and political issues raised by globalization; and the conceptual foundations of democracy and human rights. Through this coursework, students are able to study this field from a variety of interdisciplinary perspectives. They develop a deeper philosophical perspective on political institutions and have a solid foundation for further graduate study in philosophy, government, or policy studies.

Faculty
Cherubin, De Nys, Mandaville, Miller (director)

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15
Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 442) tab.

Core Courses
Select two courses from the following: 6

| PHIL 323 Classical Western Political Theory |
| PHIL 324 Modern Western Political Theory |
| PHIL 327 Contemporary Western Political Theory |

Total Credits 6

Electives
Select three elective courses from the courses below or above (if not used to meet the core requirement) 1

| GOVT 427 Feminist Political Thought |
PHIL 325  Karl Marx’s Social and Political Thought
GOVT 328  Non-Western Political Theory
GOVT 329  Issues in Political Theories and Values
GOVT 420  American Political Thought
GOVT 421  Contemporary Political Ideologies
GOVT 428  Advanced Democratic Theory
GOVT 448  Ethics and International Politics

**Total Credits** 9

Special topics courses and independent studies courses, when relevant, may also be used to fulfill elective credits with prior written approval of the director.

**Department of Psychology**

2086 David King Hall
Fairfax Campus

Phone: 703-993-1342
Website: psychology.gmu.edu

**Undergraduate Programs**

The department offers a bachelor of arts degree and a bachelor of science degree in psychology. All psychology majors complete a broad range of courses from social and abnormal psychology to cognitive and biopsychology. Students can also choose from special topics courses such as forensic psychology and romantic relationships.

In addition to the general degree in psychology, students can choose a concentration in clinical psychology, forensic psychology, human factors and applied cognition, work and organizational psychology, developmental psychology, education psychology, or health psychology. These concentrations may be of interest to students who are planning to attend graduate school.

Students in psychology may have the opportunity to do research with a faculty member or do a service learning course, which allows them to put into practice what they’ve learned in the classroom.

Students interested in graduate study should be aware that undergraduate research experience and letters of recommendation are major factors for admission to graduate study. Such students should distribute courses across a number of areas in psychology and work closely with one or more professors on individual projects during their junior and senior years.

**Minors**

The department offers minors in psychology, clinical psychology, developmental psychology, forensic psychology, health psychology, and industrial/organizational psychology. These minors are available to students in any major in the university.

**Bachelor’s/Accelerated Master’s Program**

The department offers highly-qualified undergraduate majors the opportunity to apply to an accelerated master’s degree program in psychology with a concentration in cognitive and behavioral neuroscience. If accepted, students will be able to earn both an undergraduate degree and the master’s degree with a concentration in cognitive and behavioral neuroscience after satisfactory completion of 146 credits, sometimes within five years.

**Graduate Programs**

The graduate programs in psychology are distinguished by an emphasis on basic research and the application of research to solving practical problems in families, schools, industry, government, and health care settings.

The department offers master’s and doctoral degrees with concentrations in applied developmental psychology, cognitive and behavioral neuroscience, human factors/applied cognition, and industrial/organizational psychology. It offers a doctoral degree with a concentration in clinical psychology.

**Funding**

The department offers teaching and research assistantships, which are awarded on a competitive basis. Other sources of funding such as grants, loans, and employment on campus are also available. Students awarded assistantships must register for a minimum of six credits a semester and show satisfactory progress toward their degree.

**Certificates**

The department offers graduate certificates in transportation human factors, usability, and cognitive neuroscience. These have been designed to meet the needs of students who desire to upgrade their skills and earn a certificate as evidence of their skill attainment. Students may take these as stand-alone certificates or pursue them concurrently with a graduate degree program. Part of the certificate course work may be able to be applied to the degree. Students must apply and be accepted to a graduate certificate program.

The certificate programs are open to all students who hold a bachelor’s degree from an accredited university and meet the admissions requirements for the master’s degree in psychology with a concentration in human factors and applied cognition.

**Nondegree Status**

Applicants who have not been admitted to a graduate degree program or a certificate program may apply for nondegree status. Nondegree students must meet the same admission requirements as degree-seeking students. Nondegree status is not intended as a way to qualify for admission as a degree-seeking student.

While it may be possible to transfer the credits earned in nondegree status to a degree program, such transfers are not automatic. They require the approval of the graduate director and the dean. If approved, a maximum of 12 credits earned in nondegree status may be applied to a degree program. Nondegree students who intend to transfer their credits to a degree program should discuss this with the appropriate program director.

**Faculty**

**Department Faculty**

**Professors**

Boehm-Davis, Cortina, Denham, Helton, Kashdan, Klimoski, Mandes, Pasnak, Riskind, Tangney, Tetrick, Winsler (associate chair for graduate studies), Zaccaro
Clinical Psychology Minor

Banner Code: CLPY

Academic Advising
2086 David King Hall
Fairfax Campus
Email: ugpsyc@gmu.edu
Website: psychology.gmu.edu

The required courses of the minor provide a foundation in psychology and focus on assessment and treatment of distress and dysfunction.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete 18 credits of psychology with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 19

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 444) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 301</td>
<td>Research Methods in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 321</td>
<td>Clinical Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>13</td>
</tr>
</tbody>
</table>

Electives

Select at least two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 231</td>
<td>Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 322</td>
<td>Behavior Modification</td>
<td></td>
</tr>
<tr>
<td>PSYC 324</td>
<td>Personality Theory</td>
<td></td>
</tr>
<tr>
<td>PSYC 326</td>
<td>Therapeutic Communication Skills</td>
<td></td>
</tr>
<tr>
<td>PSYC 414</td>
<td>Behavior Disorders of Childhood</td>
<td></td>
</tr>
<tr>
<td>PSYC 423</td>
<td>Group Psychotherapy Techniques</td>
<td></td>
</tr>
<tr>
<td>PSYC 460</td>
<td>Independent Study in Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics ¹</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

¹ When topic is related to clinical psychology approved by the psychology department.

Cognitive Neuroscience Graduate Certificate

Banner Code: LA-CERG-CNEU

Academic Advising
2086 David King Hall
Fairfax Campus
Email: psycgrad@gmu.edu
Website: psychology.gmu.edu/programs/la-cerg-cneu
The graduate certificate in cognitive neuroscience may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in cognitive neuroscience, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/LA-CERG-CNEU/application).

Requirements

Certificate Requirements
Total credits: 18

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 530</td>
<td>Cognitive Engineering: Cognitive Science Applied to Human Factors</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Six credits of</td>
<td></td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science ¹</td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

¹ Topic must be relevant to cognitive neuroscience. This course is repeatable when the specific topic is different.

Additional Course
Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 527</td>
<td>Introduction to Neurobiology</td>
</tr>
<tr>
<td>PSYC 531</td>
<td>Mammalian Neurobiology</td>
</tr>
<tr>
<td>PSYC 558</td>
<td>Neuronal Bases of Learning and Memory</td>
</tr>
<tr>
<td>PSYC 559</td>
<td>Behavioral Chemistry</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
</tr>
</tbody>
</table>

Electives
Select two electives from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 702</td>
<td>Biological Bases of Human Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 597</td>
<td>Directed Reading and Research ¹</td>
<td></td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science ¹</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

¹ May be used to fulfill this requirement when the topic is relevant to the certificate with prior written approval of the program director.

Developmental Psychology Minor

Banner Code: DVLP

Academic Advising

2086 David King Hall
Fairfax Campus

Email: ugpsyc@gmu.edu
Website: http://psychology.gmu.edu/programs/la-minor-psyc-dvlp

This minor is designed to provide students with an understanding of the ways in which humans change over time. Coursework provides for a broad foundation in psychology across the lifespan while also allowing for students to focus on a developmental period (e.g. childhood).

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 445) tab.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Electives
Select a minimum of 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 313</td>
<td>Child Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PSYC 414</td>
<td>Behavior Disorders of Childhood</td>
<td></td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
<td></td>
</tr>
<tr>
<td>PSYC 460</td>
<td>Independent Study in Psychology ¹</td>
<td></td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics ²</td>
<td></td>
</tr>
<tr>
<td>HDFS 200</td>
<td>Individual and Family Development</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

¹ When content is developmental, with approval.
² When topic is developmental, when approved by Psychology Associate Chair of Undergraduate Studies.

Forensic Psychology Minor

Banner Code: FPSY

Academic Advising

2086 David King Hall
This minor is designed to supplement the study of psychology, criminology, or other justice-related areas with an overview of the intersection of psychology and the criminal justice system. The minor focuses specifically on mental illness in the criminal justice system, the psychological experiences of victims, psychological science in the courtroom, and psychological factors related to criminal behavior.

### Health Psychology Minor

**Banner Code:** HPSY

**Academic Advising**

2086 David King Hall

---

**Fairfax Campus**

Email: ugpsyc@gmu.edu
Website: psychology.gmu.edu/programs/la-minor-psyc-fpsy

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This minor is designed to help students better understand psychological factors that influence overall health. The courses provide instruction on factors that have the potential to impact both physical and psychological health. These include the roles of cognitive processes, health beliefs and behaviors, emotions, psychosocial circumstances and personality traits, all factors that may influence overall health and well-being.

### Health Psychology Minor

**Banner Code:** HPSY

**Academic Advising**

2086 David King Hall

---

**Fairfax Campus**

Email: ugpsyc@gmu.edu
Website: psychology.gmu.edu/programs/la-minor-psyc-hpsy

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### Admissions & Policies

#### Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Requirements

#### Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 446) tab.

#### Core Courses

- **PSYC 100** Basic Concepts in Psychology (Mason Core) (p. 135) 3
- **PSYC 325** Abnormal Psychology 3
- **PSYC 380** Introduction to Forensic Psychology 3
- **PSYC 381** Mental Illness and Criminal Justice 3

Total Credits 12

#### Electives

Select two courses from the following: 6

- **PSYC 382** Psychology of Crime Victims
- **PSYC 440** Forensic Psychology: Science and Pseudoscience
- **PSYC 441** Criminal Behavior: Psychological and Neurological Aspects
- **CRIM 100** Introduction to Criminal Justice (Mason Core) (p. 135)
- **PSYC 461** Special Topics 1
- **PSYC 462** Selected Topics in Forensic Psychology 1

Total Credits 6

1 with Undergraduate Associate Chair approval

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### Health Psychology Minor

**Banner Code:** HPSY

**Academic Advising**

2086 David King Hall

---

**Fairfax Campus**

Email: ugpsyc@gmu.edu
Website: psychology.gmu.edu/programs/la-minor-psyc-fpsy

---

This minor is designed to help students better understand psychological factors that influence overall health. The courses provide instruction on factors that have the potential to impact both physical and psychological health. These include the roles of cognitive processes, health beliefs and behaviors, emotions, psychosocial circumstances and personality traits, all factors that may influence overall health and well-being.

### Admissions & Policies

#### Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Requirements

#### Minor Requirements

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 446) tab.

#### Core Courses

- **PSYC 100** Basic Concepts in Psychology (Mason Core) (p. 135) 3
- **PSYC 408** Psychological Fitness 3
- **PSYC 417** Science of Well Being 3

Total Credits 9

#### Electives

Select a minimum of 9 credits from the following: 9

- **PSYC 211** Developmental Psychology (Mason Core) (p. 135)
- **PSYC 301** Research Methods in Psychology
- **PSYC 321** Clinical Psychology
- **PSYC 325** Abnormal Psychology
- **PSYC 372** Physiological Psychology
- **PSYC 461** Special Topics 1
- **COMM 304** Foundations of Health Communication
- **HEAL 230** Introduction to Health Behavior (Mason Core) (p. 135)
- **PHIL 309** Bioethics (Mason Core) (p. 135)
- **GCH 325** Stress and Well-Being (Mason Core) (p. 135)

Total Credits 9

1 When topic is related to health and well-being and approved by Psychology Associate Chair of Undergraduate Studies.
Industrial/Organizational Psychology Minor

Banner Code: IO

Academic Advising
2086 David King Hall
Fairfax Campus

Email: ugpsyc@gmu.edu
Website: psychology.gmu.edu/programs/LA-MINOR-PSYC-IO

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 19

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 447) tab.

Core Courses
PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135) 3

Total Credits 3

Research Methods Courses
One of the following: 3-4
- PSYC 300 Statistics in Psychology
  Approved equivalent
- PSYC 301 Research Methods in Psychology 4

Total Credits 7-8

Required Applied Psychology Course
PSYC 333 Industrial and Organizational Psychology 3

Total Credits 3

Electives
Select at least 6 credits from the following: 6
- PSYC 320 Psychological Tests and Measurements
- PSYC 335 Psychology of Creativity and Innovation
- PSYC 435 Personnel Training and Development: A Psychological Perspective
- PSYC 461 Special Topics (when topic is Occupational Health Psychology or Work and Family with prior written approval)
- PSYC 467 The Psychology of Working in Groups and Teams

Psychology Minor

Banner Code: PSYC

Academic Advising
2086 David King Hall
Fairfax Campus

Email: ugpsyc@gmu.edu
Website: http://psychology.gmu.edu/programs/la-minor-psyc-psyc

Coursework in psychology can enhance many different majors, and the minor in psychology is available to students in any major at Mason. For a list of suggested courses for students who are majoring in specific disciplines that interact especially well with psychology, contact the Undergraduate Psychology Office (http://psychology.gmu.edu/contact).

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 447) tab.

Core Courses
PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135) 3

Total Credits 3

Areas of Psychology
Select three courses in three of the following areas of Psychology: 9-12

Abnormal:
- PSYC 325 Abnormal Psychology

Cognition:
- PSYC 317 Cognitive Psychology

Developmental:
- PSYC 211 Developmental Psychology (Mason Core) (p. 135)
- PSYC 313 Child Development

Physiological:
- PSYC 372 Physiological Psychology
  or PSYC 375 & PSYC 376 Brain and Sensory Processes and Brain and Behavior
Social/Psychology:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 231</td>
<td>Social Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 324</td>
<td>Personality Theory</td>
</tr>
</tbody>
</table>

Total Credits: 9-12

1. Students must choose cognition or physiological as one of the three areas, though they may choose both.

Electives

Select one or two PSYC courses (p. 1844) 3-6

Total Credits: 3-6

1. No more than three credits of PSYC 260, PSYC 350, and PSYC 460 (in total) may be used as elective credit toward the minor. Students who take PSYC 375 and PSYC 376 in the physiological area above will only take 3 elective credits.

Psychology, BA

Banner Code: LA-BA-PSYC

2086 David King Hall
Fairfax Campus

Email: ugpsyc@gmu.edu
Website: psychology.gmu.edu/programs/la-ba-psyc

Students study behavior as it relates to health and well-being, child and adolescent development, education, social situations, the workplace, and the use of technology. Due to Mason’s proximity to Washington, D.C., the department is especially active in research that informs public policy and national defense. Students who graduate from this program go on to work in a wide range of fields and positions, including human resources, data analysis, user interface design, and social media and marketing.

The BA in Psychology focuses on liberal arts and general education courses, including a foreign language requirement, within the psychology field.

Admissions & Policies

Policies

Students pursuing this degree must complete 37 credits within the major, with 24 credits at the 300 and 400 level.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 448) tab.

Students may choose to complete a concentration in forensic psychology, human factors and applied cognition, work and organizational psychology, clinical psychology, developmental psychology, educational psychology, or health psychology. Courses required for a concentration may simultaneously satisfy other degree requirements. The concentrations in forensic psychology, human factors and applied cognition, and work and organizational psychology meet the applied psychology requirement.

Students who have limited technology skills are encouraged to take IT 104 Introduction to Computing (Mason Core) (p. 135).

Core Courses in the Major

Basic Courses in Psychology

Students must have a minimum GPA of 2.00 in these courses with a minimum grade of 1.67 (C-) in each one. Courses taken to fulfill these requirements may simultaneously satisfy a concentration.

Introductory Course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Foundational Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 231</td>
<td>Social Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 317</td>
<td>Cognitive Psychology</td>
</tr>
</tbody>
</table>

Select one option from the following: 3-6

Option 1:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Option 2:

Select two from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 313</td>
<td>Child Development</td>
</tr>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
</tr>
</tbody>
</table>

Research Methods Courses 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 300</td>
<td>Statistics in Psychology</td>
</tr>
<tr>
<td>PSYC 301</td>
<td>Research Methods in Psychology</td>
</tr>
</tbody>
</table>

Biopsychology 2

Select one from the following: 3-6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 372</td>
<td>Physiological Psychology</td>
</tr>
<tr>
<td>PSYC 375 &amp; PSYC 376</td>
<td>Brain and Sensory Processes and Brain and Behavior</td>
</tr>
</tbody>
</table>

Professional Development

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 399</td>
<td>Psychology: College to Career</td>
</tr>
<tr>
<td>PSYC 327</td>
<td>Psychology in the Community</td>
</tr>
<tr>
<td>PSYC 427</td>
<td>Community Engagement for Social Change (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 491</td>
<td>Psychology Honors II</td>
</tr>
<tr>
<td>PSYC 492</td>
<td>RS: Psychology Honors III</td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics (with Undergraduate Associate Chair Approval)</td>
</tr>
</tbody>
</table>

Total Credits: 26-32

1. Students are strongly encouraged to complete PSYC 300 Statistics in Psychology and PSYC 301 Research Methods in Psychology by their junior year. PSYC 300 Statistics in Psychology is a prerequisite to several courses, and a background in research methods facilitates understanding empirical research discussed in all psychology courses.
It is strongly recommended that students fulfill the Mason Core (p. 135) natural science requirement by completing BIOL 103 Introductory Biology I (Mason Core) (p. 135) and BIOL 104 Introductory Biology II (Mason Core) (p. 135) because these courses are prerequisites to the requirement of PSYC 372 Physiological Psychology or PSYC 375 Brain and Sensory Processes and PSYC 376 Brain and Behavior.

Only students who receive transfer credit for PSYC 372 Physiological Psychology may use it in place of PSYC 375 Brain and Sensory Processes as the prerequisite for PSYC 376 Brain and Behavior. Students taking PSYC 372 Physiological Psychology at Mason may not use it in place of PSYC 375 Brain and Sensory Processes.

**Applied Psychology Courses or Optional Concentration**

Alternatively, students may earn a concentration in forensic psychology, human factors and applied cognition, or work and organizational psychology to satisfy this requirement.

**Applied Psychology**

Students pursuing the BA without concentration select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 320</td>
<td>Psychological Tests and Measurements</td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSYC 333</td>
<td>Industrial and Organizational Psychology</td>
</tr>
<tr>
<td>PSYC 340</td>
<td>Human Factors Psychology</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core)</td>
</tr>
<tr>
<td>PSYC 381</td>
<td>Mental Illness and Criminal Justice</td>
</tr>
<tr>
<td>PSYC 427</td>
<td>Community Engagement for Social Change (Mason Core)</td>
</tr>
</tbody>
</table>

Total Credits: 6-7

**Concentrations Meeting Applied Psychology Requirement**

**Concentration in Forensic Psychology (FPSY)**

Students pursuing the BA with concentration in forensic psychology take 18 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on forensic psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

Students pursuing the BA with concentration in forensic psychology take 18 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on forensic psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

Select three courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 333</td>
<td>Industrial and Organizational Psychology</td>
</tr>
<tr>
<td>PSYC 340</td>
<td>Human Factors Psychology</td>
</tr>
<tr>
<td>PSYC 372</td>
<td>Industrial and Organizational Psychology</td>
</tr>
<tr>
<td>PSYC 375</td>
<td>Sensation, Perception, and Information Processing</td>
</tr>
<tr>
<td>PSYC 460</td>
<td>Independent Study in Psychology</td>
</tr>
<tr>
<td>PSYC 530</td>
<td>Cognitive Engineering: Cognitive Science Applied to Human Factors</td>
</tr>
</tbody>
</table>

Total Credits: 6-7

**Concentration in Human Factors and Applied Cognition (HF)**

Students pursuing the BA with concentration in human factors and applied cognition take 12-13 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on human factors or applied cognition may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSYC 380</td>
<td>Introduction to Forensic Psychology</td>
</tr>
<tr>
<td>PSYC 381</td>
<td>Mental Illness and Criminal Justice</td>
</tr>
<tr>
<td>PSYC 382</td>
<td>Psychology of Crime Victims</td>
</tr>
<tr>
<td>PSYC 440</td>
<td>Forensic Psychology: Science and Pseudoscience</td>
</tr>
<tr>
<td>PSYC 441</td>
<td>Criminal Behavior: Psychological and Neurological Aspects</td>
</tr>
<tr>
<td>CRIM 100</td>
<td>Introduction to Criminal Justice (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics</td>
</tr>
</tbody>
</table>

Total Credits: 12-13

**Concentration in Work and Organizational Psychology (WKOP)**

Students pursuing the BS with concentration take 12-13 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on I/O psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute the honors work for one course in the concentration.

Select three courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>PSYC 330</td>
<td>Sensation, Perception, and Information Processing</td>
</tr>
<tr>
<td>PSYC 333</td>
<td>Industrial and Organizational Psychology</td>
</tr>
<tr>
<td>PSYC 372</td>
<td>Physiological Psychology</td>
</tr>
<tr>
<td>PSYC 460</td>
<td>Independent Study in Psychology</td>
</tr>
<tr>
<td>PSYC 530</td>
<td>Cognitive Engineering: Cognitive Science Applied to Human Factors</td>
</tr>
</tbody>
</table>

Total Credits: 12-13
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
<td>6</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 414</td>
<td>Behavior Disorders of Childhood</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 460</td>
<td>Independent Study in Psychology ¹</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics ¹</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

¹ Only when content is developmental, with prior written approval.

**Concentration in Educational Psychology (EPSY)**

Students pursuing the BA with concentration in educational psychology take 12 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on educational psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

Students pursuing the BA with this concentration take 12 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on educational psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
<td>6</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 414</td>
<td>Behavior Disorders of Childhood</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 460</td>
<td>Independent Study in Psychology ¹</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics ¹</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 13

¹ Educational content only, with department approval.

**Concentration in Health Psychology (HPSY)**

Students pursuing the BA with concentration in health psychology take 12 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on health or well-being may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

Students pursuing the BA with this concentration take 12 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on health or well-being may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
<td>6</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
<td>4</td>
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<tr>
<td>PSYC 414</td>
<td>Behavior Disorders of Childhood</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 460</td>
<td>Independent Study in Psychology ¹</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics ¹</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 13

¹ Only when topic is Occupational Health Psychology or Work and Family with prior written approval.
Electives in the Major

Students complete the 37 required credits with electives in psychology (PSYC) with the following restrictions.

- A maximum of 6 credits of PSYC 327 Psychology in the Community and PSYC 328 Psychology in the Community Laboratory may be applied to required psychology credits.
- A maximum of 6 credits of PSYC 260 Basic Research Methods in Psychology, PSYC 350 Directed Reading and Research in Psychology, and PSYC 460 Independent Study in Psychology may be applied to required psychology credits.
- No more than 9 credits of PSYC 327 Psychology in the Community, PSYC 328 Psychology in the Community Laboratory, PSYC 260 Basic Research Methods in Psychology, PSYC 350 Directed Reading and Research in Psychology, and PSYC 460 Independent Study in Psychology can be taken without written permission of the department chair.
- No more than 6 credits of D may be applied toward this requirement.

PSYC 465 Pioneering Ideas in Psychology is strongly recommended for all students who plan to attend graduate school in psychology.

Writing-Intensive Requirement

The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students majoring in psychology may fulfill this requirement by successfully completing PSYC 301 Research Methods in Psychology, PSYC 302 Principles of Learning, or PSYC 308 Sensation, Perception, and Information Processing. Students who receive transfer credit for a research methods course must take PSYC 302 Principles of Learning or PSYC 308 Sensation, Perception, and Information Processing unless the transfer course has been approved as writing intensive.

Upper Level Requirement

Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree

In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL</td>
<td>(p. 1818)</td>
<td>3</td>
</tr>
<tr>
<td>RELI</td>
<td>(p. 1904)</td>
<td></td>
</tr>
</tbody>
</table>

1 Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core (p. 135)) and RELI 235 Religion and Literature (Mason Core (p. 135)) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
<td>3</td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
<td></td>
</tr>
<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
<td>2</td>
</tr>
<tr>
<td>LING</td>
<td>(p. 1694)</td>
<td></td>
</tr>
<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
<td></td>
</tr>
<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
<td></td>
</tr>
</tbody>
</table>

Or choose from the following GGS courses:
- GGS 101 Major World Regions (Mason Core (p. 135))
- GGS 103 Human Geography (Mason Core (p. 135))
- GGS 110 Introduction to Geoinformation Technologies
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core (p. 135))
- GGS 304 Population Geography (Mason Core (p. 135))
- GGS 305 Economic Geography
- GGS 306 Urban Geography
- GGS 315 Geography of the United States
- GGS 316 Geography of Latin America
- GGS 320 Geography of Europe
- GGS 325 Geography of North Africa and the Middle East
- GGS 330 Geography of the Soviet Succession States
- GGS 357 Structures in Urban Governance and Planning
- GGS 380 Geography of Virginia

The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

1 HIST 100 History of Western Civilization (Mason Core (p. 135)) and HIST 125 Introduction to World History (Mason Core (p. 135)) may not be used to fulfill this requirement.
### Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language,</td>
<td></td>
</tr>
</tbody>
</table>
|        | fulfilled by:  
|        | - Completing a course in a foreign language numbered 202, 209, or    |         |
|        |   210 (or higher level courses taught in the language) (p. 414)     |         |
|        | - Or achieving a satisfactory score on an approved proficiency test |         |
|        | - Or completing the following ASL three course sequence:             |         |
|        |   - EDSE 115 American Sign Language (ASL) I                          |         |
|        |   - EDSE 116 American Sign Language (ASL) II                         |         |
|        |   - EDSE 219 American Sign Language (ASL) III                        |         |
|        |   1 Students who are already proficient in a second language may be  |         |
|        |   eligible for a waiver of this requirement. Additional information  |         |
|        |   on waivers can be found at the Office of Undergraduate Academic    |         |
|        |   Affairs (http://chssundergrad.gmu.edu).                            |         |

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>Select 3 credits (additional to Mason Core Global Understanding</td>
<td></td>
</tr>
<tr>
<td></td>
<td>requirement)</td>
<td></td>
</tr>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
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<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

<p>| ARAB   | Topics in Arabic Cultural Production                                  | 3       |
| ARAB 420 | Survey of Arabic Literature                                          | 3       |
| ARAB 440 | Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)  | 3       |
| ARTH 203 | Survey of Asian Art (Mason Core) (p. 135)                           | 3       |
| ARTH 204 | Survey of Latin American Art (Mason Core) (p. 135)                  | 3       |
| ARTH 206 | Survey of African Art (Mason Core) (p. 135)                         | 3       |
| ARTH 318 | Art and Archaeology of Ancient Egypt                                | 3       |
| ARTH 319 | Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)  | 3       |
| ARTH 320 | Art of the Islamic World (Mason Core) (p. 135)                      | 3       |
| ARTH 382 | Arts of India (Mason Core) (p. 135)                                 | 3       |
| ARTH 383 | Arts of Southeast Asia (Mason Core) (p. 135)                        | 3       |
| ARTH 384 | Arts of China (Mason Core) (p. 135)                                | 3       |
| ARTH 385 | Arts of Japan (Mason Core) (p. 135)                                | 3       |
| ARTH 386 | The Silk Road (Mason Core) (p. 135)                                | 3       |
| ARTH 482 | RS: Advanced Studies in Asian Art                                   | 3       |
| CHIN   | Introduction to Classical Chinese (Mason Core) (p. 135)             | 3       |
| CHIN 320 | Contemporary Chinese Film                                           | 3       |
| CHIN 325 | Major Chinese Writers (Mason Core) (p. 135)                         | 3       |
| DANC   | World Dance (Mason Core) (p. 135)                                   | 3       |
| ECON   | Economic Development of Latin America (Mason Core) (p. 135)         | 3       |
| GGS    | Geography of Latin America                                          | 3       |
| GGS 101 | Major World Regions (Mason Core) (p. 135)                           | 3       |
| GGS 316 | Geography of North Africa and the Middle East                       | 3       |
| GGS 330 | Geography of the Soviet Succession States                           | 3       |
| GGS 399 | Select Topics in GGS                                                | 3       |
| GOVT   | Non-Western Political Theory                                         | 3       |
| GOVT 328 | Government and Politics of the Middle East and North Africa         | 3       |
| GOVT 332 | Government and Politics of Asia                                     | 3       |
| GOVT 340 | Central Asian Politics                                              | 3       |
| GOVT 341 | Chinese Foreign Policy                                              | 3       |
| GOVT 345 | Islam and Politics                                                   | 3       |
| GOVT 432 | Political Change and Social Development in Sub-Saharan Africa       | 3       |
| GOVT 433 | Political Economy of East Asia                                      | 3       |
| HIST   | Survey of East Asian History (Mason Core) (p. 135)                  | 3       |
| HIST 251 |                                      | 3       |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
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<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
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<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
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<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
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<td>HIST 354</td>
<td>Modern China</td>
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<td>Modern Japan (Mason Core) (p. 135)</td>
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<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
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<td>Post-1949 China (Mason Core) (p. 135)</td>
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<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
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<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
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<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
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<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
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<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
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<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
<td>3</td>
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<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
</tr>
<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur’an and Hadith</td>
<td>3</td>
</tr>
<tr>
<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 A course used to fulfill the Mason Core global understanding requirement (p. 139) may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Mason Core**

Note: Some Mason Core requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core requirements.

### Code | Title | Credits
---|---|---
| Written Communication | 6 |
| Oral Communication | 3 |
| Quantitative Reasoning | 3 |
| Information Technology | 3-7 |

### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts</td>
<td>p. 137</td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Literature</td>
<td>p. 140</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science</td>
<td>p. 141</td>
<td>7</td>
</tr>
<tr>
<td>Social and Behavioral Sciences</td>
<td>p. 142</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization/World History</td>
<td>p. 143</td>
<td>3</td>
</tr>
</tbody>
</table>

### Synthesis/Capstone Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthesis/Capstone</td>
<td>p. 143</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 40

1 minimum 3 credits

### Additional Elective Courses

Any remaining credits may be completed with elective courses to bring the degree total to 120.
Honors

Honors in the Major

Highly-qualified students may apply to graduate with honors in the major. To be eligible for admission, psychology majors must have completed at least 50 credits and have a minimum cumulative GPA of 3.25 and a minimum GPA of 3.40 in psychology courses.

If accepted, students must take a sequence of three courses, which culminates in the successful completion and presentation of an independent honors thesis.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 490</td>
<td>Psychology Honors I</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 491</td>
<td>Psychology Honors II</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 492</td>
<td>RS: Psychology Honors III</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

To graduate with honors, students must earn a minimum GPA of 3.50 in their honors courses and maintain a minimum cumulative GPA of 3.25 and a minimum GPA of 3.40 in psychology courses.

Accelerated Master’s

The accelerated master’s programs in the list below specify the BA in psychology as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)

Overview

Highly-qualified undergraduates in select majors may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.
For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See

**Psychology, BA or BS/Psychology, Accelerated MA (Cognitive and Behavioral Neuroscience Concentration)**

**Overview**

Highly qualified Mason undergraduate psychology majors may apply to the accelerated master’s degree with a concentration in cognitive and behavioral neuroscience. If accepted, students will be able to earn a BA (p. 448) or BS in psychology (p. 456) and a MA in psychology (p. 464) with a concentration in cognitive and behavioral neuroscience after satisfactory completion of 146 credits.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to this program, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/application/LA-MA-ACEL-PSYC) on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete six credits of graduate courses (chosen from PSYC 531 Mammalian Neurobiology, PSYC 555 Neuroimaging, PSYC 558 Neuronal Bases of Learning and Memory, PSYC 559 Behavioral Chemistry, and approved sections of PSYC 592 Special Topics) as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from PSYC 531 Mammalian Neurobiology, PSYC 555 Neuroimaging, PSYC 558 Neuronal Bases of Learning and Memory, PSYC 559 Behavioral Chemistry, and approved sections of PSYC 592 Special Topics). These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See
Psychology, BS

Banner Code: LA-BS-PSYC
2086 David King Hall
Fairfax Campus
Email: ugpsyc@gmu.edu
Website: psychology.gmu.edu/programs/la-bs-psyc

Students study behavior as it relates to health and well-being, child and adolescent development, education, social situations, the workplace, and the use of technology. Due to Mason's close proximity to Washington, D.C. the department is especially active in research that informs public policy and national defense. Students who graduate from this program go on to work in a wide range of fields and positions, including human resources, data analysis, user interface design, and social media and marketing.

The BS in Psychology focuses on math and science within the psychology field.

Admissions & Policies

Policies

Students pursuing this degree must complete at least 39 credits in psychology and 35 credits in supporting courses. Of the 39 credits earned through basic psychology courses, applied psychology courses and electives, 24 credits must be at the 300 and 400 level.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 456) tab.

Students may choose to complete a concentration in developmental psychology, educational psychology, forensic psychology, health psychology, human factors and applied cognition, or work and organizational psychology. Courses required for a concentration may simultaneously satisfy other degree requirements. The concentrations in forensic psychology, human factors and applied cognition, and work and organizational psychology meet the applied psychology requirement.

Students who have limited technology skills are encouraged to take IT 104 Introduction to Computing (Mason Core) (p. 135).

Core Courses in the Major

Basic Courses in Psychology
Students must have a minimum GPA of 2.00 in these courses with a minimum grade of 1.67 (C-) in each one. Courses taken to fulfill these requirements may simultaneously satisfy a concentration.

Introductory Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Foundational Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 231</td>
<td>Social Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 317</td>
<td>Cognitive Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one option from the following: 3-6

Option 1:
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Option 2:

Select two from the following:
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 313</td>
<td>Child Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 415</td>
<td>Psychological Factors in Aging</td>
<td></td>
</tr>
</tbody>
</table>

Research Methods Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 300</td>
<td>Statistics in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 301</td>
<td>Research Methods in Psychology</td>
<td>4</td>
</tr>
</tbody>
</table>

Psychology Lab Course

Select one course from the following: 1-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 304</td>
<td>Principles of Learning</td>
<td></td>
</tr>
<tr>
<td>PSYC 309</td>
<td>Sensation, Perception, and Information Processing</td>
<td></td>
</tr>
<tr>
<td>PSYC 320</td>
<td>Psychological Tests and Measurements</td>
<td></td>
</tr>
<tr>
<td>PSYC 373</td>
<td>Physiological Psychology Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

Biopsychology

Select one from the following: 3-6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 372</td>
<td>Physiological Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 375</td>
<td>Brain and Sensory Processes &amp; PSYC 376</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brain and Behavior</td>
<td></td>
</tr>
</tbody>
</table>

Professional Development

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 399</td>
<td>Psychology: College to Career</td>
<td></td>
</tr>
<tr>
<td>PSYC 327</td>
<td>Psychology in the Community</td>
<td></td>
</tr>
<tr>
<td>PSYC 427</td>
<td>Community Engagement for Social Change (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PSYC 491</td>
<td>Psychology Honors II</td>
<td></td>
</tr>
<tr>
<td>PSYC 492</td>
<td>RS: Psychology Honors III</td>
<td></td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics (with Undergraduate Associate Chair approval)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 27-36

1 Students are strongly encouraged to complete PSYC 300 Statistics in Psychology and PSYC 301 Research Methods in Psychology by their junior year. PSYC 300 Statistics in Psychology is a prerequisite to several courses, and a background in research methods facilitates understanding empirical research discussed in all psychology courses.

2 The course chosen to fulfill this requirement cannot be the same course used to fulfill the technical writing requirement below.
Students who have a strong interest in biopsychology or cognitive neuroscience are encouraged to take PSYC 375 Brain and Sensory Processes/PSYC 376 Brain and Behavior rather than PSYC 372 Physiological Psychology. Only students who receive transfer credit for PSYC 372 Physiological Psychology may use it in place of PSYC 375 Brain and Sensory Processes as the prerequisite for PSYC 376 Brain and Behavior. Students taking PSYC 372 Physiological Psychology at Mason may not use it in place of PSYC 375 Brain and Sensory Processes.

**Applied Psychology Courses or Optional Concentration**

Alternatively, students may earn a concentration in forensic psychology, human factors and applied cognition, or work and organizational psychology to satisfy this requirement.

**Applied Psychology**

Students pursuing the BS without concentration select two courses from the following:

- PSYC 320 Psychological Tests and Measurements
- PSYC 325 Abnormal Psychology
- PSYC 333 Industrial and Organizational Psychology
- PSYC 340 Human Factors Psychology
- PSYC 379 Applied Cross-Cultural Psychology (Mason Core) (p. 135)
- PSYC 381 Mental Illness and Criminal Justice
- PSYC 427 Community Engagement for Social Change (Mason Core) (p. 135)

Total Credits 6-7

**Concentrations Meeting Applied Psychology Requirement**

**Concentration in Forensic Psychology (FPSY)**

Students pursuing the BS with concentration in forensic psychology take 18 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on forensic psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

- PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135)
- PSYC 325 Abnormal Psychology
- PSYC 333 Industrial and Organizational Psychology
- PSYC 340 Human Factors Psychology
- PSYC 379 Applied Cross-Cultural Psychology (Mason Core) (p. 135)
- PSYC 381 Mental Illness and Criminal Justice

Select two courses from the following:

- PSYC 382 Psychology of Crime Victims
- PSYC 440 Forensic Psychology: Science and Pseudoscience
- PSYC 441 Criminal Psychology: Psychological and Neurological Aspects
- CRIM 100 Introduction to Criminal Justice (Mason Core) (p. 135)
- PSYC 461 Special Topics
- PSYC 462 Selected Topics in Forensic Psychology

Total Credits 3

**Concentration in Human Factors and Applied Cognition (HF)**

Students pursuing the BS with concentration in human factors and applied cognition take 12-13 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on human factors or applied cognition may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

- PSYC 317 Cognitive Psychology
- PSYC 340 Human Factors Psychology

Select two courses from the following:

- PSYC 309 Sensation, Perception, and Information Processing
- PSYC 333 Industrial and Organizational Psychology
- PSYC 372 Physiological Psychology
- PSYC 460 Independent Study in Psychology
- PSYC 530 Cognitive Engineering: Cognitive Science Applied to Human Factors

Total Credits 12-13

1 Requires Undergraduate Associate Chair approval.

**Concentration in Work and Organizational Psychology (WKOP)**

Students pursuing the BS with concentration take 12-13 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on I/O psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute the honors work for one course in the concentration.

- PSYC 333 Industrial and Organizational Psychology
- PSYC 340 Human Factors Psychology
- PSYC 461 Special Topics
- MBUS 301 Managing People and Organizations in a Global Economy

Total Credits 12-13

1 Only when topic is Occupational Health Psychology or Work and Family with prior written approval.
Other Concentrations Available to Majors

Students may choose to complete a concentration in clinical psychology, development psychology, educational psychology, or health psychology.

Concentration in Clinical Psychology (CLPY)

Students pursuing the BS with this concentration take 12 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on clinical psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Concentration in Developmental Psychology (DVLP)

The concentration in developmental psychology may be of interest to students who are planning to attend graduate school in developmental psychology or a related field, such as human development and family studies, school psychology, or clinical child psychology. Students who are considering a career in school psychology or education may also find this concentration advantageous.

Students pursuing the BS with this concentration take 12 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on developmental psychology may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

Concentration in Health Psychology (HPSY)

Students pursuing the BS with concentration in educational psychology take 12 credits. Students must earn a minimum GPA of 2.00 in all coursework applied to the concentration.

Students who successfully complete the Psychology Department Honors Program (PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III) with an honors thesis/project focused on health or well-being may, with approval of their thesis committees and the associate chair for undergraduate studies, substitute their honors work for one course in the concentration.

| PSYC 321 | Clinical Psychology | 3 |
| PSYC 325 | Abnormal Psychology | 3 |
| Select at least two psychology electives from the following | 6 |
| PSYC 211 | Developmental Psychology (Mason Core) (p. 135) | 1 |
| or PSYC 313 | Child Development | 1 |
| or PSYC 314 | Adolescent Development | 1 |
| PSYC 231 | Social Psychology (Mason Core) (p. 135) | 1 |
| PSYC 322 | Behavior Modification | 1 |
| PSYC 324 | Personality Theory | 1 |
| PSYC 326 | Therapeutic Communication Skills | 1 |
| PSYC 414 | Behavior Disorders of Childhood | 1 |
| PSYC 423 | Group Psychotherapy Techniques | 1 |
| PSYC 460 | Independent Study in Psychology | 1 |
| PSYC 461 | Special Topics | 1 |

1 Only when topic is related to clinical psychology approved by the psychology department.

| PSYC 312 | Educational Psychology | 3 |
| PSYC 320 | Psychological Tests and Measurements | 4 |
| Select two from the following: | 6 |
| PSYC 304 | Principles of Learning | 1 |
| PSYC 313 | Child Development | 1 |
| PSYC 314 | Adolescent Development | 1 |
| PSYC 322 | Behavior Modification | 1 |
| PSYC 460 | Independent Study in Psychology | 1 |
| PSYC 461 | Special Topics | 1 |
| PSYC 558 | Neuronal Bases of Learning and Memory | 1 |

1 Educational content only, with department approval.

| PSYC 417 | Science of Well Being | 3 |
| Select three from the following: | 9 |
| PSYC 211 | Developmental Psychology (Mason Core) (p. 135) | 1 |
| PSYC 321 | Clinical Psychology | 1 |
| PSYC 325 | Abnormal Psychology | 1 |
| PSYC 408 | Psychological Fitness | 1 |
| PSYC 461 | Special Topics | 1 |

Total Credits 12
Only when topic is related to health and well-being and approved by the psychology department.

Electives in the Major
Students complete the 39 required credits with electives in psychology (PSYC) (p. 1844) with the following restrictions.

• A maximum of 6 credits of PSYC 327 Psychology in the Community and PSYC 328 Psychology in the Community Laboratory may be applied to required psychology credits.
• A maximum of 6 credits of PSYC 260 Basic Research Methods in Psychology, PSYC 350 Directed Reading and Research in Psychology, and PSYC 460 Independent Study in Psychology may be applied to required psychology credits.
• No more than 9 credits of PSYC 327 Psychology in the Community, PSYC 328 Psychology in the Community Laboratory, PSYC 260 Basic Research Methods in Psychology, PSYC 350 Directed Reading and Research in Psychology, and PSYC 460 Independent Study in Psychology can be taken without written permission of the department chair.
• No more than 6 credits of D may be applied toward this requirement.

PSYC 465 Pioneering Ideas in Psychology is strongly recommended for all students who plan to attend graduate school in psychology.

If an approved psychology course is used to meet the technical writing requirement, it may also be applied as a psychology elective.

Supporting Courses
These courses broaden the requirements to include humanities and strengthen the science, quantitative and writing components of the degree. Students who successfully complete the Honors College curriculum are required to complete only the quantitative reasoning and natural science support requirements described below. All other supporting requirements are considered met by successful completion of the Honors College curriculum.

Technical Writing
Select one of the following: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENGH 388</td>
<td>Professional and Technical Writing</td>
</tr>
<tr>
<td>PSYC 304</td>
<td>Principles of Learning</td>
</tr>
<tr>
<td>PSYC 309</td>
<td>Sensation, Perception, and Information</td>
</tr>
<tr>
<td></td>
<td>Processing</td>
</tr>
<tr>
<td>PSYC 320</td>
<td>Psychological Tests and Measurements</td>
</tr>
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</table>

Successful completion of the psychology honors program:

Natural Science

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOL 103</td>
<td>Introductory Biology I (Mason Core)</td>
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<tr>
<td>BIOL 104</td>
<td>Introductory Biology II (Mason Core)</td>
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<tr>
<td>or BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
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<td>(p. 135)</td>
</tr>
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</table>

Elective Science Courses:

Students fill this requirement with any two courses in the natural sciences.

Quantitative Reasoning

Select two courses from the following:

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business</td>
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<td>Applications (Mason Core) (p. 135)</td>
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<table>
<thead>
<tr>
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<tr>
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<td>Introductory Probability (Mason Core)</td>
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<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core)</td>
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<td>(p. 135)</td>
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<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason</td>
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<td>Core) (p. 135)</td>
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<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
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<td>MATH 123</td>
<td>Calculus with Algebra/Trigonometry, Part</td>
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<tr>
<td>MATH 124</td>
<td>Calculus with Algebra/Trigonometry, Part</td>
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<td>B (Mason Core) (p. 135)</td>
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<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
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<tr>
<td>STAT 350</td>
<td>Introductory Statistics II</td>
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Humanities

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>PHIL (p. 1818)</td>
<td>3</td>
</tr>
<tr>
<td>RELI (p. 1904)</td>
<td></td>
</tr>
<tr>
<td>ARTH (p. 1143)</td>
<td></td>
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<tr>
<td>AVT (p. 1152)</td>
<td></td>
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<tr>
<td>MUSI (p. 1740)</td>
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<tr>
<td>DANC (p. 1399)</td>
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<td>THR (p. 2007)</td>
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</tbody>
</table>

Social and Behavioral Science

Select two courses from the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>ANTH (p. 1119)</td>
<td>4</td>
</tr>
<tr>
<td>ECON (p. 1413)</td>
<td></td>
</tr>
<tr>
<td>GOVT (p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST (p. 1628)</td>
<td></td>
</tr>
<tr>
<td>SOCI (p. 1923)</td>
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</tr>
</tbody>
</table>

Any non-psychology course that has been approved to meet the Mason Core requirement in social and behavioral science.

One Additional Course in Humanities or Social and Behavioral Science 5

<table>
<thead>
<tr>
<th>Course</th>
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</table>

Total Credits 35-40

1 The psychology classes in this list may also be applied as a psychology elective.
2 PSYC 490 Psychology Honors I, PSYC 491 Psychology Honors II, and PSYC 492 RS: Psychology Honors III
3 Excluding PHIL 173 Logic and Critical Thinking and PHIL 376 Symbolic Logic.
4 Courses in psychology may not be used to fulfill this requirement.
5 Select an additional course from the lists under the requirements in humanities and social sciences above (and with the same restrictions).

Writing-Intensive Requirement

The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students majoring in psychology may fulfill this requirement by successfully completing PSYC 301 Research Methods in Psychology, PSYC 304 Principles of Learning, or PSYC 309 Sensation, Perception, and Information Processing. Students who receive transfer credit for a research methods course must take PSYC 304 Principles of Learning, or
PSYC 309 Sensation, Perception, and Information Processing unless the transfer course has been approved as writing intensive.

**Upper Level Requirement**

Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

**College Level Requirements for the BA Degree**

In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

**Philosophy or Religious Studies**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHIL</td>
<td>(p. 1818) ¹</td>
<td>3</td>
</tr>
<tr>
<td>RELI</td>
<td>(p. 1904)</td>
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</tr>
</tbody>
</table>

¹ Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

**Social and Behavioral Sciences**

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<td>ANTH</td>
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<td>CRIM</td>
<td>(p. 1372)</td>
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<tr>
<td>ECON</td>
<td>(p. 1413)</td>
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<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
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<td>HIST</td>
<td>(p. 1628) ²</td>
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<td>LING</td>
<td>(p. 1694)</td>
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<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
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<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
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</tbody>
</table>

Or choose from the following GGS courses:
- GGS 101 Major World Regions (Mason Core) (p. 135)
- GGS 103 Human Geography (Mason Core) (p. 135)
- GGS 110 Introduction to Geoinformation Technologies
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography
- GGS 306 Urban Geography
- GGS 315 Geography of the United States
- GGS 316 Geography of Latin America
- GGS 320 Geography of Europe
- GGS 325 Geography of North Africa and the Middle East
- GGS 330 Geography of the Soviet Succession States
- GGS 357 Structures in Urban Governance and Planning
- GGS 380 Geography of Virginia

¹ The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

² HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

**Foreign Language**

Intermediate-level proficiency in one foreign language, fulfilled by:

- Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)
- Or achieving a satisfactory score on an approved proficiency test
- Or completing the following ASL three course sequence:
  - EDSE 115 American Sign Language (ASL) I
  - EDSE 116 American Sign Language (ASL) II
  - EDSE 219 American Sign Language (ASL) III

¹ Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Non-Western Culture**

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>(additional to Mason Core Global Understanding requirement) ¹</td>
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<tr>
<td>ANTH</td>
<td>114 Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>300 Civilizations</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>301 Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>302 Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>303 Peoples and Cultures of the Andes</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>306 Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH</td>
<td>307 Ancient Mesoamerica (Mason Core) (p. 135)</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Credit Hours</td>
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<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 314</td>
<td>Zombies</td>
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<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
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<td>ANTH 383</td>
<td>Cities of the Global South</td>
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<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
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<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
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<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
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<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
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<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
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<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
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<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
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<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
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<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
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<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
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<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
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<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
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<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
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<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
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<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
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<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
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<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
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<td>Contemporary Chinese Film</td>
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<td>Major Chinese Writers (Mason Core) (p. 135)</td>
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<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
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<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
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<td>Topics in Sub-Saharan Francophone Literature and Culture (Mason Core) (p. 135)</td>
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<td>GGS 316</td>
<td>Geography of Latin America</td>
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<td>Geography of the Soviet Succession States</td>
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<td>Government and Politics of the Middle East and North Africa</td>
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<td>Government and Politics of Asia</td>
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<td>Chinese Foreign Policy</td>
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<td>GOVT 345</td>
<td>Islam and Politics</td>
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<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<td>HIST 326</td>
<td>Stalinism</td>
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<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
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<td>Rise of Russia (Mason Core) (p. 135)</td>
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<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
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<td>History of Traditional China</td>
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<td>HIST 354</td>
<td>Modern China</td>
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<td>Modern Japan (Mason Core) (p. 135)</td>
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<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
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<td>Comparative Slavery</td>
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<td>History, Fiction, and Film in Latin America</td>
<td></td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
<td>3-6</td>
</tr>
</tbody>
</table>
HIST 426 The Russian Revolution  
HIST 460 Modern Iran (Mason Core) (p. 135)  
HIST 461 Arab-Israeli Conflict  
HIST 462 Women in Islamic Society (Mason Core) (p. 135)  
HIST 465 The Middle East in the 20th Century  
JAPA 310 Japanese Culture in a Global World (Mason Core) (p. 135)  
JAPA 340 Topics in Japanese Literature (Mason Core) (p. 135)  
KORE 320 Korean Popular Culture in a Global World  
MUSI 103 Musics of the World (Mason Core) (p. 135)  
RELI 211 Religions of the West (Mason Core) (p. 135)  
RELI 212 Religions of Asia (Mason Core) (p. 135)  
RELI 240 Death and the Afterlife in World Religions  
RELI 272 Islam  
RELI 313 Hinduism (Mason Core) (p. 135)  
RELI 314 Chinese Philosophies and Religious Traditions  
RELI 315 Buddhism (Mason Core) (p. 135)  
RELI 337 Mysticism: East and West  
RELI 365 Muhammad: Life and Legacy  
RELI 374 Islamic Thought (Mason Core) (p. 135)  
RELI 375 Qur'an and Hadith  
RELI 379 Islamic Law, Society, and Ethics  
RELI 387 Islam, Democracy, and Human Rights  
RELI 490 Comparative Study of Religions (Mason Core) (p. 135)  
RUSS 353 Russian Civilization (Mason Core) (p. 135)  
RUSS 354 Contemporary Post-Soviet Life (Mason Core) (p. 135)  

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

**Additional Elective Courses**

Any remaining credits may be completed with electives to bring the degree total to 120

**Honors**

**Honors in the Major**

Highly-qualified students may apply to graduate with honors in the major. To be eligible for admission, psychology majors must have completed at least 50 credits and have a minimum cumulative GPA of 3.25 and a minimum GPA of 3.40 in psychology courses.

If accepted, students must take a sequence of three courses, which culminates in the successful completion and presentation of an independent honors thesis.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 490</td>
<td>Psychology Honors I</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 491</td>
<td>Psychology Honors II</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 492</td>
<td>RS: Psychology Honors III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

To graduate with honors, students must earn a minimum GPA of 3.50 in their honors courses and maintain a minimum cumulative GPA of 3.25 and a minimum GPA of 3.40 in psychology courses.

**Accelerated Master's**

The accelerated master's programs in the list below specify the BS in psychology as a feeder degree for their programs. It is important to note, however, that many accelerated master's programs are available for any bachelor's degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)**

**Overview**

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted,
and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP. 6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP. 6 Graduate Policies (p. 87).

Selected Majors
Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. For more detailed information, see AP. 6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP. 6 Graduate Policies (p. 87).

Selected Majors
Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree.
To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Psychology, BA or BS/Psychology, Accelerated MA (Cognitive and Behavioral Neuroscience Concentration)

Overview
Highly qualified Mason undergraduate psychology majors may apply to the accelerated master’s degree with a concentration in cognitive and behavioral neuroscience. If accepted, students will be able to earn a BA (p. 448) or BS in psychology (p. 456) and a MA in psychology (p. 464) with a concentration in cognitive and behavioral neuroscience after satisfactory completion of 146 credits.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to this program, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/application/LA-MA-ACEL-PSYC) on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete six credits of graduate courses (chosen from PSYC 531 Mammalian Neurobiology, PSYC 555 Neuroimaging, PSYC 558 Neuronal Bases of Learning and Memory, PSYC 559 Behavioral Chemistry, and approved sections of PSYC 592 Special Topics) as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from PSYC 531 Mammalian Neurobiology, PSYC 555 Neuroimaging, PSYC 558 Neuronal Bases of Learning and Memory, PSYC 559 Behavioral Chemistry, and approved sections of PSYC 592 Special Topics. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76) for more information.

Psychology, MA
Banner Code: LA-MA-PSYC

Academic Advising
2086 David King Hall
Fairfax Campus

Email: psycgrad@gmu.edu
Website: psychology.gmu.edu/programs/la-ma-psyc

The MA in psychology is distinguished by its emphasis on basic research and the application of research to solve practical problems in families, industry, government, and health care settings. Because of the program’s proximity to Washington D.C., students have access to many employment and continuing education opportunities in research, academia, and consulting within government, public, and private settings.

The psychology MA offers the following concentrations:
- applied developmental psychology
- cognitive and behavioral neuroscience
- human factors/applied cognition
- industrial/organizational psychology

While the department does not offer a master’s degree in clinical or counseling psychology, a master’s degree in psychology with a concentration in clinical psychology is available for students who have been admitted to the doctoral program concentration in clinical psychology.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MA in psychology, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/la-ma-psyc/application).
Provisional Admission
Students who are admitted provisionally are required to take 12 credits in psychology and earn a minimum GPA of 3.25 in those courses to qualify for removal of the provisional qualifier. Programs may add other conditions to provisional admission. Individualized study courses cannot be used toward the 12 credits.

Policies
For policies governing all graduate degrees, see Graduate Policies (p. 87).

In addition to satisfying the requirements for all master’s degrees, students pursuing a master’s degree in psychology must successfully complete 30-46 credits of required course work. They complete this coursework in one of six concentrations.

A maximum of 6 credits of thesis proposal and thesis research (PSYC 798 Thesis Proposal, PSYC 799 Master’s Thesis) may be applied to the master’s degree. A maximum of 9 credits of thesis courses (PSYC 798 Thesis Proposal, PSYC 799 Master’s Thesis), Directed Reading and Research (PSYC 597 Directed Reading and Research), and Practicum (PSYC 792 Psychology Practicum) may be applied to the degree.

Requirements

Degree Requirements
Total credits: 30-32

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 464) tab.

Choose one concentration and complete the requirements therein.

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Concentration in Applied Developmental Psychology (APD)
The concentration in applied developmental psychology focuses on child development. It provides basic knowledge about normal development, skills for assessing developmental level, and techniques for planning and evaluating programs that foster optimal development. Graduates are prepared for employment at agencies concerned with educational and health programs for children, enrichment programs for infants and preschoolers, and education programs for parents.

Core Courses
PSYC 704 Life-Span Development 3
Select one course from any of the following areas: 3

Social Psychology:
PSYC 667 Behavior in Small Groups and Teams
PSYC 668 Personality: Theoretical and Empirical Approaches
PSYC 703 Social Bases of Behavior

Biological Psychology:
PSYC 558 Neuronal Bases of Learning and Memory
PSYC 559 Behavioral Chemistry
PSYC 702 Biological Bases of Human Behavior

Cognitive Psychology:
PSYC 701 Cognitive Bases of Behavior

PSYC 768 Advanced Topics in Cognitive Science 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
<td>6</td>
</tr>
</tbody>
</table>

1 Except when this course is exclusively methodological.

Quantitative Methods

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 612</td>
<td>Advanced Statistics</td>
<td>3-4</td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td>7-8</td>
</tr>
</tbody>
</table>

Specialized Content

One to two courses selected from the following: 3-6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 566</td>
<td>Cognitive and Perceptual Development</td>
</tr>
<tr>
<td>PSYC 615</td>
<td>Language Development</td>
</tr>
<tr>
<td>PSYC 630</td>
<td>Developmental Disabilities</td>
</tr>
<tr>
<td>PSYC 648</td>
<td>Developmental Psychopathology</td>
</tr>
<tr>
<td>PSYC 780</td>
<td>Applied Developmental Psychology</td>
</tr>
<tr>
<td>PSYC 592</td>
<td>Special Topics 1</td>
</tr>
</tbody>
</table>

To select a developmental course with advisor approval

Select a maximum of one course from: 0-3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 614</td>
<td>The Psychology of Aging</td>
</tr>
<tr>
<td>PSYC 617</td>
<td>Child Psychopathology</td>
</tr>
<tr>
<td>PSYC 619</td>
<td>Applied Behavior Analysis: Principles, Procedures, and Philosophy</td>
</tr>
</tbody>
</table>

Thesis Research or Practicum Experience

Thesis
The thesis includes a combination of PSYC 798 Thesis Proposal/PSYC 799 Master’s Thesis. Per the University Catalog, at least 3 hours must be PSYC 799 Master’s Thesis; these 3 hours must be taken the first semester in which PSYC 799 Master’s Thesis is registered. Thus, this is generally a combination of 1 credit of PSYC 798 Thesis Proposal and 3 of PSYC 799 Master’s Thesis.

Students should be aware of the policies governing theses. They must follow the thesis enrollment policy of the university and once enrolled in PSYC 799 Master’s Thesis, maintain continuous enrollment. See Academic Policies.

Select 4 credits from the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 798</td>
<td>Thesis Proposal</td>
</tr>
<tr>
<td>PSYC 799</td>
<td>Master’s Thesis (minimum of 3 credits)</td>
</tr>
</tbody>
</table>

Total Credits 4

Practicum

Select 4 credits from the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 792</td>
<td>Psychology Practicum (take 3 credits)</td>
</tr>
<tr>
<td>PSYC 597</td>
<td>Directed Reading and Research (take 1 credit)</td>
</tr>
</tbody>
</table>

Total Credits 4
Professional Seminar
Two credits of ¹ 2
PSYC 890 Seminar in Professional Psychology
Total Credits 2
¹ Students should take 1 credit in fall and 1 credit in spring of their first year.

Electives
Select 4-5 credits in consultation with your advisor 4-5
Total Credits 4-5

Elective credit can be taken via content courses, further practicum, directed reading, or research credits, or further thesis credits (i.e. more than 4 credits). Electives may also come from other departments although these often require permission of the instructor.

Concentration in Clinical Psychology (CLN)
The clinical psychology concentration trains students to have flexibility to fill the evolving functions of clinical psychologists, including research, direct provision of clinical services, supervision, program development and evaluation, and consultation.

The clinical psychology MA concentration is not a terminal degree. Students who have been admitted to the doctoral program with a concentration in clinical psychology may apply to receive the MA in psychology on completion of 30 credits of course work. Students must also be in good standing in the program, as determined by the director of clinical training.

Foundation Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 810</td>
<td>Psychological Assessment I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 811</td>
<td>Psychological Assessment II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 822</td>
<td>Scientific Foundations of Clinical Psychology I</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 860</td>
<td>Introductory Helping Skills and Motivational Interviewing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>14</td>
</tr>
</tbody>
</table>

Practicum Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 861</td>
<td>Cognitive Behavioral Therapy for Youth</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 862</td>
<td>Cognitive Behavioral Therapy for Adults</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Advanced Statistics and Research Methods
Note: For doctoral quantitative emphases B and C, both PSYC 754 Quantitative Methods III: Psychological Applications of Regression Techniques and PSYC 756 Quantitative Methods IV: Multivariate Techniques in Psychology must be taken, but only one of these courses is required for the MA.

Select three or more courses from the following: 10-11
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 644</td>
<td>Methods for Social Research</td>
<td></td>
</tr>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td></td>
</tr>
<tr>
<td>PSYC 612</td>
<td>Advanced Statistics</td>
<td></td>
</tr>
<tr>
<td>or PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>10-11</td>
</tr>
</tbody>
</table>

Concentration in Cognitive and Behavioral Neuroscience (CBNR)
The concentration in cognitive and behavioral neuroscience focuses on studying biological substrates of behavior. Core and affiliated faculty study areas as diverse as neural control of behavioral development; animal models of learning and memory and their disorders (such as Alzheimer’s); human brain systems involved in cognition, perception, human error, decision making, and movement; the relation of neural activity to human performance; and cognitive aging. A focus of the program is on translational neuroscience-complementary study of neural systems in humans and animals, including application of animal research to human behavior.

Specialized Content
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 531</td>
<td>Mammalian Neurobiology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 558</td>
<td>Neuronal Bases of Learning and Memory</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Additional Course
Select one course from the following: 3
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 555</td>
<td>Neuroimaging</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 559</td>
<td>Behavioral Chemistry</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>3</td>
</tr>
</tbody>
</table>

Quantitative Methods
Select one course from the following: 3-4
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 612</td>
<td>Advanced Statistics</td>
<td></td>
</tr>
<tr>
<td>PSYC 652</td>
<td>Quantitative Methods II: Analysis of Variance</td>
<td></td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td></td>
</tr>
<tr>
<td>PSYC 756</td>
<td>Quantitative Methods IV: Multivariate Techniques in Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 592</td>
<td>Special Topics (Bayesian Statistics) ¹</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 592</td>
<td>Special Topics (Animal Methods) ²</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 892</td>
<td>Special Topics in Psychology (Human Experimentation) ³</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>7-8</td>
</tr>
</tbody>
</table>

¹ When topic is Bayesian Statistics.
² When topic is Animal Methods.
³ When topic is Human Experimentation.

Professional Seminar
One credit of 1
PSYC 890 Seminar in Professional Psychology
Total Credits 1

Electives
Students complete the 30 credits required for the degree through additional credits of coursework or research.
Select at least 7 credits from courses below or other courses with the approval of advisor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 592</td>
<td>Special Topics (Animal Behavior)</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 592</td>
<td>Special Topics (Biological Bases of Alzheimer's Disease)</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 592</td>
<td>Special Topics (Comparative Cognition)</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 892</td>
<td>Special Topics in Psychology (Cognitive Neuroscience)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 7

1. When topic is Animal Behavior.
2. When topic is Biological Bases of Alzheimer's Disease.
3. When topic is Comparative Cognition.
4. When topic is Cognitive Neuroscience.

**Thesis**

A thesis is normally required, but 6 credits of PSYC 792 Psychology Practicum may serve as a substitute if approved by the advisor and program coordinator.

Students should be aware of the policies governing theses. They must follow the thesis enrollment policy of the university and once enrolled in PSYC 799 Master's Thesis, maintain continuous enrollment. See Academic Policies.

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 798</td>
<td>Thesis Proposal</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 799</td>
<td>Master's Thesis (minimum of 3 credits)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

**Concentration in Human Factors/Applied Cognition (HF)**

The human factors/applied cognition concentration trains students in the application of cognitive science to real-world problems. Students gain expertise in such areas as human/computer interaction, cognitive system engineering, cognitive ergonomics, and transportation. Faculty members help place students who do not have real-world experience in a part- or full-time practicum before completing the degree.

**Core Course**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 701</td>
<td>Cognitive Bases of Behavior</td>
<td>3</td>
</tr>
<tr>
<td>or PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

**Quantitative Methods**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 612</td>
<td>Advanced Statistics</td>
<td></td>
</tr>
<tr>
<td>PSYC 652</td>
<td>Quantitative Methods II: Analysis of Variance</td>
<td></td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td></td>
</tr>
<tr>
<td>PSYC 756</td>
<td>Quantitative Methods IV: Multivariate Techniques in Psychology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 7-8

**Specialized Content**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 530</td>
<td>Cognitive Engineering: Cognitive Science Applied to Human Factors</td>
<td>3</td>
</tr>
</tbody>
</table>

**Additional Courses**

Select two courses from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 734</td>
<td>Seminar in Human Factors and Applied Cognition</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

1. These courses may be repeated.

**Electives**

Students complete the 30 credits required for this degree through additional coursework, including courses not listed above, within or outside the department, with prior written approval of the graduate director.

Total Credits: 0-8

**Optional Practicum**

Students need an advisor’s approval to register for practicum.

Six credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 730</td>
<td>Practicum in Applied Psychology</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 6

**Optional Thesis**

Students need the chair’s approval to register for thesis. Students should be aware of the policies governing theses. They must follow the thesis enrollment policy of the university and once enrolled in PSYC 799 Master’s Thesis, maintain continuous enrollment. See Academic Policies.

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 798</td>
<td>Thesis Proposal</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 799</td>
<td>Master’s Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

**Concentration in Industrial/Organizational Psychology (IO)**

The industrial/organizational psychology concentration trains students in the conduct and application of psychological research in work settings. Expertise can be developed in a variety of areas, including personnel selection, training, leadership, motivation, and human performance assessment.

**Core Course**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 703</td>
<td>Social Bases of Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

**Statistics**

Select at least 10 credits of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 612</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>or PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td></td>
</tr>
<tr>
<td>PSYC 557</td>
<td>Psychometric Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 10
### Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to this program, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/application/LA-MA-ACEL-PSYC) on the departmental web site.

### Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete six credits of graduate courses (chosen from PSYC 531 Mammalian Neurobiology, PSYC 555 Neuroimaging, PSYC 558 Neuronal Bases of Learning and Memory, PSYC 559 Behavioral Chemistry, and approved sections of PSYC 592 Special Topics) as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

### Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from PSYC 531 Mammalian Neurobiology, PSYC 555 Neuroimaging, PSYC 558 Neuronal Bases of Learning and Memory, PSYC 559 Behavioral Chemistry, and approved sections of PSYC 592 Special Topics). These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76) for more information.

### Accelerated Master’s

**Psychology, BA or BS/Psychology, Accelerated MA (Cognitive and Behavioral Neuroscience Concentration)**

**Overview**

Highly qualified Mason undergraduate psychology majors may apply to the accelerated master’s degree with a concentration in cognitive and behavioral neuroscience. If accepted, students will be able to earn a BA (p. 448) or BS in psychology (p. 456) and a MA in psychology (p. 464) with a concentration in cognitive and behavioral neuroscience after satisfactory completion of 146 credits.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).
The program offers the following concentrations: applied developmental psychology, clinical psychology, cognitive and behavioral neuroscience, human factors/applied cognition, and industrial/organizational psychology.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants must already have earned a master’s degree in a relevant field.

For specific information, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/application/LA-PHD-PSYC).

Policies
For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit
For students entering the doctoral program with a master’s degree, the number of credits required may be reduced by a maximum of 30 credits subject to the approval of the program faculty and the dean. Requests for reduction of credit are reviewed by a committee only after acceptance to the PhD program.

Grading
Students in the doctoral program are evaluated on the basis of grades, comprehensive exams, research, and communication skills. In doctoral courses, A and B are the only acceptable grades. Students in the doctoral program must successfully complete comprehensive exams administered each year.

Requirements

Degree Requirements
Total credits: 72-76

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 469) tab.

In addition to satisfying the requirements for all doctoral degrees, students must successfully complete 72–76 credits of required course work chosen in one of five concentrations. Each concentration consists of four educational components: core courses, upper-level specialty courses, supervised practica, and dissertation.

Concentration in Applied Developmental Psychology (APD)

Overview
The applied developmental psychology concentration is concerned with enhancing developmental processes and preventing developmental disorders in individuals and families across the life span. It uses the knowledge base and methodologies of developmental science to assist the development of individuals who vary in cultural and ethnic backgrounds; economic and social opportunities; physical, social, emotional, and cognitive abilities; and conditions of living (e.g., families, neighborhoods, communities, and physical settings). The program’s emphasis is on child development (infancy, early childhood, middle childhood, and adolescence), and students may focus their studies on the cognitive, social, emotional, language, personality, or physiological aspects of development.

The applied developmental concentration has two goals: to train students to teach and do research on basic and applied issues in child development for employment in such settings as universities, research institutes, and organizations, and to train students to do applied work in developmental psychology (consultation, program evaluation, assessment and evaluation, developmental interventions, and parent training) in such settings as schools, hospitals, courts, child care facilities, and other organizations. Applied developmental psychology doctoral students have the option of also completing course requirements for the MA concentration in school psychology.

Students pursuing this concentration must complete 72 credits comprised of doctoral course work and at least 12 credits of dissertation research. The number of credits required may be reduced for a prior master’s degree as described above.

Doctoral Coursework

Developmental Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 704</td>
<td>Life-Span Development</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>3</td>
</tr>
</tbody>
</table>

Cognitive, Biological, or Social Core

Select two from the following:

Cognitive:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 701</td>
<td>Cognitive Bases of Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science (except when this course is exclusively methodological)</td>
<td></td>
</tr>
</tbody>
</table>

Biological:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 702</td>
<td>Biological Bases of Human Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 558</td>
<td>Neuronal Bases of Learning and Memory</td>
<td></td>
</tr>
<tr>
<td>PSYC 559</td>
<td>Behavioral Chemistry</td>
<td></td>
</tr>
</tbody>
</table>

Social:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 703</td>
<td>Social Bases of Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 667</td>
<td>Behavior in Small Groups and Teams</td>
<td></td>
</tr>
<tr>
<td>PSYC 668</td>
<td>Personality: Theoretical and Empirical Approaches</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

Quantitative Methods
Students must complete an approved Quantitative Methods from the Quantitative or Traditional Emphasis.

Quantitative Emphasis

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 557</td>
<td>Psychometric Methods</td>
<td></td>
</tr>
<tr>
<td>PSYC 646</td>
<td>Issues and Methods in Longitudinal Developmental Research</td>
<td></td>
</tr>
<tr>
<td>PSYC 652</td>
<td>Quantitative Methods II: Analysis of Variance</td>
<td></td>
</tr>
</tbody>
</table>
**PSYC 756**  Quantitative Methods IV: Multivariate Techniques in Psychology

**PSYC 757**  Advanced Topics in Statistical Analysis (with approval)

**PSYC 892**  Special Topics in Psychology (with approval)

**Total Credits**  13

**Traditional Emphasis**

**PSYC 611**  Advanced Statistics  4

**PSYC 612**  Advanced Statistics  4

Select one from the following:  3

**PSYC 652**  Quantitative Methods II: Analysis of Variance

**PSYC 754**  Quantitative Methods III: Psychological Applications of Regression Techniques

**PSYC 756**  Quantitative Methods IV: Multivariate Techniques in Psychology

**PSYC 892**  Special Topics in Psychology (with approval)

**Total Credits**  11

**Advanced Specialized Methods**

Select one or two Research Methods courses or up to one Specialized Methods course:

**Research Methods Courses:**

**PSYC 646**  Issues and Methods in Longitudinal Developmental Research

**PSYC 654**  Naturalistic Methods in Psychology

**Specialized Methods Course:**

**PSYC 619**  Applied Behavior Analysis: Principles, Procedures, and Philosophy

**PSYC 673**  Prevention, Intervention, and Consultation in Schools

**PSYC 709**  The Measurement of Intelligence

**PSYC 710**  Psychological Assessment

**PSYC 722**  Advanced Child Assessment

**PSYC 794**  Developmental Assessment

**Total Credits**  6

**Specialized Content**

**PSYC 669**  Social and Emotional Development  3

Select four from the following:  12

**PSYC 592**  Special Topics (when topic is Early Childhood Education, Childcare, and the Transition to School or developmental in content)

**PSYC 566**  Cognitive and Perceptual Development

**PSYC 614**  The Psychology of Aging

**PSYC 615**  Language Development

**PSYC 617**  Child Psychopathology

**PSYC 630**  Developmental Disabilities

**PSYC 648**  Developmental Psychopathology

**PSYC 780**  Applied Developmental Psychology

**EDRS 631**  Program Evaluation  15

**Total Credits**

**Professional Seminar/Professional Ethics**

Students take 1 credit in fall and 1 credit in spring of their first year and 1 additional credit at any other time (preferably in their second year).

**PSYC 890**  Seminar in Professional Psychology (3 credits)  1-3

**Total Credits**  3

**Directed Reading and Research or Practicum**

Students may fulfill this requirement with 8 credits of PSYC 897 Directed Reading and Research or a combination of PSYC 897 Directed Reading and Research and PSYC 792 Psychology Practicum.

Select 8 credits from the following:  8

**PSYC 897**  Directed Reading and Research (can be repeated for credit)

**PSYC 792**  Psychology Practicum (A maximum of 6 credits may be applied to this requirement)

**Total Credits**  8

**Elective Courses**

Students complete the 72 credits required for the degree with elective courses, which may include credits of PSYC 897 Directed Reading and Research over and above those used to fulfill the requirements above. Credits for MA thesis and proposal (PSYC 798 Thesis Proposal, PSYC 799 Master’s Thesis) may not be used as electives in the PhD program.

Select electives to complete the 72 credits for the degree  72

**Advancement to Candidacy**

To advance to candidacy, students must complete all courses required by the program. Students must also successfully complete and pass written and oral comprehensive exams.

**Dissertation Research**

The dissertation requirement is designed to demonstrate the student’s ability to apply psychological principles to research problems. Once enrolled in PSYC 999 Doctoral Dissertation, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of PSYC 999 Doctoral Dissertation.

Students complete a minimum of 3 credits of PSYC 998 Doctoral Dissertation Proposal and 3 credits of PSYC 999 Doctoral Dissertation. They must apply a minimum of 12 dissertation credits (PSYC 998 Doctoral Dissertation Proposal and PSYC 999 Doctoral Dissertation combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Select 12 credits from the following:  12

**PSYC 998**  Doctoral Dissertation Proposal

**PSYC 999**  Doctoral Dissertation

**Total Credits**  12
Concentration in Clinical Psychology (CLN)

Overview

The clinical psychology concentration is committed to the clinical science model. Our goal is to train clinical psychologists who are capable of integrating research and applied clinical activities. The program is unique in approaching clinical psychology from social psychological and contextual perspectives. A social psychological approach uses theory and research from social psychology to understand emotional, cognitive, behavioral, and interpersonal functioning. A contextual perspective stresses the impact of social and cultural factors on the individual and vice versa. Most of the faculty members employ cognitive-behavioral and interpersonal approaches to research and clinical practice, but students also receive exposure to humanistic, existential, and psychodynamic perspectives.

Students pursuing this concentration must complete 76 graduate credits comprised of doctoral course work and at least 12 credits of dissertation research. The number of credits required may be reduced for a prior master's degree as described above.

Doctoral Coursework

Biological Bases of Behavior

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 702</td>
<td>Biological Bases of Human Behavior</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Developmental Bases of Behavior

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 704</td>
<td>Life-Span Development</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Design and Data Analysis Emphasis

Select one Emphasis from the Following.

Basic Emphasis A

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 612</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 644</td>
<td>Methods for Social Research</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>

Enhanced Quantitative Emphasis B

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 644</td>
<td>Methods for Social Research</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

Select one additional approved quantitative course, such as those in the list shown under Quantitative Emphasis C | 3 |

Total Credits | 13 |

Quantitative Emphasis C

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 644</td>
<td>Methods for Social Research</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td>3</td>
</tr>
<tr>
<td>Select two additional approved quantitative courses, such as:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>PSYC 557</td>
<td>Psychometric Methods</td>
<td></td>
</tr>
<tr>
<td>PSYC 646</td>
<td>Issues and Methods in Longitudinal Developmental Research</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

Total Credits | 41 |

1 Students take 3 credits in fall and 3 credits in spring of the second year.
2 Students take 3 credits in fall and 3 credits in spring of the third year.

Electives

The choice of quantitative emphasis affects the number of credits available for electives. Those who choose Emphasis A take 6 credit hours of electives; students choosing Emphasis B take 4 hours of electives; students choosing Emphasis C take 1 hour of elective.

Select 1-6 electives in consultation with the approval of an advisor | 1-6 |

Total Credits | 1-6 |

Advancement to Candidacy

To advance to candidacy, students must complete all core courses required by the program. Students must also successfully complete and pass written and oral comprehensive exams.

Dissertation Research

The dissertation requirement is designed to demonstrate the student's ability to apply psychological principles to research problems. Once enrolled in PSYC 999 Doctoral Dissertation, students must follow the university's continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of PSYC 999 Doctoral Dissertation.

Students complete a minimum of 3 credits of PSYC 998 Doctoral Dissertation Proposal and 3 credits of PSYC 999 Doctoral Dissertation.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 652</td>
<td>Quantitative Methods II: Analysis of Variance</td>
<td></td>
</tr>
<tr>
<td>PSYC 756</td>
<td>Quantitative Methods IV: Multivariate Techniques in Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 757</td>
<td>Advanced Topics in Statistical Analysis (varies by semester but includes Bayesian methods)</td>
<td></td>
</tr>
<tr>
<td>PSYC 892</td>
<td>Special Topics in Psychology (Credits: 3 that include Meta-analysis/SEM)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits | 16 |

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 810</td>
<td>Psychological Assessment I</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 811</td>
<td>Psychological Assessment II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 822</td>
<td>Scientific Foundations of Clinical Psychology I</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 830</td>
<td>History, Systems, and Theories of Personality and Psychotherapy</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 833</td>
<td>Social And Cognitive Foundations Of Clinical Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 860</td>
<td>Introductory Helping Skills and Motivational Interviewing</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 861</td>
<td>Cognitive Behavioral Therapy for Youth 1</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 862</td>
<td>Cognitive Behavioral Therapy for Adults 1</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 881</td>
<td>Practicum in Clinical Psychology 2</td>
<td>1-3</td>
</tr>
<tr>
<td>PSYC 883</td>
<td>Ethical and Professional Issues in Clinical Practice</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits | 41 |

1 Students take 3 credits in fall and 3 credits in spring of the second year.
2 Students take 3 credits in fall and 3 credits in spring of the third year.
They must apply a minimum of 12 dissertation credits (PSYC 998 Doctoral Dissertation Proposal and PSYC 999 Doctoral Dissertation combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 998</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 999</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

**Internship**

Students complete a full-time, 12-month clinical psychology internship at a site accredited by the American Psychological Association.

**Externship (optional, but recommended)**

Students complete a part-time clinical psychology externship in the fourth and/or fifth year of the program.

**Concentration in Cognitive and Behavioral Neuroscience (CBNR)**

**Overview**

This concentration focuses on studying biological substrates of behavior. Core and affiliated faculty study areas as diverse as neural control of behavioral development; animal models of learning and memory and their disorders (such as Alzheimer’s); human brain systems involved in cognition, perception, human error, decision making, and movement; the relation of neural activity to human performance; and cognitive aging. A focus of the program is on translational neuroscience-complementary study of neural systems in humans and animals, including application of animal research to human behavior.

The program’s core facilities have well-equipped behavioral testing and histological/histochemical facilities. The program’s strong links to the Krasnow Institute for Advanced Study and the Center for Biomedical Genomics and Informatics allows opportunities for collaborative work as diverse as tissue slice preparations and molecular genetics. The doctoral program prepares students for research-based careers in academics, government, or industry.

Students pursuing this concentration must complete 72 graduate credits comprised of course work and at least 12 credits of dissertation research. The number of credits required may be reduced for a prior master’s degree as described above.

**Doctoral Coursework**

**Cognitive and Behavioral Neuroscience Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 531</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 555</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 559</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 558</td>
<td>3</td>
</tr>
<tr>
<td>or PSYC 685</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

**Quantitative and Research Methods**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one course in advanced statistics from the following:

Select 12-24 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 998</td>
<td>3</td>
</tr>
</tbody>
</table>

**Research Credits**

The research credit requirement can be met through completion of a master’s thesis (recommended) or other research course as approved by the program.

Select 6 credits in either a master’s thesis or other research course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 850</td>
<td>2</td>
</tr>
<tr>
<td>PSYC 890</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 8

**Elective Credits**

Students can complete the 72 credit requirement through credits of additional coursework as approved by the program/advisor. Six of these courses must be outside of the cognitive and behavioral neuroscience program.

Select electives to complete the 72 credit requirement

**Advancement to Candidacy**

To advance to candidacy, students must complete all core courses required by the program. Students must also successfully complete and pass written and oral comprehensive exams.

**Dissertation Research**

The dissertation requirement is designed to demonstrate the student’s ability to apply psychological principles to research problems. Once enrolled in PSYC 999 Doctoral Dissertation, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of PSYC 999 Doctoral Dissertation.

Students apply to this degree a minimum of 3 credits of PSYC 998 Doctoral Dissertation Proposal and 3 credits of PSYC 999 Doctoral Dissertation; they may apply a minimum 12 and a maximum of 24 dissertation credits (PSYC 998 Doctoral Dissertation Proposal and PSYC 999 Doctoral Dissertation combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Select 12-24 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 652</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 754</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 756</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12-24
Concentration in Human Factors/Applied Cognition (HF)

Overview
The human factors and applied cognition concentration covers basic theoretical and empirical issues and emphasizes research that applies cognitive science to real-world problems. The program builds bridges between human factors engineering and cognitive psychology. Many applications of cognitive science are in the domain of human factors, and many doctoral students who complete our program go on to be human factors professionals.

Students pursuing this concentration must complete 72 graduate credits comprised of course work and at least 12 credits of dissertation research. The number of credits required may be reduced for a prior master’s degree (up to 30 credits).

Doctoral Coursework

### Cognitive Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 701</td>
<td>Cognitive Bases of Behavior</td>
<td>3</td>
</tr>
<tr>
<td>or PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

### Biological, Social, or Developmental Core

Select two from the following:

<table>
<thead>
<tr>
<th>Biological:</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 558</td>
<td>Neuronal Bases of Learning and Memory</td>
<td></td>
</tr>
<tr>
<td>PSYC 559</td>
<td>Behavioral Chemistry</td>
<td></td>
</tr>
<tr>
<td>PSYC 685</td>
<td>Cognitive Neuroscience</td>
<td></td>
</tr>
<tr>
<td>PSYC 702</td>
<td>Biological Bases of Human Behavior</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social:</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 667</td>
<td>Behavior in Small Groups and Teams</td>
<td></td>
</tr>
<tr>
<td>PSYC 668</td>
<td>Personality: Theoretical and Empirical Approaches</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Developmental:</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 703</td>
<td>Social Bases of Behavior</td>
<td></td>
</tr>
<tr>
<td>PSYC 566</td>
<td>Cognitive and Perceptual Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 669</td>
<td>Social and Emotional Development</td>
<td></td>
</tr>
<tr>
<td>PSYC 704</td>
<td>Life-Span Development</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

### Quantitative and Research Methods

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 4

### Advanced Statistics or Qualitative Methods

Select four courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 525</td>
<td>Nonparametric Statistics and Categorical Data Analysis</td>
<td>12</td>
</tr>
<tr>
<td>PSYC 557</td>
<td>Psychometric Methods</td>
<td></td>
</tr>
<tr>
<td>PSYC 612</td>
<td>Advanced Statistics</td>
<td></td>
</tr>
<tr>
<td>PSYC 646</td>
<td>Issues and Methods in Longitudinal Development Research</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 4

### Specialized Content

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 652</td>
<td>Quantitative Methods II: Analysis of Variance</td>
<td></td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td></td>
</tr>
<tr>
<td>PSYC 756</td>
<td>Quantitative Methods IV: Multivariate Techniques in Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 757</td>
<td>Advanced Topics in Statistical Analysis</td>
<td></td>
</tr>
<tr>
<td>SOCI 634</td>
<td>Qualitative Research Methods</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

### Special Topics in Professional Issues

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 530</td>
<td>Cognitive Engineering: Cognitive Science Applied to Human Factors</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 645</td>
<td>Research Methods in Human Factors and Applied Cognition</td>
<td>3</td>
</tr>
</tbody>
</table>

Select three courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 734</td>
<td>Seminar in Human Factors and Applied Cognition</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

### Directed Reading and Research

Students are encouraged to take a minimum of 1 credit of this course each semester until they advance to candidacy.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 890</td>
<td>Seminar in Professional Psychology</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Total Credits 3

### Elective Courses

Students have several options for completing the remaining 72 credits required for the degree. They may take additional content courses with permission of their advisor. Students who do not have work experience in applied cognition or human factors are encouraged to take up to 6 credits of practicum.

Students are strongly encouraged to develop competence in programming and computer science through course work or independent study. Students are also encouraged to identify and take relevant courses within or outside the department with permission of their advisor.

Some options for fulfilling this requirement:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 734</td>
<td>Seminar in Human Factors and Applied Cognition</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 730</td>
<td>Practicum in Applied Psychology</td>
<td>1-6</td>
</tr>
<tr>
<td>or PSYC 592</td>
<td>Special Topics</td>
<td></td>
</tr>
</tbody>
</table>
Advancement to Candidacy
To advance to candidacy, students must complete all core courses required by the program. Students must also successfully complete and pass written comprehensive exams.

Dissertation Research
The dissertation requirement is designed to demonstrate the student’s ability to apply psychological principles to research problems. Once enrolled in PSYC 999 Doctoral Dissertation, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of PSYC 999 Doctoral Dissertation.

Students complete a minimum of 3 credits of PSYC 998 Doctoral Dissertation Proposal and 3 credits of PSYC 999 Doctoral Dissertation. They must apply a minimum of 12 dissertation credits (PSYC 998 Doctoral Dissertation Proposal and PSYC 999 Doctoral Dissertation combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Select one additional specialized statistics course

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 998 Doctoral Dissertation Proposal</td>
<td></td>
</tr>
<tr>
<td>PSYC 999 Doctoral Dissertation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Industrial/Organizational Psychology (IO)

Overview
The industrial/organizational psychology concentration focuses on multiple aspects of behavior in organizational settings, including personnel selection, quantitative analysis, teams, leadership, work and family issues, and organizational health issues. Mason's graduate work in this area emphasizes research as the key to knowledge in both academic and applied settings. The program fosters a peer-oriented environment whereby students collaborate on numerous projects in addition to working with faculty members, in many different areas of industrial/organizational psychology.

Students pursuing this concentration must complete 72 graduate credits comprised of course work and at least 12 credits of dissertation research. The number of credits required may be reduced for a prior master’s degree as described above.

Doctoral Coursework

Core Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 703</td>
<td>Social Bases of Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Required Courses in Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 557</td>
<td>Psychometric Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 633</td>
<td>Evaluative Research in Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 754</td>
<td>Quantitative Methods III: Psychological Applications of Regression Techniques</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 892</td>
<td>Special Topics in Psychology</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Total Credits 17-22

1 Such as PSYC 646 Issues and Methods in Longitudinal Developmental Research, PSYC 756 Quantitative Methods IV: Multivariate Techniques in Psychology, PSYC 892 Special Topics in Psychology (not SEM/META)

Survey of Content

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 631</td>
<td>Industrial and Personnel Testing and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 636</td>
<td>Survey of Industrial Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 639</td>
<td>Survey of Organizational Processes</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 739</td>
<td>Seminar in Industrial/Organizational Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Specialized Content

Students taking 12 credits of specialized content may add additional 3 credits of PSYC 897 Directed Reading and Research.

Select four to five courses of specialized content from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 638</td>
<td>Training: Psychological Contributions to Theory, Design, and Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 667</td>
<td>Behavior in Small Groups and Teams</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 733</td>
<td>Issues in Personnel Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 741</td>
<td>Psychology of Work Motivation</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 892</td>
<td>Special Topics in Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12-15

Professional Development

Required:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 890</td>
<td>Seminar in Professional Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 892</td>
<td>Special Topics in Psychology</td>
<td>6</td>
</tr>
</tbody>
</table>

Recommended:

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 730</td>
<td>Practicum in Applied Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or PSYC 897 &amp; Directed Reading and Research</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSYC 730 &amp; PSYC 897</td>
<td>Practicum in Applied Psychology and Directed Reading and Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

1 Students taking 12 credits of specialized content may add additional 3 credits of PSYC 897 Directed Reading and Research.

Electives

Students complete the remaining credits required for this degree through additional course work in professional development or dissertation.

Advancement to Candidacy
To advance to candidacy, students must complete all core courses required by the program. Students must also successfully complete and pass written and oral comprehensive exams.

Dissertation Research
The dissertation requirement is designed to demonstrate the student’s ability to apply psychological principles to research problems. Once
enrolled in PSYC 999 Doctoral Dissertation, students must follow the university's continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of PSYC 999 Doctoral Dissertation.

Students complete a minimum of 3 credits of PSYC 998 Doctoral Dissertation Proposal and 3 credits of PSYC 999 Doctoral Dissertation. They must apply a minimum of 12 dissertation credits (PSYC 998 Doctoral Dissertation Proposal and PSYC 999 Doctoral Dissertation combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 998</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 999</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 12

Transportation Human Factors Graduate Certificate

Banner Code: LA-CERG-TRHF

Academic Advising

2086 David King Hall
Fairfax Campus

Email: psycgrad@gmu.edu
Website: psychology.gmu.edu/programs/la-cerg-trhf

This graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in transportation human factors, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/la-cerg-trhf/application).

Requirements

Certificate Requirements

Total credits: 15

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 530</td>
<td>Cognitive Engineering: Cognitive Science</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 645</td>
<td>Research Methods in Human Factors and Applied Cognition</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

1 Only when aviation-related topic is approved for this certificate by the program director.

Electives

Select two electives from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 597</td>
<td>Directed Reading and Research</td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
</tr>
<tr>
<td>SYST 560</td>
<td>Introduction to Air Traffic Control</td>
</tr>
<tr>
<td>SYST 671</td>
<td>Judgment and Choice Processing and Decision Making</td>
</tr>
</tbody>
</table>

Total Credits 6

1 Only when topic is approved for this certificate.

Usability Graduate Certificate

Banner Code: LA-CERG-UBTY

Academic Advising

2086 David King Hall
Fairfax Campus

Email: psycgrad@gmu.edu
Website: psychology.gmu.edu/programs/la-cerg-ubty

This graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in usability, see Application Requirements and Deadlines (http://psychology.gmu.edu/programs/la-cerg-ubty/application).

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates.

Requirements

Certificate Requirements

Total credits: 15

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 530</td>
<td>Cognitive Engineering: Cognitive Science</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 645</td>
<td>Research Methods in Human Factors and Applied Cognition</td>
<td>3</td>
</tr>
</tbody>
</table>
**Elective Courses**
Select three electives from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 597</td>
<td>Directed Reading and Research</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 654</td>
<td>Naturalistic Methods in Psychology</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 734</td>
<td>Seminar in Human Factors and Applied Cognition</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 768</td>
<td>Advanced Topics in Cognitive Science</td>
<td>1</td>
</tr>
<tr>
<td>EDIT 526</td>
<td>Web Accessibility and Design</td>
<td>1</td>
</tr>
<tr>
<td>EDIT 571</td>
<td>Visual Design and Applications</td>
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</tr>
<tr>
<td>EDIT 705</td>
<td>Instructional Design</td>
<td>1</td>
</tr>
<tr>
<td>EDIT 773</td>
<td>Human Computer Interface Design for Teaching and Learning</td>
<td>1</td>
</tr>
</tbody>
</table>

\[
\text{Total Credits} \quad 9
\]

1 Only when topic is approved for this certificate.

---

**Department of Religious Studies**

Phone: 703-993-1290  
Website: religious.gmu.edu

**Undergraduate Program**

The department offers a bachelor's degree in religious studies for students who are interested in learning more about the world’s religious traditions. Majors explore the many dimensions of religion and study religion’s spiritual, historical, cultural, and social aspects.

**Areas of Study**

Areas of study offered by the department include Asian religious traditions, Near (Middle) East religious traditions (Judaism, Islam, and Christianity), and comparative aspects of religion. Though the required coursework, majors in religious studies develop skills in reading and interpreting sacred texts. They explore the cultural and social dimensions of religion along with a consideration of religious values and ethics, from comparative and cross-cultural perspectives with relation to global issues.

**Courses**

The courses in the undergraduate program are writing intensive. They enable students to study and analyze religious ideas and symbols and give them the skills they need to present well-argued papers.

**Minors**

Students majoring in religious studies are encouraged to do one of the many minors offered by the college. See Minors and Interdisciplinary Minors (p. 295) on the College of Humanities and Social Sciences page.

The department also offers minors in religious studies and Judaic studies, both of which are available to students in all majors in the university.

**Graduate Program**

The department sponsors the concentration in religion, culture, and values in the interdisciplinary studies, MAIS (p. 534). This concentration is designed for students who are interested in exploring the world’s major religions at the graduate level. Students study the development and interaction of the global religious traditions that influence human identity, behavior, culture, and values. They investigate the effects that historical crises and the forces of change have on religion, placing contemporary religious pluralism and inter-religious dialog in a global context.

**Faculty**

**Department Faculty**

**Professor**

Ro, Sachedina

**Professors Emeriti**

Burns

**Associate Professors**

M. Dakake (chair), Farina, Nguyen, Rashkover, Shiner

**Assistant Professors**

G. Sparks, Turner

**Adjuncts**

Bond, D. Dakake, Hostetter, Padgett, Rine, S. Sparks

**Programs**

- Judaic Studies Minor
- Religious Studies Minor
- Religious Studies, BA

**Judaic Studies Minor**

**Banner Code:** JS

**Academic Advising**

B465 Robinson Hall  
Fairfax Campus

Website: religious.gmu.edu/programs/la-minor-reli-js

The minor is designed for students interested in the culture, history, and politics of Jewish communities across the world.

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
Requirements

Minor Requirements
Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 476) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 352</td>
<td>Judaism from Exile to Talmud</td>
<td>3</td>
</tr>
<tr>
<td>RELI 370</td>
<td>Judaism</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Electives
Select three courses from the following: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEBR 150</td>
<td>Introduction to Biblical Hebrew</td>
<td></td>
</tr>
<tr>
<td>HEBR 160</td>
<td>Readings in Biblical Hebrew</td>
<td></td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td></td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>RELI 350</td>
<td>Religion and History of Ancient Israel</td>
<td></td>
</tr>
<tr>
<td>RELI 372</td>
<td>American Judaism</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

1 Special topics courses and independent studies courses, when relevant, may be used to fulfill this requirement with prior written approval of the undergraduate director.

Religious Studies Minor

Banner Code: RELI

Academic Advising
B465 Robinson Hall
Fairfax Campus

Website: religious.gmu.edu/programs/la-minor-reli-reli

The minor introduces students to the world’s religious traditions. Within the minor, students may focus on the religious traditions of Asia, those of the Near (Middle) East, or comparative aspects of religion.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in each course applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 476) tab.

Core Course
Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 100</td>
<td>The Human Religious Experience (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Electives
Select five elective courses in religious studies (p. 1904) 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

1 At least three courses must be at the 300 level or above.

Religious Studies, BA

Banner Code: LA-BA-RELI

B465 Robinson Hall
Fairfax Campus
Website: religious.gmu.edu/programs/la-ba-reli

Religious studies provides students an understanding of the traditions of religions across the globe. Areas of study offered by the department include Asian religious traditions, Near (Middle) East religious traditions (Judaism, Islam, and Christianity), and comparative aspects of religion. Students develop skills in reading and interpreting sacred texts. They explore the cultural and social dimensions of religion along with a consideration of religious values and ethics from comparative and cross-cultural perspectives, and with relation to global issues. Students go on to work in the government, service, or nonprofit sectors, as well as pursue graduate work in the humanities.

Admissions & Policies

Policies
Students in this major complete at least 33 credits within the major, earning a minimum grade of 2.00 in each course. No course applied to the major in religious studies may be used to fulfill more than one requirement.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements
Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 477) tab.
Core Courses in the Major

Introductory Courses in the Main World Religions
RELI 211 Religions of the West (Mason Core) (p. 135) 3
RELI 212 Religions of Asia (Mason Core) (p. 135) 3
Total Credits 6

Comparative or Methodological Aspects of the Study of Religion
Select two courses from the following: 6
- ANTH 313 Myth, Magic, and Mind (Mason Core) (p. 135)
- PHIL 313 Philosophy of Religion
- RELI 337 Mysticism: East and West
- RELI 341 Global Perspectives on Spirituality and Healing (Mason Core) (p. 135)
- RELI 490 Comparative Study of Religions (Mason Core) (p. 135)
- SOCI 385 Sociology of Religion
- RELI 376 Special Topics in Religious Thought

Total Credits 6

1 Only when topic is relevant and with the prior written approval of the undergraduate director.

Religious Studies
Select four courses (12 credits) from any religious studies (RELI) at the 300 and 400 level other than those used to fulfill the requirements above. 12
Total Credits 12

1 Choose courses in a scriptural language (such as Arabic, Biblical Hebrew, Chinese, Classical Greek, Latin, or Sanskrit). Up to 6 credits of a scriptural language may be used to fulfill this requirement and the 6 credits of electives.

One Seminar
Students should take this course during their senior year.
RELI 420 Seminar 3
Total Credits 3

Electives in the Major
Select two electives in consultation with an advisor. 1 6
Total Credits 6

1 Choose from courses in religious studies, related disciplines (including anthropology, art history, and history), or a scriptural language (such as Arabic, Biblical Hebrew, Chinese, Classical Greek, Latin, or Sanskrit). Up to 6 credits of a scriptural language may be used to fulfill this requirement and the requirement of 12 credits in religious studies at 300 and 400 level.

Writing-Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in their majors. Students majoring in religious studies fulfill this requirement by successfully completing RELI 420 Seminar.

Upper Level Requirement
Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies
Code Title Credits
- PHIL 323 Classical Western Political Theory 1
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 450 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences
Code Title Credits
- ANTH 1119 1
- CRIM 1372
- ECON 1413
- GOVT 1588
- HIST 1628
- LING 1694
- PSYC 1844
- SOCI 1923

1 Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement) 1
- ANTH (p. 1119)
- CRIM (p. 1372)
- ECON (p. 1413)
- GOVT (p. 1588)
- HIST (p. 1628)
- LING (p. 1694)
- PSYC (p. 1844)
- SOCI (p. 1923)

Or choose from the following GGS courses:
- GGS 101 Major World Regions (Mason Core) (p. 135)
- GGS 103 Human Geography (Mason Core) (p. 135)
- GGS 110 Introduction to Geoinformation Technologies
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography
- GGS 306 Urban Geography
The two courses used to fulfill the combined college and Mason Core requirements must be from different disciplines in the social and behavioral sciences.

Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by: ¹</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or achieving a satisfactory score on an approved proficiency test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or completing the following ASL three course sequence:</td>
<td></td>
</tr>
<tr>
<td>EDSE 115</td>
<td>American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td>EDSE 116</td>
<td>American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td>EDSE 219</td>
<td>American Sign Language (ASL) III</td>
<td></td>
</tr>
</tbody>
</table>

¹ Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

- ANTH 309 Peoples and Cultures of India (Mason Core) (p. 135) 3
- ANTH 313 Myth, Magic, and Mind (Mason Core) (p. 135) 3
- ANTH 314 Zombies 3
- ANTH 316 Peoples and Cultures of the Caribbean (Mason Core) (p. 135) 3
- ANTH 323 Digging and Dealing in the Dead: Ethics in Archaeology 3
- ANTH 330 Peoples and Cultures of Selected Regions: Non-Western 3
- ANTH 332 Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135) 3
- ANTH 381 Medical Anthropology 3
- ANTH 383 Cities of the Global South 3
- ANTH 396 Issues in Anthropology: Social Sciences (Mason Core) (p. 135) 3
- ARAB 360 Topics in Arabic Cultural Production 3
- ARAB 420 Survey of Arabic Literature 3
- ARAB 440 Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135) 3
- ARTH 203 Survey of Asian Art (Mason Core) (p. 135) 3
- ARTH 204 Survey of Latin American Art (Mason Core) (p. 135) 3
- ARTH 206 Survey of African Art (Mason Core) (p. 135) 3
- ARTH 318 Art and Archaeology of Ancient Egypt 3
- ARTH 319 Art and Archaeology of the Ancient Near East (Mason Core) (p. 135) 3
- ARTH 320 Art of the Islamic World (Mason Core) (p. 135) 3
- ARTH 382 Arts of India (Mason Core) (p. 135) 3
- ARTH 383 Arts of Southeast Asia (Mason Core) (p. 135) 3
- ARTH 384 Arts of China (Mason Core) (p. 135) 3
- ARTH 385 Arts of Japan (Mason Core) (p. 135) 3
- ARTH 386 The Silk Road (Mason Core) (p. 135) 3
- ARTH 482 RS: Advanced Studies in Asian Art 3
- CHIN 318 Introduction to Classical Chinese (Mason Core) (p. 135) 3
- CHIN 320 Contemporary Chinese Film 3
- CHIN 325 Major Chinese Writers (Mason Core) (p. 135) 3
- DANC 118 World Dance (Mason Core) (p. 135) 3
- ECON 361 Economic Development of Latin America (Mason Core) (p. 135) 3
- ECON 362 African Economic Development (Mason Core) (p. 135) 3
- FREN 451 Topics in Sub-Saharan Francophone Literature and Culture 3
- FREN 454 Topics in Caribbean Francophone Literature and Culture 3
- GGS 101 Major World Regions (Mason Core) (p. 135) 3
- GGS 316 Geography of Latin America 3
GGS 325  Geography of North Africa and the Middle East  3
GGS 330  Geography of the Soviet Succession States  3
GGS 399  Select Topics in GGS  3
GOVT 328  Non-Western Political Theory  3
GOVT 332  Government and Politics of the Middle East and North Africa  3
GOVT 333  Government and Politics of Asia  3
GOVT 340  Central Asian Politics  3
GOVT 341  Chinese Foreign Policy  3
GOVT 345  Islam and Politics  3
GOVT 432  Political Change and Social Development in Sub-Saharan Africa  3
GOVT 433  Political Economy of East Asia  3
HIST 251  Survey of East Asian History (Mason Core) (p. 135)  3
HIST 252  Survey of East Asian History (Mason Core) (p. 135)  3
HIST 261  Survey of African History (Mason Core) (p. 135)  3
HIST 262  Survey of African History (Mason Core) (p. 135)  3
HIST 271  Survey of Latin American History (Mason Core) (p. 135)  3
HIST 272  Survey of Latin American History (Mason Core) (p. 135)  3
HIST 281  Survey of Middle Eastern Civilization (Mason Core) (p. 135)  3
HIST 282  Survey of Middle Eastern Civilization (Mason Core) (p. 135)  3
HIST 326  Stalinism  3
HIST 327  The Soviet Union and Russia Since World War II  3
HIST 328  Rise of Russia (Mason Core) (p. 135)  3
HIST 329  Modern Russia and the Soviet Union (Mason Core) (p. 135)  3
HIST 353  History of Traditional China  3
HIST 354  Modern China  3
HIST 356  Modern Japan (Mason Core) (p. 135)  3
HIST 357  Postwar Japan (Mason Core) (p. 135)  3
HIST 358  Post-1949 China (Mason Core) (p. 135)  3
HIST 360  History of South Africa (Mason Core) (p. 135)  3
HIST 364  Revolution and Radical Politics in Latin America (Mason Core) (p. 135)  3
HIST 365  Conquest and Colonization in Latin America (Mason Core) (p. 135)  3
HIST 366  Comparative Slavery  3
HIST 367  History, Fiction, and Film in Latin America  3
HIST 387  Topics in Global History (Mason Core) (p. 135)  3-6
HIST 426  The Russian Revolution  3
HIST 460  Modern Iran (Mason Core) (p. 135)  3
HIST 461  Arab-Israeli Conflict  3
HIST 462  Women in Islamic Society (Mason Core) (p. 135)  3
HIST 465  The Middle East in the 20th Century  3
JAPA 310  Japanese Culture in a Global World (Mason Core) (p. 135)  3
JAPA 340  Topics in Japanese Literature (Mason Core) (p. 135)  3
KORE 320  Korean Popular Culture in a Global World  3
MUSI 103  Musics of the World (Mason Core) (p. 135)  3
RELI 211  Religions of the West (Mason Core) (p. 135)  3
RELI 212  Religions of Asia (Mason Core) (p. 135)  3
RELI 240  Death and the Afterlife in World Religions  3
RELI 272  Islam  3
RELI 313  Hinduism (Mason Core) (p. 135)  3
RELI 314  Chinese Philosophies and Religious Traditions  3
RELI 315  Buddhism (Mason Core) (p. 135)  3
RELI 337  Mysticism: East and West  3
RELI 365  Muhammad: Life and Legacy  3
RELI 374  Islamic Thought (Mason Core) (p. 135)  3
RELI 375  Qur’an and Hadith  3
RELI 379  Islamic Law, Society, and Ethics  3
RELI 387  Islam, Democracy, and Human Rights  3
RELI 490  Comparative Study of Religions (Mason Core) (p. 135)  3
RUSS 353  Russian Civilization (Mason Core) (p. 135)  3
RUSS 354  Contemporary Post-Soviet Life (Mason Core) (p. 135)  3

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication (p. 135)</td>
<td>Foundation Requirements</td>
<td></td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quantitative Reasoning (p. 136)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Information Technology (p. 136)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arts (p. 137)</td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td>Global Understanding (p. 139)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Literature (p. 140)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Additional Elective Courses
Any remaining credits may be completed with electives to bring the degree total to 120.

Accelerated Master's
The accelerated master's programs in the list below specify the BA in religious studies as a feeder degree for their programs. It is important to note, however, that many accelerated master's programs are available for any bachelor's degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Bachelor's Degree (selected)/Middle East and Islamic Studies, Accelerated MA

Overview
Highly-qualified undergraduates pursuing a BA in select majors (listed below) may apply to the accelerated master's degree in Middle East and Islamic studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's degree in Middle East and Islamic studies after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- government and international politics (p. 917)
- global affairs (p. 509)
- history (p. 394)
- religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- sociology (p. 494)
- anthropology (p. 484)

It is preferred, though not required, that the student have a minor in Middle East studies or Islamic studies.

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Middle East and Islamic studies, see Application Requirements and Deadlines (http://meis.gmu.edu/programs/la-ma-acel-meis).

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics (when content focus is the Middle East)</td>
<td></td>
</tr>
<tr>
<td>GOVT 733</td>
<td>Islam and Politics</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview
Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

Department of Sociology and Anthropology
B305 Robinson Hall
Fairfax Campus
Phone: 703-993-1440
Website: soan.gmu.edu

Undergraduate Programs
Anthropology
The department offers a bachelor of arts degree in anthropology. The program draws broadly from the social sciences, humanities, and natural sciences, making it a strong undergraduate major that provides a sound interdisciplinary preparation for a variety of careers.

Bachelor's/Accelerated Master's Program
The department offers highly-qualified majors in anthropology the opportunity to apply to an accelerated master's degree program in anthropology. If accepted, students will be able to earn both the
undergraduate and graduate degrees after satisfactory completion of 144 credits, sometimes within five years.

**Sociology**
The department offers a bachelor’s degree in sociology. Sociology majors study how social movements emerge from the collective efforts of individuals and the role that social forces play in defining racial identities and gender roles. They take courses in the theories that explain social phenomena and develop strong research skills, learning how to conduct surveys, interviews, systematic observation as well as how to evaluate sources.

With the strong research skills, critical thinking, and effective writing that are the hallmark of sociology graduates, they are prepared for a variety of career paths from teaching, human service, and human resource occupations to work in the criminal justice system, marketing, and social research. The sociology major is also excellent preparation for students considering law school or graduate training in the social and behavioral sciences.

**Bachelor's/Accelerated Master's Program**
The department offers highly-qualified majors in sociology the opportunity to apply to an accelerated master’s degree program in sociology. If accepted, students will be able to earn both the undergraduate and graduate degrees after satisfactory completion of 147 credits, sometimes within five years.

**Minors**
The department offers minors in anthropology and sociology available to students in any major. The department coordinates the interdisciplinary minor in immigration studies and the faculty participate in many other minors in the college.

**Graduate Programs**

**Anthropology**
The department offers a master's degree in anthropology. Students can choose one of three emphases: advanced training in sociocultural anthropology; culture, health and bioethics; or transnational and global issues. They can choose from many courses that are richly interdisciplinary covering such diverse topics as nationalism and transnationalism; bioethics; social movements, ethnicity and identity; conflict and violence; migration, displacement, and refugees; regional ethnography; and political economy and globalization. Departmental specializations include the following regions: Central and South America, Europe, Africa, the Middle East, Asia, and the United States. Course work progresses from core courses to more advanced courses and culminates in a thesis.

**Sociology**
The department offers master’s and doctoral degrees in sociology. Students pursuing a master’s degree in sociology take required courses in theory and methods and a host of electives. Students may choose to focus their electives in one of two specializations: institutions and inequalities or sociology of globalization.

The doctoral degree in sociology provides rigorous training in public and applied social research, including skills in research design, data analysis, and substantive areas that are pertinent to various sectors in the Washington, D.C., area. Graduates have the theoretical, analytical, and professional skills that prepare them for academic positions in teaching or research. They are also well-qualified for nonacademic positions in the many settings that rely on the expertise of sociologists including human service agencies, marketing research firms, educational systems, nonprofit foundations, and law enforcement agencies.

**Funding**
The department has a limited number of teaching assistantships, which are awarded on a competitive basis. Other sources of funding such as grants, loans, and employment on campus are also available. Students awarded assistantships must register for a minimum of six credits a semester and show satisfactory progress toward their degree.

**Faculty**

**Department Faculty**

**Emeritus Faculty**
Black, Dumont, Golomb, Williams (anthropology); Borkman (sociology)

**Professors**
Schiller, Seligmann (anthropology); Best, Dennis, Jacobs, Kurtz, Witte, Scimecca (sociology)

**Associate Professors**
Bickford, Trencher (anthropology); Bockman, Dale, Davis, Guagnano, Hanrahan, Kim (sociology)

**Assistant Professors**
Hughes Rinker, Klaus, Mantz, Sadana, Takahashi, Temple (anthropology)

**Term Associate Professor**
Masters

**Term Assistant Professor**
Storelli (sociology)

**Adjuncts**
Gerber, Hodges, Lowry (anthropology); Mitcho, Nambiar, Pearlman, Smith (sociology)

**Affiliate Faculty**
Avruch, Blum, Usher (anthropology); Goldstone, Johnson, Nambiar, Sandole-Staroste, Smith, Spalter-Roth (sociology)

**Requirements & Policies**

**Policies**

**Nondegree Status**
Applicants who do not wish to pursue a degree may apply for nondegree status. Nondegree students must meet the same admission requirements as degree-seeking students (minimum undergraduate GPA of 3.00, among other criteria). Nondegree students may later apply for admission to a degree program. Up to nine credits earned in nondegree status may transferred to the master’s degrees in anthropology or sociology, subject to the approval of the program director and dean.

**Programs**

- Anthropology Minor
• Anthropology, BA
• Anthropology, MA
• Immigration Studies Minor
• Sociology Minor
• Sociology, BA
• Sociology, MA
• Sociology, PhD

**Anthropology Minor**

**Banner Code:** ANTH

**Academic Advising**

B305 Robinson Hall
Fairfax Campus

Website: soan.gmu.edu/programs/la-minor-soan-anth

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 484) tab.

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 120</td>
<td>Unearthing the Past: Prehistory, Culture and Evolution (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or ANTH 135</td>
<td>Introduction to Biological Anthropology (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

**Regional Ethnography Course**

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core)</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core)</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core)</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core)</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core)</td>
</tr>
</tbody>
</table>

**Anthropology, BA**

**Banner Code:** LA-BA-ANTH

B305 Robinson Hall
Fairfax Campus

Website: soan.gmu.edu/programs/la-ba-anth

Anthropology is the study of human beings and their cultures. Majors develop an eye for detail and careful observation, critical thinking, sensitivity to the unfamiliar, skills in research and writing, and an ability to describe and understand culture. The programs in archaeology and biological anthropology give hands-on research experience with faculty through fieldwork in bioarchaeology, archaeology, and museum-based data collection. The programs in cultural anthropology connect anthropological research to current social challenges such as health and disease, urbanization, and geopolitics. It is a strong undergraduate major that provides sound interdisciplinary preparation for a variety of careers.

**Admissions & Policies**

**Policies**

Students pursuing this degree must complete 36 credits within the major, with a minimum GPA of 2.00.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 85).

**Requirements**

**Degree Requirements**

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 484) tab.

Students are advised to consult with an advisor to learn how they can fulfill Mason Core (p. 135) requirements in global understanding, information technology, and synthesis, as well as the college-level requirement in non-Western culture.

**Core Courses in the Major**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 120</td>
<td>Unearthing the Past: Prehistory, Culture and Evolution (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 390</td>
<td>Theories, Methods, and Issues</td>
<td>3</td>
</tr>
</tbody>
</table>
ANTH 490  Theories, Methods, and Issues II  3  
Total Credits  12

1 SOC1 311 Classical Sociological Theory may substitute for ANTH 390 Theories, Methods, and Issues I.

Electives in the Major
Select 24 credits from the following:  24
ANTH courses 300-499 (p. 1119)  1
The following SOCI courses:
SOC1 311 Classical Sociological Theory  2
SOC1 313 Statistics for the Behavioral Sciences (Mason Core) (p. 135)

Total Credits  24

1 Students wishing to pursue careers in anthropology should consider taking ANTH 492 Contemporary Controversies in Anthropology or subfield specialty equivalents, such as ANTH 420 Interpretation in Archaeology, ANTH 450 Qualitative Methods: Nonstatistical Approaches in Culture and Social Research, ANTH 495 Internship, or ANTH 496 Evolutionary Theory as one of their electives.
2 Only if not used as a substitute for core course ANTH 390 Theories, Methods, and Issues I

Writing-Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students majoring in anthropology may fulfill this requirement by successfully completing ANTH 490 Theories, Methods, and Issues II

Upper Level Requirement
Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies
Select 3 credits from the following:  3
PHIL (p. 1818)  1
RELI (p. 1904)

1 Note that the following courses may not be used to fulfill this requirement:
• PHIL 323 Classical Western Political Theory
• PHIL 324 Modern Western Political Theory
• PHIL 327 Contemporary Western Political Theory
• PHIL 393 Humanities College to Career
• PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences
Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)  1
ANTH (p. 1119)
CRIM (p. 1372)
ECON (p. 1413)
GOVT (p. 1588)
HIST (p. 1628)  2
LING (p. 1694)
PSYC (p. 1844)
SOC1 (p. 1923)

Or choose from the following GGS courses:
GGS 101 Major World Regions (Mason Core) (p. 135)
GGS 103 Human Geography (Mason Core) (p. 135)
GGS 110 Introduction to Geoinformation Technologies
GGS 301 Political Geography
GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
GGS 304 Population Geography (Mason Core) (p. 135)
GGS 305 Economic Geography
GGS 306 Urban Geography
GGS 315 Geography of the United States
GGS 316 Geography of Latin America
GGS 320 Geography of Europe
GGS 325 Geography of North Africa and the Middle East
GGS 330 Geography of the Soviet Succession States
GGS 357 Structures in Urban Governance and Planning
GGS 380 Geography of Virginia

1 The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.
2 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.
### Foreign Language

**Code** | **Title** | **Credits**
--- | --- | ---
Intermediate-level proficiency in one foreign language, fulfilled by:

1. Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)

2. Or achieving a satisfactory score on an approved proficiency test

3. Or completing the following ASL three course sequence:
   - EDSE 115 American Sign Language (ASL) I
   - EDSE 116 American Sign Language (ASL) II
   - EDSE 219 American Sign Language (ASL) III

Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

**Code** | **Title** | **Credits**
--- | --- | ---
 Select 3 credits (additional to Mason Core Global Understanding requirement) 1

- **ANTH 114** Introduction to Cultural Anthropology (Mason Core) (p. 135) 3
- **ANTH 300** Civilizations 3
- **ANTH 301** Native North Americans 3
- **ANTH 302** Peoples and Cultures of Latin America (Mason Core) (p. 135) 3
- **ANTH 303** Peoples and Cultures of the Andes 3
- **ANTH 306** Peoples and Cultures of Island Asia (Mason Core) (p. 135) 3
- **ANTH 307** Ancient Mesoamerica (Mason Core) (p. 135) 3
- **ANTH 308** Peoples and Cultures of the Middle East (Mason Core) (p. 135) 3
- **ANTH 309** Peoples and Cultures of India (Mason Core) (p. 135) 3
- **ANTH 313** Myth, Magic, and Mind (Mason Core) (p. 135) 3
- **ANTH 314** Zombies 3
- **ANTH 316** Peoples and Cultures of the Caribbean (Mason Core) (p. 135) 3
- **ANTH 323** Digging and Dealing in the Dead: Ethics in Archaeology 3
- **ANTH 330** Peoples and Cultures of Selected Regions: Non-Western 3
- **ANTH 332** Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135) 3
- **ANTH 381** Medical Anthropology 3
- **ANTH 383** Cities of the Global South 3
- **ANTH 396** Issues in Anthropology: Social Sciences (Mason Core) (p. 135) 3

- **ARAB 360** Topics in Arabic Cultural Production 3
- **ARAB 420** Survey of Arabic Literature 3
- **ARAB 440** Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135) 3
- **ARTH 203** Survey of Asian Art (Mason Core) (p. 135) 3
- **ARTH 204** Survey of Latin American Art (Mason Core) (p. 135) 3
- **ARTH 206** Survey of African Art (Mason Core) (p. 135) 3
- **ARTH 318** Art and Archaeology of Ancient Egypt 3
- **ARTH 319** Art and Archaeology of the Ancient Near East (Mason Core) (p. 135) 3
- **ARTH 320** Art of the Islamic World (Mason Core) (p. 135) 3
- **ARTH 382** Arts of India (Mason Core) (p. 135) 3
- **ARTH 383** Arts of Southeast Asia (Mason Core) (p. 135) 3
- **ARTH 384** Arts of China (Mason Core) (p. 135) 3
- **ARTH 385** Arts of Japan (Mason Core) (p. 135) 3
- **ARTH 386** The Silk Road (Mason Core) (p. 135) 3
- **ARTH 482** RS: Advanced Studies in Asian Art 3
- **CHIN 318** Introduction to Classical Chinese (Mason Core) (p. 135) 3
- **CHIN 320** Contemporary Chinese Film 3
- **CHIN 325** Major Chinese Writers (Mason Core) (p. 135) 3
- **DANC 118** World Dance (Mason Core) (p. 135) 3
- **ECON 361** Economic Development of Latin America (Mason Core) (p. 135) 3
- **ECON 362** African Economic Development (Mason Core) (p. 135) 3
- **FREN 451** Topics in Sub-Saharan Francophone Literature and Culture 3
- **FREN 454** Topics in Caribbean Francophone Literature and Culture 3
- **GGS 101** Major World Regions (Mason Core) (p. 135) 3
- **GGS 316** Geography of Latin America 3
- **GGS 325** Geography of North Africa and the Middle East 3
- **GGS 330** Geography of the Soviet Succession States 3
- **GGS 399** Select Topics in GGS 3
- **GOVT 328** Non-Western Political Theory 3
- **GOVT 332** Government and Politics of the Middle East and North Africa 3
- **GOVT 333** Government and Politics of Asia 3
- **GOVT 340** Central Asian Politics 3
- **GOVT 341** Chinese Foreign Policy 3
- **GOVT 345** Islam and Politics 3
- **GOVT 432** Political Change and Social Development in Sub-Saharan Africa 3
- **GOVT 433** Political Economy of East Asia 3
- **HIST 251** Survey of East Asian History (Mason Core) (p. 135) 3
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
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<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
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<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
<td>3</td>
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<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
<td>3</td>
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<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
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<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
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<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
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<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
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<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
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<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
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<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
<td>3</td>
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<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
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<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
<td>3</td>
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<tr>
<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
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<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
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<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur’an and Hadith</td>
<td>3</td>
</tr>
<tr>
<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundation Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Synthesis/Capstone Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 40

1 minimum 3 credits

**Additional Electives**

Any remaining credits may be completed with elective courses to bring the degree total to 120.
Honors

Honors in the Major
Highly-qualified students majoring in anthropology may apply to graduate with honors in the major.

Eligibility
To be eligible, students must have completed at least 60 credits, taken ENGH 302 Advanced Composition (Mason Core) (p. 135) for the social sciences, completed 15 credits of anthropology (including ANTH 114 Introduction to Cultural Anthropology (Mason Core) (p. 135)), and have a minimum cumulative GPA of 3.30 and a minimum grade of B+ in anthropology courses.

Requirements
If accepted, students complete two honors courses. The first course is an honors section of one of these courses: ANTH 496 Evolutionary Theory, ANTH 420 Interpretation in Archaeology, ANTH 430 Research Methods in Archaeology, ANTH 450 Qualitative Methods: Nonstatistical Approaches in Culture and Social Research, ANTH 495 Internship or another course chosen in consultation with the honors director. The second course is ANTH 499 Independent Research, in which students complete an honors paper written under the guidance of an anthropology faculty member. All candidates for honors in the major participate in an honors colloquium. To graduate with honors in the major, students must complete the honors coursework with a minimum GPA of 3.50.

Accelerated Master's

The accelerated master's programs in the list below specify the BA in anthropology as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Anthropology, BA/Anthropology, Accelerated MA

Overview
Highly-qualified Mason anthropology majors may apply to the accelerated master’s degree program. If accepted, students will be able to earn both a BA and a MA in anthropology after satisfactory completion of 144 credits, sometimes within 5 years. Students with both a BA and MA have a competitive advantage when applying to PhD programs in anthropology. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in anthropology, see Application Requirements and Deadlines (http://soan.gmu.edu/programs/LA-MA-ANTH/application).

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete two graduate courses (chosen from ANTH 535 Anthropology and the Human Condition: Seminar I, ANTH 536 Anthropology and the Human Condition: Seminar II, and ANTH 650 Methods in Anthropology) as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from ANTH 635 Regional Ethnography, ANTH 650 Methods in Anthropology, or ANTH 699 Contemporary Issues in Sociocultural Anthropology). These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor's/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Bachelor's Degree (selected)/Middle East and Islamic Studies, Accelerated MA

Overview
Highly-qualified undergraduates pursuing a BA in select majors (listed below) may apply to the accelerated master's degree in Middle East and Islamic studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in Middle East and Islamic studies after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- government and international politics (p. 917)
- global affairs (p. 509)
- history (p. 394)
- religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- sociology (p. 494)
• anthropology (p. 484)

It is preferred, though not required, that the student have a minor in Middle East studies or Islamic studies.

### Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Middle East and Islamic studies, see Application Requirements and Deadlines (http://meis.gmu.edu/programs/la-ma-acel-meis).

### Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

#### Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

### Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)

#### Overview

Highly-qualified undergraduates in select majors may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

#### Selected Majors

Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

#### Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

#### Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics (when content focus is the Middle East)</td>
<td>6</td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Islam and Politics</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students

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The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)**

**Overview**

Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
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<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview
Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master's in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's degree, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits | 6 |

Anthropology, MA
Banner Code: LA-MA-ANTH

Academic Advising
B305 Robinson Hall
Fairfax Campus
Website: soan.gmu.edu/programs/la-ma-ant

Anthropology MA students learn the history of critical inquiry in the discipline of anthropology and how to approach and develop a topic of research. Students are trained in fieldwork and ethnographic methods appropriate for their goals and are guided through the research and writing methods central to completion of a thesis or project. In the process, students learn about the ethics of conducting research. Students may focus on cultural anthropology or bioarchaeology. The program prepares students for careers in government, the private sector, non-governmental organizations, museums, and numerous other fields, or to pursue a doctorate in the field.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://soan.gmu.edu/programs/application/LA-MA-ANTH).

Policies
For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit
Students with previously conferred graduate degrees may request a reduction of credit. Reductions of credit may not exceed six elective credits and no reductions will be given for required core courses. Evaluation of a previously conferred graduate degree for reduction of credit is not automatic and students must request this review in their first semester of matriculation in the master’s program.

Satisfactory Progress
According to university policy, students may be terminated if they fail to achieve satisfactory progress toward their degree. Students in the program are judged as having failed to achieve satisfactory progress toward their degree for the following reasons:

- two consecutive semesters in which academic warnings appear on their transcript
• failure to successfully complete ANTH 535 Anthropology and the Human Condition: Seminar I, ANTH 536 Anthropology and the Human Condition: Seminar II, and ANTH 650 Methods in Anthropology within 4 semesters of first enrolling as degree-seeking students in the MA in anthropology program
• failure to enroll in graduate coursework in anthropology for 2 consecutive semesters, unless there are compelling reasons for not having done so

Like all academic policies, these provisions take effect with the publication of this catalog and apply to all graduate students in the MA in anthropology regardless of their catalog year.

Requirements

Degree Requirements

Total credits: 30

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 491) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 535</td>
<td>Anthropology and the Human Condition: Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 536</td>
<td>Anthropology and the Human Condition: Seminar II</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 650</td>
<td>Methods in Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 798</td>
<td>Thesis or Project Proposal</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Electives

Select 15 credits from advanced courses in anthropology chosen in consultation with an advisor (p. 1119)

Total Credits 15

Students can choose to focus their electives around an emphasis in these four areas: advanced training in sociocultural anthropology; culture, health and bioethics; museums and anthropology; or transnational and global issues. Up to six credits may be from other disciplines with the prior written approval of the graduate director.

Students may take ANTH 690 Internship as elective credit. An internship can serve as a primary field research site for the thesis.

Thesis or Research Project

Students should be aware of the policies governing theses. They must follow the thesis enrollment policy (p. 91) of the university and once enrolled in ANTH 799 Master’s Thesis, maintain continuous enrollment.

Three credits from one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 796</td>
<td>Master’s Research Project</td>
<td></td>
</tr>
<tr>
<td>ANTH 799</td>
<td>Master’s Thesis</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Accelerated Master’s

Anthropology, BA/Anthropology, Accelerated MA

Overview

Highly-qualified Mason anthropology majors may apply to the accelerated master’s degree program. If accepted, students will be able to earn both a BA and a MA in anthropology after satisfactory completion of 144 credits, sometimes within 5 years. Students with both a BA and MA have a competitive advantage when applying to PhD programs in anthropology. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in anthropology, see Application Requirements and Deadlines (http://soan.gmu.edu/programs/MA-ANTH/application).

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses (chosen from ANTH 535 Anthropology and the Human Condition: Seminar I, ANTH 536 Anthropology and the Human Condition: Seminar II, and ANTH 650 Methods in Anthropology) as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from ANTH 635 Regional Ethnography, ANTH 650 Methods in Anthropology, or ANTH 699 Contemporary Issues in Sociocultural Anthropology). These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
Immigration Studies Minor

Banner Code: IMMS

Academic Advising
B305 Robinson Hall
Fairfax Campus
Phone: 703-993-1178
Website: soan.gmu.edu/programs/la-minor-la-imms

The minor combines perspectives from the humanities and social sciences to provide an interdisciplinary and comparative understanding of the immigrant experience, ethnic identity, assimilation, ethnic exclusion and conflict, and refugee situations.

Faculty
Cleaveland, Haines, Ihara, Leeman, Rabin, Ritchie, Seligmann, Shutika, Trencher (director)

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 493) tab.

Core Courses
- ANTH 340 Comparative Perspectives on Immigration (3)
- or SOCI 330 US Immigrants and Immigration (3)
Total Credits (3)

Ethnicity in the United States
Select one course from the following:
- CHIN 328 Asian American Women Writers (Mason Core) (p. 135)
- SOCI 308 Race and Ethnicity in a Changing World
- ENGH 352 Topics in Ethnic American Literature
- ENGH 416 Ethnicity and Migration in Folklore
- SPAN 388 Introduction to Latina/o Studies (Mason Core) (p. 135)
Total Credits (3)

Global Perspectives on Migration and Ethnicity
Select one course from the following:
- ANTH 331 Refugees (Mason Core) (p. 135)
- GOVT 445 Human Rights
- CONF 302 Culture, Identity, and Conflict

Sociology Minor

Banner Code: SOCI

Academic Advising
B305 Robinson Hall
Fairfax Campus
Website: soan.gmu.edu/programs/la-minor-soan-soci

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 493) tab.

Core Courses
Students must complete each of these courses with a minimum grade of 2.00.
- SOCI 101 Introductory Sociology (Mason Core) (p. 135) (3)
- SOCI 311 Classical Sociological Theory (3)
Total Credits (6)

Electives
Select four electives (1)
Total Credits (12)

1 Students may focus the coursework for their minor by choosing electives from one of the four concentrations offered as part of the BA in sociology (p. 494).
Sociology, BA

Banner Code: LA-BA-SOCI

B305 Robinson Hall
Fairfax Campus

Website: soan.gmu.edu/programs/la-ba-soci

Sociology involves the systematic study of social structures, cultural patterns, and human relationships. It combines rigorous methods with theory and observation, yielding insights that challenge commonly held assumptions about the social world. Sociology also informs the practice of social and public service, aiding efforts to address important social problems. Sociology majors pursue a varied set of career paths, ranging from teaching, human service and human resource occupations, to positions in the criminal justice system, marketing, and social research. The major is excellent preparation for students considering law school or graduate training in the social and behavioral sciences.

Admissions & Policies

Policies
Students pursuing this degree must complete 34 credits of sociology courses with a minimum GPA of 2.00. No more than 6 credits of courses with unsatisfactory grades (C- or D) may be applied toward the degree.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements
Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 494) tab.

Core Courses in the Major
The introductory course must be completed with a minimum grade of 2.00.

- SOCI 101 Introduction to Sociology (Mason Core) (p. 135)

Total Credits 3

Additional Core Courses
Each of these courses must be completed with a minimum grade of 2.00.

- SOCI 303 Methods and Logic of Inquiry
- SOCI 311 Classical Sociological Theory
- SOCI 313 Statistics for the Behavioral Sciences (Mason Core) (p. 135)
- SOCI 412 Contemporary Sociological Theory

Total Credits 13

Capstone Experience Course
Select one from the following:

- SOCI 485 RS: Sociological Analysis and Practice (Mason Core) (p. 135)
- SOCI 416 Internship in Sociology
- SOCI 481 RS: Honors Seminar in Sociology II

Total Credits 3

Electives in the Major
Select 15 credits in sociology (SOCI) at the 300 or 400 level (p. 1923)

Total Credits 15

Students are strongly encouraged to focus four of their elective courses (12 credits) in one of the concentrations which follow, chosen to suit their interests and career objectives. Students who choose a concentration will complete one remaining elective.

Optional Concentrations in the Major
Students can focus 12 of their 15 elective credits to complete one of the following 12-credit concentrations.

Students who graduate with honors in sociology may apply 3 credits of honors coursework to their selected concentration where appropriate and with prior written approval of the undergraduate director.

Concentration in Childhood and Youth (CYC)
This concentration focuses on the changing social realities, experiences, and identities of children and youth as they are formed in different social and historical contexts. It emphasizes children in peer groups, youth subcultural activities, youth and children and the media, schools, families, social movements, social policy, and the welfare state. This concentration is appropriate for students interested in working directly with children and youth or in organizations serving them in a broad range of fields, such as educational counseling, teaching, policy, advocacy or clinical work, family and community services, social work, early child development, and juvenile justice.

- SOCI 360 Youth Culture and Society

Select three from the following:

- SOCI 302 Sociology of Delinquency
- SOCI 307 Social Movements and Political Protest
- SOCI 309 Marriage, Families, and Intimate Life
- SOCI 314 Sociology of Culture
- SOCI 315 Contemporary Gender Relations
- SOCI 352 Social Problems and Solutions (Mason Core) (p. 135)
- ANTH 315 Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective

Total Credits 12

Concentration in Deviance, Crime, and Social Control (DCSC)
This concentration focuses on the social, legal, and political systems that underpin social control in Western societies and beyond. The emphasis is on how norms, values, and common sense regulate human action and the social forces that produce deviant behavior and societal responses to it.

- SOCI 302 Sociology of Delinquency
- SOCI 307 Social Movements and Political Protest
- SOCI 309 Marriage, Families, and Intimate Life
- SOCI 314 Sociology of Culture
- SOCI 315 Contemporary Gender Relations
- SOCI 352 Social Problems and Solutions (Mason Core) (p. 135)
- SOCI 382 Education in Contemporary Society
- SOCI 395 Special Topics in Sociology
- SOCI 483 The Sociology of Higher Education (Mason Core) (p. 135)
- ANTH 315 Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective

Total Credits 12
This concentration is appropriate for students interested in the criminal justice system and the law.

Select four from the following: 12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 300</td>
<td>Social Control and Freedom</td>
<td></td>
</tr>
<tr>
<td>SOCI 301</td>
<td>Criminology</td>
<td></td>
</tr>
<tr>
<td>SOCI 302</td>
<td>Sociology of Delinquency</td>
<td></td>
</tr>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
<td></td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
<td></td>
</tr>
<tr>
<td>SOCI 310</td>
<td>Sociology of Deviance</td>
<td></td>
</tr>
<tr>
<td>SOCI 325</td>
<td>Conflict, Violence, and Peace</td>
<td></td>
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<tr>
<td>SOCI 332</td>
<td>The Urban World (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 340</td>
<td>Power, Politics, and Society</td>
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<tr>
<td>SOCI 352</td>
<td>Social Problems and Solutions (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
<td></td>
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<tr>
<td>SOCI 388</td>
<td>Violence and Religion</td>
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</tr>
<tr>
<td>SOCI 395</td>
<td>Special Topics in Sociology</td>
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</tr>
</tbody>
</table>

Total Credits 12

1 Depending on topic.

Concentration in Global Sociology (GSOC)
This concentration focuses on global interconnectedness and its effect on the nature of societies around the world. It emphasizes new technologies and social processes, migration, transnational communities, global cities, and social movements working across state borders. This concentration is appropriate for students interested in pursuing internationally oriented careers in social change, political reform, and international development.

Select three from the following: 9

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
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<tr>
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<tr>
<td>SOCI 325</td>
<td>Conflict, Violence, and Peace</td>
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<td>SOCI 330</td>
<td>US Immigrants and Immigration</td>
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<tr>
<td>SOCI 332</td>
<td>The Urban World (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 340</td>
<td>Power, Politics, and Society</td>
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<tr>
<td>SOCI 352</td>
<td>Social Problems and Solutions (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 388</td>
<td>Violence and Religion</td>
<td></td>
</tr>
<tr>
<td>SOCI 395</td>
<td>Special Topics in Sociology</td>
<td></td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

1 Depending on topic.

Concentration in Inequality and Social Change (INSC)
The focus is on inequalities, such as those of race, class, and sex, and on the manner in which such inequalities become structurally rooted in a society. The emphasis is on understanding the rise of the struggle for human rights, democracy, and various social movements that have sought to reverse these inequalities through protests, demonstrations, counterorganizations, and the ballot. This concentration is appropriate for students who seek careers in social justice organizations, social services, or teaching, and those who wish to participate in social and political movements.

Select three from the following: 9

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 300</td>
<td>Social Control and Freedom</td>
<td></td>
</tr>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
<td></td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
<td></td>
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<tr>
<td>SOCI 310</td>
<td>Sociology of Deviance</td>
<td></td>
</tr>
<tr>
<td>SOCI 315</td>
<td>Contemporary Gender Relations</td>
<td></td>
</tr>
<tr>
<td>SOCI 330</td>
<td>US Immigrants and Immigration</td>
<td></td>
</tr>
<tr>
<td>SOCI 332</td>
<td>The Urban World (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>SOCI 340</td>
<td>Power, Politics, and Society</td>
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</tr>
<tr>
<td>SOCI 352</td>
<td>Social Problems and Solutions (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 360</td>
<td>Youth Culture and Society</td>
<td></td>
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<tr>
<td>SOCI 382</td>
<td>Education in Contemporary Society</td>
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<tr>
<td>SOCI 390</td>
<td>Sociology of Health, Illness, and Disability</td>
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</tr>
<tr>
<td>SOCI 395</td>
<td>Special Topics in Sociology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

1 Depending on topic.

Writing-Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students majoring in sociology may fulfill this requirement by successfully completing SOCI 412 Contemporary Sociological Theory.

Upper Level Requirement
Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits from the following:</td>
<td></td>
</tr>
<tr>
<td>PHIL (p. 1818)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

RELI (p. 1904)
Note that the following courses may not be used to fulfill this requirement:
• PHIL 323 Classical Western Political Theory
• PHIL 324 Modern Western Political Theory
• PHIL 327 Contemporary Western Political Theory
• PHIL 393 Humanities College to Career
• PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature requirement.

Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
<td></td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
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<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
<td></td>
</tr>
<tr>
<td>LING</td>
<td>(p. 1694)</td>
<td></td>
</tr>
<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
<td></td>
</tr>
<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
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</tr>
</tbody>
</table>

Or choose from the following GGS courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
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<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
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<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
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</tbody>
</table>

Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or achieving a satisfactory score on an approved proficiency test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or completing the following ASL three course sequence:</td>
<td></td>
</tr>
<tr>
<td>EDSE 115</td>
<td>American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td>EDSE 116</td>
<td>American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td>EDSE 219</td>
<td>American Sign Language (ASL) III</td>
<td></td>
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</tbody>
</table>

Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits (additional to Mason Core Global Understanding requirement)</td>
<td></td>
</tr>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

2 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
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<td>RELI 272</td>
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<td>RELI 313</td>
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1 A course used to fulfill the Mason Core global understanding requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td></td>
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<td>Oral Communication (p. 136)</td>
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<td>Quantitative Reasoning (p. 136)</td>
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<td>Arts (p. 137)</td>
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<td>Western Civilization/World History (p. 143)</td>
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<td></td>
<td>Total Credits</td>
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</table>

1 minimum 3 credits

Additional Elective Courses

Any remaining credits may be completed with elective courses to bring the degree total to 120.

Honors

Honors in the Major

Highly qualified students majoring in sociology may apply to graduate with honors in the major. To be eligible, students must have completed at least 75 credits, taken ENGH 302 Advanced Composition (Mason Core) (p. 135) for the social sciences, completed 21 credits of sociology, and have a minimum cumulative GPA of 3.30 and a minimum grade of B+ in sociology courses. Applicants must have completed SOCI 303 Methods and Logic of Inquiry and SOCI 311 Classical Sociological Theory with a minimum grade of B in each.

If accepted, to graduate with honors in sociology, students must complete SOCI 480 Honors Seminar in Sociology I and SOCI 481 RS: Honors Seminar in Sociology II with a minimum grade of B+ in each of these courses and have an overall GPA of 3.50 in sociology courses presented for graduation. SOCI 481 RS: Honors Seminar in Sociology II includes completion of an honors thesis, which will be presented at a sociology colloquium.

Accelerated Master’s

The accelerated master’s programs in the list below specify the BA in sociology as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Bachelor’s Degree (selected)/Middle East and Islamic Studies, Accelerated MA

Overview

Highly-qualified undergraduates pursuing a BA in select majors (listed below) may apply to the accelerated master’s degree in Middle East and Islamic studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in Middle East and Islamic studies after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

• government and international politics (p. 917)
• global affairs (p. 509)
• history (p. 394)
• religious studies (p. 477)
• Russian and Eurasian studies (p. 558)
• sociology (p. 494)
• anthropology (p. 484)

It is preferred, though not required, that the student have a minor in Middle East studies or Islamic studies.
Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Middle East and Islamic studies, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-ma-acel-ma-is).

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
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<tr>
<th>Code</th>
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<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
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<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
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<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
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<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
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</tbody>
</table>

Total Credits 6

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Selected Majors
- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-ma-acel-ma-is).

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

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Total Credits 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview
Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

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<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
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</table>

Total Credits 6
As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

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<td>World Religions in Conflict and Dialogue</td>
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<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
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<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
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<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
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<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
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The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)**

**Overview**

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master's in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental website.

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

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The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)**

**Overview**

Highly-qualified undergraduates in select majors may apply to the accelerated master's degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted,
and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's degree in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td></td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
</tbody>
</table>

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td></td>
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<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
</tbody>
</table>

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Sociology, BA/Sociology, Accelerated MA Overview**

Highly-qualified Mason sociology majors may apply to the accelerated master's degree program. If accepted, students will be able to earn both a BA and an MA in sociology following satisfactory completion of 147 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in sociology, see Application Requirements and Deadlines (http://soan.gmu.edu/programs/LA-MA-ACEL-SOCI/application).

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete two graduate SOCI courses at the 500 and 600 level (chosen in consultation with the graduate program director and indicated on their Accelerated Master's Program Application) with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits of SOCI (p. 1923) courses as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
Students pursuing an MA in sociology may choose a specialization in either institutions and inequality, or the sociology of globalization. Under the larger framework of these specializations, students may pursue studies in a wide range of areas of sociological inquiry. Faculty in the program specialize in culture (including music, art, new media, and consumption); family, youth and aging; gender; globalization; immigration and migration; political economy, development and economic sociology; political sociology and social movements; race/ethnicity; religion; sociological theory; and urban sociology. The program is strongly connected to nonprofit and community groups, providing ample opportunity for research, internships, and employment.

### Admissions & Policies

#### Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MA in sociology, see Application Requirements and Deadlines (http://soan.gmu.edu/programs/LA-MA-SOCI/application).

#### Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies.

### Requirements

#### Degree Requirements

Total credits: 33

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

#### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 711</td>
<td>Classical Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 712</td>
<td>Contemporary Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

#### Research Methods

Select two from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 620</td>
<td>Methods and Logic of Social Inquiry</td>
</tr>
<tr>
<td>SOCI 631</td>
<td>Survey Research</td>
</tr>
<tr>
<td>SOCI 632</td>
<td>Evaluation Research for Social Programs</td>
</tr>
<tr>
<td>SOCI 633</td>
<td>Special Topics in Sociology</td>
</tr>
<tr>
<td>SOCI 634</td>
<td>Qualitative Research Methods</td>
</tr>
<tr>
<td>SOCI 635</td>
<td>Methodological Innovation in Sociology</td>
</tr>
<tr>
<td>SOCI 636</td>
<td>Statistical Reasoning</td>
</tr>
</tbody>
</table>

#### Public Sociology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 601</td>
<td>Proseminar in Public and Applied Sociology</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

#### Writing

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 602</td>
<td>Writing for the Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

#### Elective Courses

Select two to three electives from the full range of offerings in sociology (any SOCI course) or focus their elective credits in one of two specializations:

##### Institutions and Inequalities Specialization:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 605</td>
<td>Gender and Social Structure</td>
</tr>
<tr>
<td>SOCI 608</td>
<td>Juvenile Delinquency</td>
</tr>
<tr>
<td>SOCI 614</td>
<td>Sociology of Culture</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Racial and Ethnic Relations: American and Selected Global Perspectives</td>
</tr>
<tr>
<td>SOCI 624</td>
<td>International Migration in the Age of Globalization</td>
</tr>
<tr>
<td>SOCI 635</td>
<td>Environment and Society</td>
</tr>
<tr>
<td>SOCI 641</td>
<td>Micro Sociology: Inequality and Everyday Life</td>
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<td>New Media and Social Inequality</td>
</tr>
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</tr>
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<td>Society and Education</td>
</tr>
<tr>
<td>SOCI 853</td>
<td>Cities in a Global Society</td>
</tr>
<tr>
<td>SOCI 857</td>
<td>Sociology of Human Rights</td>
</tr>
<tr>
<td>SOCI 633</td>
<td>Special Topics in Sociology</td>
</tr>
<tr>
<td>SOCI 833</td>
<td>Special Topics in Sociology</td>
</tr>
</tbody>
</table>

##### Sociology of Globalization Specialization:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 614</td>
<td>Sociology of Culture</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Racial and Ethnic Relations: American and Selected Global Perspectives</td>
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<td>Environment and Society</td>
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<tr>
<td>SOCI 670</td>
<td>New Media and Social Inequality</td>
</tr>
<tr>
<td>SOCI 850</td>
<td>Sociology of Development</td>
</tr>
<tr>
<td>SOCI 851</td>
<td>Globalization and Social Movements</td>
</tr>
<tr>
<td>SOCI 853</td>
<td>Cities in a Global Society</td>
</tr>
<tr>
<td>SOCI 857</td>
<td>Sociology of Human Rights</td>
</tr>
<tr>
<td>ANTH 631</td>
<td>Refugees in the Contemporary World</td>
</tr>
<tr>
<td>ANTH 632</td>
<td>International Migration in Comparative Perspective</td>
</tr>
</tbody>
</table>
ANTH 655  Nationalism, Transnationalism, and States: Local and Global Perspectives
SOCI 633  Special Topics in Sociology
SOCI 833  Special Topics in Sociology

Total Credits  6-9

1 Only with prior written approval of director.

**Thesis or MA Capstone Paper**

**Thesis**
A master’s thesis demonstrates the student’s capacity to carry out independent research. The thesis consists of a substantial sociological research or theoretical project that will contribute to the advancement of knowledge in sociology.

Students must follow the thesis enrollment policy of the university and once enrolled in SOCI 799 Thesis, maintain continuous enrollment as specified in AP.6.9.3 Master’s Thesis (p. 91).

Three or six credits of
SOCI 799  Thesis

Total Credits  3-6

**MA Capstone Paper**
As an alternative to the thesis, students can elect to complete an independent, 25-page research paper. Unlike the thesis, the MA capstone paper must be completed in one semester.

SOCI 797  Master’s Capstone Paper  3

Total Credits  3

**Accelerated Master’s**

**Sociology, BA/Sociology, Accelerated MA Overview**
Highly-qualified Mason sociology majors may apply to the accelerated master’s degree program. If accepted, students will be able to earn both a BA and an MA in sociology following satisfactory completion of 147 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in sociology, see Application Requirements and Deadlines (http://soan.gmu.edu/programs/LA-MA-ACEL-SOCI/application).

**Accelerated Option Requirements**
While undergraduate students, accelerated master’s students complete two graduate SOCI courses at the 500 and 600 level (chosen in consultation with the graduate program director and indicated on their Accelerated Master’s Program Application) with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**
Students may take up to 6 additional graduate credits of SOCI (p. 1923) courses as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Sociology, PhD**

Banner Code: LA-PHD-SOCI

Academic Advising
B305 Robinson Hall
Fairfax Campus
Website: soan.gmu.edu/programs/la-phd-soci

The sociology doctoral degree provides rigorous training in public and applied social research, including skills in research design, data analysis, and substantive areas that are pertinent to various sectors in the Washington, D.C. area. Graduates have the theoretical, analytical, and professional skills that prepare them for academic positions in teaching or research. They are also well-qualified for nonacademic positions in the many settings that rely on the expertise of sociologists including human service agencies, marketing research firms, educational systems, nonprofit foundations, and law enforcement agencies.

**Admissions & Policies**

**Admissions**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://soan.gmu.edu/programs/application/LA-PHD-SOCI) on the departmental web site.
Policies

Reduction of Credit
Students who enter the program with a master's degree may be allowed a reduction of credit up to 30 credits subject to the approval of the graduate director and the dean.

Requirements

Degree Requirements
Total credits: 72

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 503) tab.

Following completion of all required course work and passing a candidacy exam, students are advanced to candidacy by the dean and complete a dissertation, an original and independent research project.

Foundation Courses

Required Foundation Course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 601</td>
<td>Proseminar in Public and Applied Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses of Theory

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 711</td>
<td>Classical Sociological Theory</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 712</td>
<td>Contemporary Sociological Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

Writing

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 602</td>
<td>Writing for the Social Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Courses of Methodology and Analysis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 620</td>
<td>Methods and Logic of Social Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 636</td>
<td>Statistical Reasoning</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Course of Methodology and Analysis

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 633</td>
<td>Special Topics in Sociology (when topic is Critical Theory or Feminist Theory, may substitute for this requirement or for one course under the statistics/methods requirement.)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 730</td>
<td>Analytic Techniques of Social Research</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 634</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

Statistics/Methods

Select two from the following:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 633</td>
<td>Special Topics in Sociology (when topic is Critical Theory or Feminist Theory, may substitute for one course under this requirement or for the elective methodology and analysis course.)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 631</td>
<td>Survey Research</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 632</td>
<td>Evaluation Research for Social Programs</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 634</td>
<td>Qualitative Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 655</td>
<td>Ethnography</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 660</td>
<td>Historical and Comparative Sociology</td>
<td>3</td>
</tr>
<tr>
<td>or SOCI 860</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH 650</td>
<td>Methods in Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Two Proseminars

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 803</td>
<td>Institutions and Inequality</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 804</td>
<td>Sociology of Globalization</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 27

Three Courses in a Specialization

Students specialize in either institutions and inequalities or sociology of globalization. Depending on the topic, special topics courses SOCI 633 Special Topics in Sociology and SOCI 833 Special Topics in Sociology (or others) may be applied to the specialization with prior written approval of the director. Up to two courses may be from outside sociology, chosen in consultation with (and with approval of) the student's advisor or the graduate director.

Institutions and Inequalities Specialization
Select 3 courses toward the degree from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 605</td>
<td>Gender and Social Structure</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 608</td>
<td>Juvenile Delinquency</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 614</td>
<td>Sociology of Culture</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Racial and Ethnic Relations: American and Selected Global Perspectives</td>
<td>3</td>
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<td>SOCI 624</td>
<td>International Migration in the Age of Globalization</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 635</td>
<td>Environment and Society</td>
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</tr>
<tr>
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<td>Micro Sociology: Inequality and Everyday Life</td>
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</tr>
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<td>SOCI 670</td>
<td>New Media and Social Inequality</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 840</td>
<td>Work Organizations and Social Inequality</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 844</td>
<td>Youth, Schooling, and Popular Culture</td>
<td>3</td>
</tr>
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<td>SOCI 845</td>
<td>Society and Education</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 853</td>
<td>Cities in a Global Society</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 857</td>
<td>Sociology of Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 863</td>
<td>Special Topics in Sociology (with prior written approval of director)</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 833</td>
<td>Special Topics in Sociology (with prior written approval of director)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Sociology of Globalization Specialization

Students in this specialization must demonstrate proficiency in one foreign language at an advanced level of reading and comprehension.

Select 3 courses toward the degree from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCI 614</td>
<td>Sociology of Culture</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Racial and Ethnic Relations: American and Selected Global Perspectives</td>
<td>3</td>
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<td>SOCI 624</td>
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<td>SOCI 635</td>
<td>Environment and Society</td>
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<tr>
<td>SOCI 851</td>
<td>Globalization and Social Movements</td>
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<tr>
<td>SOCI 853</td>
<td>Cities in a Global Society</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9
Elective Courses
Select six elective courses 18
Total Credits 18

Electives may include up to two courses from outside sociology, chosen in consultation with and approval of the graduate director.

Research Proficiency
Students must demonstrate proficiency in a range of quantitative and qualitative research methods prior to taking the qualifying exams for candidacy. Proficiency is determined by satisfactory course work or an exam.

Advancement to Candidacy
To advance to candidacy, students must complete all course work required on their approved program of study. Students must also successfully pass one written qualifying examination. The comprehensive exam tests students' mastery of the foundations of sociological inquiry, linking research methods and sociological theory to public concerns, as well as material in the student's area of specialization. It is administered by a faculty committee appointed by the graduate program director. Additionally, students must have an approved dissertation committee. Evidence of completed requirements must be on file in the Dean's Office before a student can advance to candidacy.

Dissertation
Once enrolled in SOCI 999 Doctoral Dissertation, students must maintain continuous registration each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in SOCI 999 Doctoral Dissertation, students must follow the university's continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of SOCI 999 Doctoral Dissertation.

Students complete a minimum of 3 credits of SOCI 998 Doctoral Dissertation Proposal and 3 credits of SOCI 999 Doctoral Dissertation. They may apply a maximum of 12 dissertation credits (SOCI 998 Doctoral Dissertation Proposal and SOCI 999 Doctoral Dissertation combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of SOCI 999 Doctoral Dissertation. Because students cannot register for credits of SOCI 999 Doctoral Dissertation until they have advanced to PhD candidacy, they may choose (but are not required) to register for additional credits of SOCI 998 Doctoral Dissertation Proposal.

Select 12 credits from the following:

SOCI 998 Doctoral Dissertation Proposal

African American Studies Research and Resource Center
The goal of the African American Studies Research and Resource Center (Paul Robeson Room) is to facilitate new ways for George Mason University students to learn about the African diaspora. As part of their academic and community involvements, students often need to address issues related to African and African American Studies. The center offers them opportunities for hands-on experience with African and African American life. It has been instrumental in assisting students, faculty, staff, and the community in finding resources to accomplish this goal.

The center sponsors a lecture series and a scholar-in-residence program and offers research and resources support for the Mason community.

Faculty
Carbonneau, Carton, Cherubin, Clark, Dennis, Fauntroy, Fuchs, Haley, Johnson, Lepore, Levine, Manuel-Scott, Miller, Paden, Richards Jordan, Smith, Stewart, Travis, Weatherspoon

Programs
African and African American Studies Minor

Banner Code: AAMS
In the minor, students will examine the cultural, historical, economic, and political dimensions and experiences of people of African descent in America, the Caribbean, Africa, and throughout the Diaspora. Students will learn theories and methodologies that are used to examine the complex dynamics of race, class, gender, and ethnicity in America. Through this minor, students are able to develop critical and analytical approaches to societal issues because such issues are addressed and delineated through a variety of academic disciplines.

Students are encouraged to do an internship as part of the minor to further enhance their education and provide them with valuable preparation for the workforce.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFAM 200</td>
<td>Introduction to African American Studies (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AFAM 390</td>
<td>Special Topics in African and African American Studies</td>
</tr>
<tr>
<td>AFAM 490</td>
<td>Internship</td>
</tr>
<tr>
<td>AFAM 499</td>
<td>Independent Study</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135) (May be applied to the minor when the topic is relevant to African and African American Studies)</td>
</tr>
<tr>
<td>ENGH 348</td>
<td>Beginnings of African American Literature Through 1865</td>
</tr>
<tr>
<td>ENGH 349</td>
<td>African American Literature: Reconstruction to 1903</td>
</tr>
<tr>
<td>ENGH 350</td>
<td>African American Literature Through 1946</td>
</tr>
<tr>
<td>ENGH 351</td>
<td>Contemporary African American Literature</td>
</tr>
</tbody>
</table>

1 Other courses, when relevant, may be able to meet this requirement with prior written approval of the director.

The Cultural Studies Program is distinctive in several respects. While similar programs at other universities are based in a department, the program at Mason has a truly interdisciplinary foundation, drawing on faculty members from 14 different departments across the university. The program explicitly links the social sciences and the humanities by combining their methods of interpretation to explore the production, distribution, and consumption of cultural objects in their social contexts. With particular focus on theory and method in crafting this linkage, the program addresses contemporary issues of nationality, class, race, and gender and opens the scope of scholarly inquiry to all forms of culture, past and present.

The doctoral program in cultural studies trains students for scholarship and teaching. The core curriculum includes an introduction to cultural studies and a methods course, as well as courses on political economy,
gender and sexuality, critical race studies, science and technology, social institutions, and visual and performance culture.

All students develop field specializations in two areas of cultural studies. The particular strengths of the program are visual culture, media, and new media studies; political economy and globalization; gender and sexuality studies.

Related Master’s Degrees

Applicants to the doctoral degree in cultural studies must already hold a master’s degree. Students interested in pursuing the PhD in cultural studies at Mason who do not meet this requirement might wish to consider one of the related master’s degrees at Mason (anthropology, English, history, foreign languages, philosophy, and sociology). The required master’s degree may be taken from any institution of the student’s choice.

Funding

The program offers teaching assistantships and fellowships, which are awarded on a competitive basis. Other sources of funding such as grants, loans, and employment on campus are also available. Students awarded assistantships must register for a minimum of six credits a semester and show satisfactory progress toward their degree.

Faculty

Program Faculty


Programs

- Cultural Studies, PhD

Cultural Studies, PhD

Banner Code: LA-PHD-CULT

Academic Advising

320 Enterprise Hall
Fairfax Campus

Email: cultural@gmu.edu
Website: culturalstudies.gmu.edu/programs/la-phd-cult

The PhD in cultural studies combines theory and method with practice and concrete case studies. Students’ research projects are individualized, as should be the case when research is not confined to the objects and methods of a single discipline. The program’s emphasis is in the development of intellectual mastery and professional competence, while training students for scholarship and teaching. Most graduates go on to careers as university professors. Others pursue careers in cultural advocacy, museum work, and related areas.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants must already have earned a master’s degree in a relevant field. For further information specific to the PhD in cultural studies, see Application Requirements and Deadlines (http://communication.gmu.edu/programs/LA-PHD-COM/application).

Policies

For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit

Students must have a master’s degree before being admitted to the PhD. Most students receive a reduction of study of 30 credits based on their previous master’s degree.

Academic Performance Standards

Students are required to maintain a minimum cumulative GPA of 3.33 for all coursework, with no unsatisfactory grades. Students who fail to meet this standard at any point will be given a warning and one semester to raise their GPA to the 3.33 minimum. Students who fail to meet this minimum standard for two consecutive or non-consecutive semesters will be terminated from the program.

Requirements

Degree Requirements

Total credits: 78-81

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 507) tab.

Doctoral Coursework

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CULT 802</td>
<td>Histories of Cultural Studies</td>
<td>3</td>
</tr>
<tr>
<td>CULT 804</td>
<td>Histories of Cultural Studies II</td>
<td>3</td>
</tr>
<tr>
<td>CULT 806</td>
<td>Research Seminar in Cultural Studies</td>
<td>3</td>
</tr>
<tr>
<td>CULT 808</td>
<td>Student/Faculty Colloquium in Cultural Studies</td>
<td>1</td>
</tr>
</tbody>
</table>

Theory

Select a minimum of one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CULT 810</td>
<td>Culture and Political Economy</td>
</tr>
<tr>
<td>CULT 814</td>
<td>Gender and Sexuality</td>
</tr>
<tr>
<td>CULT 820</td>
<td>After Colonialism</td>
</tr>
</tbody>
</table>

Topic

Select a minimum of one course from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CULT 812</td>
<td>Visual Culture</td>
</tr>
<tr>
<td>CULT 816</td>
<td>Science/Technology</td>
</tr>
</tbody>
</table>
CULT 818  Social Institutions

Total Credits  18

Students must take CULT 808 Student/Faculty Colloquium in Cultural Studies a minimum of 3 times

Field Requirements
Under the guidance of faculty advisory committees, students define two fields that point topically and theoretically toward teaching interests, dissertation research, and related forms of professional development. If doctoral level coursework is not available in a given area, students may take one independent study (CULT 870 Independent Study) to support the development of the field.

Field One
CULT 880  Field Concentration 1  3
Two relevant courses from theory or topic courses not used to fulfill the previous requirements or from special topics courses.

Field Two
CULT 880  Field Concentration 1  3
Two relevant courses from theory or topic courses not used to fulfill the previous requirements or from special topics courses.

Total Credits  18

1 Must be taught by that field’s primary advisor.

Field Statements
Students demonstrate competence in each of their two chosen fields by producing and orally defending a field statement that consists of a comprehensive, critical literature review.

The field statements and the defense constitute the candidacy exam for the PhD.

Methodology
Students must take one course in a relevant methodology in which they are not already trained  3

Total Credits  3

Students choose the specific course from program or departmental graduate offerings (600 level or above) under the guidance of their faculty advisory committee.

A course chosen to fulfill the credits for a field requirement, if relevant, may be used to meet the methodology requirement with permission of the faculty advisory committee. Students who do not take a relevant and approved methodology course in partial fulfillment of a field requirement need to take a methodology course (3 credits) to fulfill this requirement. They will have a degree total of 81 credits.

Proficiency in a Foreign Language
Students are required to demonstrate proficiency in at least one foreign language before being permitted to defend the doctoral dissertation proposal.

Electives
Students can complete the 78 credit requirement through credits of additional coursework chosen in consultation with an advisor  0-30

Total Credits  0-30

Advancement to Candidacy
To advance to candidacy, students must successfully complete all course work required on their approved program of study and demonstrate proficiency in a foreign language. Students must also successfully complete two written field statements and pass an oral comprehensive exam based on them.

Dissertation
Once enrolled in CULT 998 Doctoral Dissertation Proposal, students in this degree program must maintain continuous registration in CULT 998 Doctoral Dissertation Proposal or CULT 999 Doctoral Dissertation each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in CULT 999 Doctoral Dissertation, students must follow the university’s continuous registration policy. Students who defend in the summer must be registered for at least 1 credit of CULT 999 Doctoral Dissertation.

Students must complete a minimum of 3 credits of CULT 999 Doctoral Dissertation. They may apply a maximum of 12 dissertation credits (CULT 998 Doctoral Dissertation Proposal and CULT 999 Doctoral Dissertation combined) to the degree.

Dissertation Research

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CULT 998</td>
<td>Doctoral Dissertation Proposal</td>
</tr>
<tr>
<td>CULT 999</td>
<td>Doctoral Dissertation (minimum of 3 credits)</td>
</tr>
</tbody>
</table>

Total Credits  12

Global Affairs Program

Lisa Breglia, Director
Phone: 703-993-9185
Website: globalaffairs.gmu.edu

Undergraduate Program
Global Affairs is an interdisciplinary major that introduces students to the processes of globalization that affect all societies. Students gain a sophisticated understanding of complex issues such as terrorism, refugee crises, global inequality, and health and environmental challenges. Core courses in the major provide a knowledge foundation of the political, economic, cultural, and environmental processes in our global and globalizing world. The choice of a thematic or regional concentration helps students tailor the degree to their particular interests and career goals. Students in this program are encouraged to participate in study abroad opportunities and internships. They can complement their major with a second major or a minor.

Global Affairs with a Second Major or Minor
Students can complement their major in global affairs with a second major. Students interested in this option are encouraged to discuss their plans with advisors in both majors. See the section on Credit for More than One Undergraduate Major in Undergraduate Policies.
Students majoring in global affairs are encouraged to complement their major with one of the many minors offered by the college.

**Minor**

The undergraduate program in global affairs offers a minor in global affairs, which is available to students in any major in the university except those majoring in global affairs.

**Graduate Program**

The master's degree in global affairs is an interdisciplinary program that offers students the opportunity to engage in advanced study of a broad range of international global issues.

**Bachelor’s/Accelerated Master’s Program**

Highly qualified undergraduates in any major are invited to apply to the accelerated master's degree program in global affairs. If accepted, students will be able to earn an undergraduate degree in their chosen major and a graduate degree in global affairs after satisfactory completion of 144 credits, often within five years.

**Faculty**

**Program Faculty**

Ashley, Bickford, Bockman, Breglia (director), Burt, Copelman, Christensen, Habiha, Hirsch, Hughes Rinker, Kelly, Kim, Lancaster, Lopez-Santana, Lyons, Mandaville, McGlinchey, Paczynska, Platt, Smith, Son, Studemeyer (assistant director), Uy-Tioco, Wan

**Programs**

- Global Affairs Minor
- Global Affairs, BA
- Global Affairs, MA

**Global Affairs Minor**

**Banner Code: GLOA**

**Academic Advising**

D215 Mason Hall
Fairfax Campus

Email: gloa@gmu.edu
Website: globalaffairs.gmu.edu/programs/la-minor-la-gloa

This minor provides students with a global perspective that can enhance many different majors. The minor is not available to students majoring in global affairs (p. 509) or minoring in global systems (p. 916).

This is a Green Leaf Program (p. 102).

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 509) tab.

**Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOA 101</td>
<td>Introduction to Global Affairs (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or SOCI 120</td>
<td>Globalization and Society (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>CULT 320</td>
<td>Globalization and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ECON 385</td>
<td>International Economic Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 322</td>
<td>International Relations Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONF 340</td>
<td>Global Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>or EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

**Global Affairs, BA**

**Banner Code: LA-BA-GLOA**

D215 Mason Hall
Fairfax Campus

Email: gloa@gmu.edu
Website: globalaffairs.gmu.edu/programs/la-ba-gloa

Global affairs is an interdisciplinary major that introduces students to the processes of globalization that affect all societies. Students gain a sophisticated understanding of complex issues such as terrorism, refugee crises, global inequality, and health and environmental challenges. Core courses in the major provide a knowledge foundation of the political, economic, cultural, and environmental processes in our global and globalizing world. The choice of a thematic or regional concentration helps students tailor the degree to their particular interests and career goals. Students in this program are encouraged to participate in study abroad opportunities and internships. They can complement their major with a second major or a minor.

This is a Green Leaf program (p. 102).

**Admissions & Policies**

**Policies**

Students pursuing this degree must complete 36-39 credits within the major, with a minimum cumulative GPA of 2.00. Students completing
the Smithsonian-Mason semester program will have a total of 40-43 credits. Students must have a minimum grade of 2.00 in each of the core courses and a minimum grade of 1.67 in each of the courses used to fulfill the concentration and the language requirement for global affairs majors. Students who major in global affairs may not also earn the minor in global systems.

Global affairs majors may fulfill the Mason Core Capstone requirement by successfully completing GLOA 400.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

### Requirements

#### Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 509) tab.

#### Core Courses in the Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOA 101</td>
<td>Introduction to Global Affairs (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or SOCI 120</td>
<td>Globalization and Society (Mason Core)</td>
<td>1.35</td>
</tr>
<tr>
<td>CONF 340</td>
<td>Global Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CULT 320</td>
<td>Globalization and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ECON 385</td>
<td>International Economic Policy</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 322</td>
<td>International Relations Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

1. Note the prerequisite for this course: GOVT 132 Introduction to International Politics (Mason Core) (p. 135) or GOVT 133 Introduction to Comparative Politics (Mason Core) (p. 135)

#### Language Study Beyond Intermediate Proficiency

To fulfill this requirement, students can continue the study of one language beyond the intermediate proficiency level (required for all BA degrees in the college) or choose to study other languages. After a student has demonstrated intermediate proficiency in one language, the remainder of the requirement may be fulfilled by taking any courses taught in a foreign language, at any level. Students are required to complete:

- Select 6-9 credits of language study beyond intermediate proficiency

  - 9 credits beyond the completion of 210 or the receipt of heritage language waiver
  - 6 credits beyond the completion of 202

Total Credits: 6-9

#### Concentrations in the Major

Students select one concentration and complete the requirements therein. Courses applied to a global affairs concentration must come from at least two different departments. Concentration courses must be unique to the concentration: they cannot be simultaneously used to fulfill any Mason Core (p. 135) or college requirement for the bachelor's degree. They cannot be applied to any other major, minor, concentration, or certificate.

In addition to the courses listed with each concentration, other relevant courses, including special topics courses, study abroad, and internships (maximum 3 credits), may be applied to a concentration with prior written approval from the director.

#### Concentration in the Environment (EVT)

Students may complete this concentration through 12 credits of regular coursework or through the Smithsonian-Mason Semester Program (15-16 credits).

#### Regular Coursework

<table>
<thead>
<tr>
<th>Select 12 credits from the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 370</td>
</tr>
<tr>
<td>BIOL 301</td>
</tr>
<tr>
<td>ECON 335</td>
</tr>
<tr>
<td>ECON 435</td>
</tr>
<tr>
<td>EVPP 110</td>
</tr>
<tr>
<td>EVPP 336</td>
</tr>
<tr>
<td>EVPP 377</td>
</tr>
<tr>
<td>GEOL 309</td>
</tr>
<tr>
<td>GGS 302</td>
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<tr>
<td>GGS 303</td>
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<tr>
<td>GGS 307</td>
</tr>
<tr>
<td>GGS 311</td>
</tr>
<tr>
<td>GOVT 361</td>
</tr>
<tr>
<td>or EVPP 361</td>
</tr>
<tr>
<td>GOVT 362</td>
</tr>
<tr>
<td>or EVPP 362</td>
</tr>
<tr>
<td>INTS 334</td>
</tr>
<tr>
<td>PHIL 243</td>
</tr>
<tr>
<td>PHIL 343</td>
</tr>
<tr>
<td>TOUR 340</td>
</tr>
</tbody>
</table>

Total Credits: 12

1. Note the prerequisites for this course: ECON 103 Contemporary Microeconomic Principles (Mason Core) (p. 135) and ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135)

#### Smithsonian-Mason Semester Program

Students complete 15-16 credits offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian National Zoo Smithsonian Conservation Biology Institute. Students may choose to focus their study on "Conservation, Biodiversity and Society", "Wildlife Ecology and Conservation", or "Endangered Species Conservation". Students take the courses in the selected focus area together in one semester, living on site at the institute in Front Royal, VA. Students who apply this coursework to the concentration cannot also apply it to the minor in Conservation Studies.

Select one of the following focus areas: 15-16
Conservation, Biodiversity and Society option (16 credits):

- CONS 320 Conservation in Practice
- CONS 401 Conservation Theory
- CONS 402 Applied Conservation
- CONS 410 Human Dimensions in Conservation (Mason Core) (p. 135)
- CONS 490 RS: Integrated Conservation Strategies (Mason Core) (p. 135)

Wildlife Ecology and Conservation option (15 credits):
Offered only in Fall semesters, students complete four required courses:

- CONS 400 Conservation Seminar
- CONS 404 Biodiversity Monitoring
- CONS 405 Landscape and Macrosystems Ecology
- CONS 496 Research in Conservation

Endangered Species and Conservation option (15 credits)
Offered only in Spring semesters, students complete four required courses:

- CONS 400 Conservation Seminar
- CONS 406 Small Population Management
- CONS 491 RS: Conservation Management Planning (Mason Core) (p. 135)
- CONS 496 Research in Conservation

Total Credits 15-16

Concentration in Global Economy and Management (GEM)
In this concentration, students explore marketing, managing, financing, and networking dimensions of the globalizing world economy. Students will take classes on economic policies of national governments and international organizations as well as operations of non-government market actors.

Select 12 credits from the following:

- ECON 310 Money and Banking
- ECON 360 Economics of Developing Areas (Mason Core) (p. 135)
- ECON 361 Economic Development of Latin America (Mason Core) (p. 135)
- ECON 362 African Economic Development (Mason Core) (p. 135)
- ECON 380 Economies in Transition (Mason Core) (p. 135)
- ECON 390 International Economics (Mason Core) (p. 135)
- FNAN 440 International Financial Management
- GOVT 343 International Political Economy
- GOVT 346 American Security Policy
- GOVT 347 International Security
- GOVT 412 Politics and the Mass Media
- GOVT 434 Democracy in Global Perspective
- GOVT 445 Human Rights
- GOVT 446 International Law and Organization
- GOVT 447 Revolution and International Politics
- GOVT 448 Ethics and International Politics
- INTS 305 Conflict Resolution and Transformation
- INTS 416 Refugee and Internal Displacement
- INTS 422 An Experiential Approach to American Foreign Policy
- SOCI 340 Power, Politics, and Society
- Or other course approved by the program director

Total Credits 12

Concentration in Global Governance (GLGV)
In this concentration students explore how national governments, international organizations, and non-governmental organizations interact to identify, understand, and address global issues. Coursework covers such topics as transnational challenges, theories of international relations, global institutions, international law and ethics, international security, and conflict. Students are expected to garner theoretical and practical understanding of the ways in which national and transnational actors approach global problems.

Select 12 credits from the following:

- ANTH 312 Political Anthropology (Mason Core) (p. 135)
- COMM 305 Foundations of Intercultural Communication (Mason Core) (p. 135)
- CRIM 405 Law and Justice around the World (Mason Core) (p. 135)
- CRIM 475 Theory and Politics of Terrorism
- GGS 301 Political Geography
- GOVT 342 Diplomacy
- GOVT 343 International Political Economy
- GOVT 344 American Foreign Policy
- GOVT 346 American Security Policy
- GOVT 412 Politics and the Mass Media
- GOVT 434 Democracy in Global Perspective
- GOVT 445 Human Rights
- GOVT 446 International Law and Organization
- GOVT 447 Revolution and International Politics
- GOVT 448 Ethics and International Politics
- INTS 305 Conflict Resolution and Transformation
- INTS 416 Refugee and Internal Displacement
- INTS 422 An Experiential Approach to American Foreign Policy
- SOCI 340 Power, Politics, and Society
- Or other course approved by the program director

Total Credits 12

Concentration in Global Inequalities and Responses (GIR)
This concentration addresses global social issues and the steps actors such as non-profits, social movements, and international organizations take to address these issues. Courses cover human rights, refugee crises, gender violence, racial discrimination, and economic inequality from both historical and contemporary perspectives and in different parts of the world. Students are expected to acquire the skills to analyze
complex social problems and to be able to formulate effective strategies to address these.

Select 12 credits from the following:

- ANTH 365 Human Variation
- ANTH 488 Gender, Sexuality, and Culture
- CONF 394 Human Rights and Inequality
- CRIM 405 Law and Justice around the World (Mason Core) (p. 135)
- GCH 332 Health and Disease
- GCH 450 Culture, Sexuality and the Global AIDS Epidemic
- GGS 304 Population Geography (Mason Core) (p. 135)
- GOVT 414 Politics of Race and Gender
- HIST 366 Comparative Slavery
- INTS 304 Social Movements and Community Activism
- INTS 416 Refugee and Internal Displacement
- SOCI 307 Social Movements and Political Protest
- SOCI 308 Race and Ethnicity in a Changing World
- SOCI 315 Contemporary Gender Relations
- SOCI 355 Social Inequality (Mason Core) (p. 135)
- WMST 100 Representations of Women (Mason Core) (p. 135)
- WMST 200 Introduction to Women and Gender Studies (Mason Core) (p. 135)

Or other course approved by the program director

Total Credits 12

Concentration in Human Security (HMSC)
This concentration is designed to conceptualize security beyond the boundaries of national security and to promote a more comprehensive understanding of "human security" in its multiple facets, including: food and health (famine and infectious disease), environmental security (natural disasters and climate change), and economic security (development). Coursework addresses these and other themes and draws on government, sociology, criminology, environmental science and policy, and other fields. Students are expected to gain an understanding of "human security" in its multiple facets, including: boundaries of national security and to promote a more comprehensive

Select 12 credits from the following:

- ANTH 331 Refugees (Mason Core) (p. 135)
- ANTH 340 Comparative Perspectives on Immigration
- CONF 345 Social Dynamics of Terrorism, Security, and Justice
- CRIM 475 Theory and Politics of Terrorism
- ECON 360 Economics of Developing Areas (Mason Core) (p. 135)
- EVPP 436 The Human Dimensions of Global Climate Change
- GCH 332 Health and Disease
- GCH 405 Global Health Interventions: History and Systems
- GGS 311 Introduction to Geographic Information Systems
- GOVT 346 American Security Policy
- GOVT 347 International Security
- GOVT 460 Surveillance and Privacy in Contemporary Society
- INTS 305 Conflict Resolution and Transformation
- INTS 314 Conflict, Trauma and Healing
- INTS 378 Medicine, Justice, and Public Policy
- INTS 416 Refugee and Internal Displacement
- SOCI 320 Social Structure and Globalization (Mason Core) (p. 135)
- Or other course approved by the program director

Total Credits 12

Concentration in International Development (IDEV)
In this concentration, students examine international development, its challenges, and how these are addressed by governments, international organizations, and non-governmental organizations. Coursework covers development economics, the politics of developing regions and transitional economies, the social consequences of global inequality, public health and health-related development issues, humanitarian relief, and more. Students are expected to gain the knowledge and skills to prepare them for work in the development sector or for further specialized studies in international development.

Select 12 credits from the following:

- ANTH 331 Refugees (Mason Core) (p. 135)
- ECON 360 Economics of Developing Areas (Mason Core) (p. 135)
- ECON 361 Economic Development of Latin America (Mason Core) (p. 135)
- ECON 362 African Economic Development (Mason Core) (p. 135)
- GCH 205 Global Health (Mason Core) (p. 135)
- GCH 405 Global Health Interventions: History and Systems
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 307 Sustainable Development
- GOVT 336 Political Development and Change
- GOVT 434 Democracy in Global Perspective
- GOVT 445 Human Rights
- GOVT 446 International Law and Organization
- HEAL 350 Interventions for Populations and Communities at Risk
- INTS 401 Conservation Biology
- INTS 416 Refugee and Internal Displacement
- PHIL 344 Ethical Issues in Global Health
- TOUR 340 Sustainable Tourism

Or other course approved by the program director

Total Credits 12

Concentration in Media, Communication, and Culture (MCC)
In this concentration, students examine historic trends and recent changes in media and communication technologies as well as their cultural contexts. Coursework includes critical analysis of media content, comparison of global media infrastructures and systems of political communication, discussion of the foundations of intercultural communication, and more. Students are expected to gain an
understanding of the role of media and communication in shaping and responding to global issues of concern.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 380</td>
<td>Language and Culture</td>
</tr>
<tr>
<td>ANTH 395</td>
<td>Work, Technology, and Society: An IT Perspective (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>AVT 372</td>
<td>Hip Hop Culture</td>
</tr>
<tr>
<td>COMM 202</td>
<td>Media and Society</td>
</tr>
<tr>
<td>COMM 305</td>
<td>Foundations of Intercultural Communication (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>COMM 306</td>
<td>Issues in Intercultural Communication</td>
</tr>
<tr>
<td>COMM 380</td>
<td>Media Criticism</td>
</tr>
<tr>
<td>COMM 412</td>
<td>Politics and the Mass Media</td>
</tr>
<tr>
<td>COMM 456</td>
<td>Comparative Mass Media (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>DANC 318</td>
<td>Global Perspectives: World Dance Forms (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklife</td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 366</td>
<td>The Idea of a World Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 367</td>
<td>World Literatures in English</td>
</tr>
<tr>
<td>FRLN 330</td>
<td>Topics in World Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>FRLN 331</td>
<td>Topics in World Cinema (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>IT 300</td>
<td>Modern Telecommunications</td>
</tr>
<tr>
<td>INTS 345</td>
<td>Introduction to Multimedia</td>
</tr>
<tr>
<td>INTS 348</td>
<td>Digital Futures</td>
</tr>
<tr>
<td>INTS 381</td>
<td>When Cultural Worlds Collide</td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SOCI 314</td>
<td>Sociology of Culture</td>
</tr>
<tr>
<td>THR 359</td>
<td>World Stages (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Africa (AFR)
This concentration focuses on the societies of Africa, their history, culture, economics, and politics, including the pre-colonial, colonial, and post-colonial experiences. Course options include African diaspora experiences. Upon completion of this concentration, students will have an in-depth understanding of Africa as an international actor, African contributions (past and present) to global society, the political and economic challenges facing the continent today, and African solutions to problems such as civil wars and inequality.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
</tr>
<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
</tr>
<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 335</td>
<td>The African American Experience in the United States: African Background to 1885</td>
</tr>
<tr>
<td>HIST 336</td>
<td>The African American Experience in the United States: Reconstruction to the Present</td>
</tr>
<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Or other course approved by the program director

Total Credits 12

Concentration in Asia (ASA)
This concentration emphasizes Asia’s increasingly significant role in contemporary global issues as well as its historical contexts. The courses in this concentration cover the economic, social, and political issues that confront the Asia-Pacific region (that is, East and Southeast Asian countries). Students interested in anthropology, history, art history, government, and religious studies should consider this concentration.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 310</td>
<td>Survey of Chinese Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 311</td>
<td>Modern Chinese Literature in Translation (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
</tr>
<tr>
<td>CHIN 328</td>
<td>Asian American Women Writers (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
</tr>
<tr>
<td>CHIN 330</td>
<td>Government and Politics of Asia</td>
</tr>
<tr>
<td>CHIN 338</td>
<td>Government and Politics of Russia</td>
</tr>
<tr>
<td>CHIN 341</td>
<td>Chinese Foreign Policy</td>
</tr>
<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
</tr>
<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
</tr>
</tbody>
</table>
Concentration in Europe (EU)
This concentration is designed to equip students with a deep and broad understanding of politics, history, culture, religion, and the arts in Europe as well as Europe's lasting legacies across the globe. Coursework includes broad surveys on government, geography, literature, and economics as well as special topics courses on the Renaissance, World Wars I and II, and nationalism in Eastern Europe. Upon completion of this concentration, students will have the ability to think critically about how historical processes and current events in Europe not only impact Europeans, but also the global community at large.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 340</td>
<td>Early Renaissance Art in Italy, 1300-1500 (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 360</td>
<td>Nineteenth-Century European Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 362</td>
<td>Twentieth-Century European Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ENGH 339</td>
<td>British and Irish Drama after 1900</td>
</tr>
<tr>
<td>ENGH 361</td>
<td>Continental Fiction, 1880-1950</td>
</tr>
<tr>
<td>FREN 325</td>
<td>Major French Writers (Topic Varies) (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>FREN 470</td>
<td>French and Francophone Cinema</td>
</tr>
<tr>
<td>GERM 325</td>
<td>Major Writers (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GERM 340</td>
<td>Survey of German Literature</td>
</tr>
<tr>
<td>GERM 451</td>
<td>Modern Literature: 1925 to the Present</td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
</tr>
<tr>
<td>GOVT 334</td>
<td>Government and Politics of Europe</td>
</tr>
<tr>
<td>GOVT 337</td>
<td>Ethnic Politics in Western Europe and North America</td>
</tr>
<tr>
<td>GOVT 338</td>
<td>Government and Politics of Russia</td>
</tr>
<tr>
<td>HIST 304</td>
<td>Western Europe in the Middle Ages</td>
</tr>
<tr>
<td>HIST 305</td>
<td>The Renaissance</td>
</tr>
<tr>
<td>HIST 306</td>
<td>The Reformation</td>
</tr>
<tr>
<td>HIST 307</td>
<td>Old Regime and Revolutionary Europe</td>
</tr>
<tr>
<td>HIST 308</td>
<td>Nineteenth-Century Europe</td>
</tr>
<tr>
<td>HIST 309</td>
<td>Europe in Crisis: 1914-1948</td>
</tr>
<tr>
<td>HIST 312</td>
<td>Nationalism in Eastern Europe</td>
</tr>
<tr>
<td>HIST 314</td>
<td>History of Germany</td>
</tr>
</tbody>
</table>

Concentration in Latin America (LA)
This concentration is designed to provide students with an overview of Latin America and its diaspora. Course options include broad surveys of Latin American history, art, literature, music, culture, and politics, as well as courses that provide in-depth exploration of topics such as colonialism, economic development, political movements, race and ethnicity, migration, and aesthetic trends. Upon completion of this concentration, students will have an in-depth understanding of Latin America as an international actor, Latin American contributions (past and present) to global society, and the political and economic challenges faced by the region.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 376</td>
<td>Twentieth-Century Latin American Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
</tr>
<tr>
<td>GOVT 331</td>
<td>Government and Politics of Latin America</td>
</tr>
<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
</tr>
<tr>
<td>SPAN 322</td>
<td>Introduction to Latin American Culture (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SPAN 325</td>
<td>Major Hispanic Writers (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SPAN 388</td>
<td>Introduction to Latina/o Studies (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SPAN 390</td>
<td>Introduction to Hispanic Literary Analysis</td>
</tr>
</tbody>
</table>
Concentration in Middle East and North Africa (MENA)
This concentration provides students with a contemporary and historical perspective on the politics, economics, and religious diversity of the Middle East and North Africa. Coursework includes broad surveys as well as courses on specific topics such as the Arab-Israeli conflict, francophone literature from North Africa, politics and Islam, and art and archeology of the ancient Near East. Upon completion of this concentration, students are expected to have an in-depth understanding of the current state of the Middle East and North Africa and how this state has developed historically.

Select 12 credits from the following:

- ANTH 308 Peoples and Cultures of the Middle East (Mason Core) (p. 135)
- ARTH 319 Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)
- ARTH 320 Art of the Islamic World (Mason Core) (p. 135)
- ARTH 386 The Silk Road (Mason Core) (p. 135)
- FREN 453 Topics in North African Francophone Literature and Culture
- GGS 325 Geography of North Africa and the Middle East
- GOVT 332 Government and Politics of the Middle East and North Africa
- GOVT 345 Islam and Politics
- HIST 281 Survey of Middle Eastern Civilization (Mason Core) (p. 135)
- HIST 282 Survey of Middle Eastern Civilization (Mason Core) (p. 135)
- HIST 460 Modern Iran (Mason Core) (p. 135)
- HIST 461 Arab-Israeli Conflict
- HIST 462 Women in Islamic Society (Mason Core) (p. 135)
- HIST 465 The Middle East in the 20th Century
- RELI 211 Religions of the West (Mason Core) (p. 135)
- RELI 272 Islam
- RELI 352 Judaism from Exile to Talmud
- RELI 355 Sufism
- RELI 375 Qur'an and Hadith
- RELI 387 Islam, Democracy, and Human Rights

Total Credits 12

Concentration in Russia and Central Asia (RCA)
This concentration provides students contemporary and historical perspectives on the political, economic, and cultural climates and trends in Russia and Central Asia. Upon completion of this concentration, students will not only have the skills to critically assess the impacts of Soviet-era legacies on newly independent political systems, economies in transition, and re-emerging cultural traditions, but also knowledge of pre-Soviet sociocultural and political environments in Russia and Central Asia.

Select 12 credits from the following:

- ARTH 386 The Silk Road (Mason Core) (p. 135)
- ECON 380 Economies in Transition (Mason Core) (p. 135)
- GGS 330 Geography of the Soviet Succession States
- GOVT 338 Government and Politics of Russia
- GOVT 340 Central Asian Politics
- GOVT 447 Revolution and International Politics

Total Credits 12
Individualized Concentration (IND)
Students who wish to design their own concentration must submit a one-page proposal and create a curriculum plan to be approved by the director.

Writing-Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students majoring in global affairs may fulfill this requirement by successfully completing EVPP 337 Environmental Policy Making in Developing Countries.

Upper Level Requirement
Students seeking a bachelor's degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements in the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies
Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL</td>
<td>(p. 1818)</td>
<td>3</td>
</tr>
<tr>
<td>RELI</td>
<td>(p. 1904)</td>
<td></td>
</tr>
</tbody>
</table>

1. Note that the following courses may not be used to fulfill this requirement:
   - PHIL 323 Classical Western Political Theory
   - PHIL 324 Modern Western Political Theory
   - PHIL 327 Contemporary Western Political Theory
   - PHIL 393 Humanities College to Career
   - PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences
Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
<td></td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
<td></td>
</tr>
<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
<td>2</td>
</tr>
<tr>
<td>LING</td>
<td>(p. 1694)</td>
<td></td>
</tr>
<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
<td></td>
</tr>
<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
<td></td>
</tr>
</tbody>
</table>

Or choose from the following GGS courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
<td></td>
</tr>
</tbody>
</table>

1. The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

2. HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.
### Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complet[ing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or achieving a satisfactory score on an approved proficiency test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or completing the following ASL three course sequence:</td>
<td></td>
</tr>
<tr>
<td>EDSE 115</td>
<td>American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td>EDSE 116</td>
<td>American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td>EDSE 219</td>
<td>American Sign Language (ASL) III</td>
<td></td>
</tr>
</tbody>
</table>

1 Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
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<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
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<td>ANTH 314</td>
<td>Zombies</td>
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<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
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<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
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<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
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<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
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<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
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<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
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<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
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<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
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<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
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<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
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<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
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<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
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<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
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<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
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<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
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<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
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<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
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<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
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<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
<td>3</td>
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<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
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<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
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<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
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<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
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<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
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<td>GGS 316</td>
<td>Geography of Latin America</td>
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<td>Geography of North Africa and the Middle East</td>
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<td>Geography of the Soviet Succession States</td>
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<td>GGS 399</td>
<td>Select Topics in GGS</td>
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<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
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<td>Government and Politics of the Middle East and North Africa</td>
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<td>Government and Politics of Asia</td>
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<td>GOVT 340</td>
<td>Central Asian Politics</td>
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<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
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<td>GOVT 345</td>
<td>Islam and Politics</td>
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<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
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<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<td>Survey of East Asian History (Mason Core) (p. 135)</td>
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<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<td>HIST 326</td>
<td>Stalinism</td>
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<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
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<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
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<td>HIST 353</td>
<td>History of Traditional China</td>
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<td>HIST 354</td>
<td>Modern China</td>
<td>3</td>
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<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
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<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
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<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
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<td>History of South Africa (Mason Core) (p. 135)</td>
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<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
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<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
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<td>HIST 366</td>
<td>Comparative Slavery</td>
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<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
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<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
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<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
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<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
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<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
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<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
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<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core) (p. 135)</td>
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<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
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<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
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<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
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<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
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<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
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<tr>
<td>RELI 272</td>
<td>Islam</td>
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<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
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RELI 314 Chinese Philosophies and Religious Traditions 3
RELI 315 Buddhism (Mason Core) (p. 135) 3
RELI 337 Mysticism: East and West 3
RELI 365 Muhammad: Life and Legacy 3
RELI 374 Islamic Thought (Mason Core) (p. 135) 3
RELI 375 Qur’an and Hadith 3
RELI 379 Islamic Law, Society, and Ethics 3
RELI 387 Islam, Democracy, and Human Rights 3
RELI 490 Comparative Study of Religions (Mason Core) (p. 135) 3
RUSS 353 Russian Civilization (Mason Core) (p. 135) 3
RUSS 354 Contemporary Post-Soviet Life (Mason Core) (p. 135) 3

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

**Code**  **Title**  **Credits**

**Foundation Requirements**

- Written Communication (p. 135) 6
- Oral Communication (p. 136) 3
- Quantitative Reasoning (p. 136) 3
- Information Technology (p. 136) 3-7

**Core Requirements**

- Arts (p. 137) 3
- Global Understanding (p. 139) 3
- Literature (p. 140) 3
- Natural Science (p. 141) 7
- Social and Behavioral Sciences (p. 142) 3
- Western Civilization/World History (p. 143) 3

**Synthesis/Capstone Requirement**

Synthesis/Capstone (p. 143) 3

- Total Credits 40

1 minimum 3 credits

**Additional Electives**

Any remaining credits may be completed with electives to bring the degree total to 120.
Honors in the Major

Highly qualified students may pursue advanced work leading to graduation with honors in the major. Global Affairs majors who have completed 75 credits with an overall GPA of 3.50 and a GPA of 3.50 in courses for the major are eligible to apply to graduate with honors.

Students pursuing honors in the major must complete a two-course honors sequence GLOA 491 Honors Seminar in Global Affairs and GLOA 492 Honors Research Project in Global Affairs with a minimum GPA of 3.50 in the sequence. Not all applicants who meet the minimum requirements are guaranteed acceptance.

Accelerated Master's

The accelerated master's programs listed below specify the BA in global affairs as a feeder degree for their programs. It is important to note, however, that many accelerated master's programs are available for any bachelor's degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason. In addition, as a student with a BA in global affairs you may be particularly interested in the accelerated Bachelor's/Accelerated Master's Degrees (p. 524).

Bachelor's Degree (selected)/Middle East and Islamic Studies, Accelerated MA

Overview

Highly-qualified undergraduates pursuing a BA in select majors (listed below) may apply to the accelerated master's degree in Middle East and Islamic studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's degree in Middle East and Islamic studies after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

- government and international politics (p. 917)
- global affairs (p. 509)
- history (p. 394)
- religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- sociology (p. 494)
- anthropology (p. 484)

It is preferred, though not required, that the student have a minor in Middle East studies or Islamic studies.

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Middle East and Islamic studies, see Application Requirements and Deadlines (http://meis.gmu.edu/programs/).

Accelerated Option Requirements

While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
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<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
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</table>

Total Credits: 6

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
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<tr>
<th>Code</th>
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<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
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</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
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</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics (when content focus is the Middle East)</td>
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<tr>
<td>GOVT 733</td>
<td>Islam and Politics</td>
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<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
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</tbody>
</table>

Total Credits: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).
Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview
Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477).s.

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

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<td>Approaches to the Study of Religion</td>
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<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
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<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
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<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
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<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
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<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
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<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
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</tbody>
</table>

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

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<td>RELI 633</td>
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<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
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</tr>
</tbody>
</table>

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Bachelor’s Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS

Overview
This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master’s program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135))
and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td></td>
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<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td></td>
</tr>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
<td></td>
</tr>
<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
<td></td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
<td></td>
</tr>
<tr>
<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
<td></td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td></td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td></td>
</tr>
<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
<td></td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td></td>
</tr>
<tr>
<td>BIOL or CONS electives</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following options:

**Option 1:**
- BIOL 213: Cell Structure and Function (Mason Core) (p. 135)
- BIOL 214: Biostatistics for Biology Majors
- BIOL 308: Foundations of Ecology and Evolution

**Option 2:**
- EVPP 210: Environmental Biology: Molecules and Cells
- EVPP 301: Environmental Science: Biological Diversity and Ecosystems
- EVPP 302: Environmental Science: Biomes and Human Dimensions
- EVPP 305: Environmental Microbiology Essentials
- EVPP 306: Environmental Microbiology Essentials Laboratory

**Option 3:**
- CONS 401: Conservation Theory
- CONS 402: Applied Conservation
- 6 credits of 6 credits of BIOL or CONS electives

**Option 4:**
- CONS 403: Ecology and Conservation Theory
- CONS 404: Biodiversity Monitoring
- BIOL or CONS electives

By the beginning of the undergraduate’s senior year, they should first submit a Graduate Application for Accelerated Master’s Program form (obtained from the Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us)). Secondly, in their senior year, accelerated master’s students must complete the two graduate courses indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. They must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. Upon completion and conferal of the undergraduate degree in a Green Leaf-designated (p. 102) program, in the semester indicated in the application, they must additionally submit the Bachelor’s/Accelerated Master’s Transition form (found on the Office of the University Registrar website (http://registrar.gmu.edu/forms)) and will subsequently be admitted into graduate status.

By at least the beginning of their senior year, they should seek out a faculty member in the Department of Environmental Science and Policy (p. 661) who is willing to serve as their advisor (unless the student is planning to enroll in the MS concentration in Environmental Management). This advisor will aid the student in choosing the appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master’s concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason (called “program faculty”) can serve as master’s advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.

**Application Requirements**

Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog, excluding the GRE exam requirement (which is not required for those enrolled in the accelerated program). This includes three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate’s proposed MS research), and a letter from their advisor stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate’s research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department’s website (http://esp.gmu.edu/academic-programs/graduate/admissions).

**Reserve Graduate Credits**

Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master's program and must then complete an additional 27-31 credits to receive the master's degree.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master’s degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor’s credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.

**Global Affairs, MA**

**Banner Code:** LA-MA-GLOA

**Academic Advising**

D215 Mason Hall
Fairfax Campus

Email: globalma@gmu.edu
Website: globalaffairs.gmu.edu/programs/la-ma-gloa

The Global Affairs, MA is an interdisciplinary program offering students the opportunity to engage in advanced study of a broad range of global issues. Students complete a core curriculum that provides the knowledge and skills to think and act globally. Students also pursue specializations that include relevant courses from academic departments across the university. All students in the program take part in a residency abroad, typically two weeks in duration, and complete a capstone
seminar. Graduates enter the workforce or move forward in their already-established international and domestic careers in the public sector, non-governmental organizations, and business.

This is a Green Leaf program (p. 102).

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://globalaffairs.gmu.edu/programs/application/LA-MA-GLOA) on the departmental website.

Policies

For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87).

Students who wish to pursue study abroad in addition to the required core course GLOA 710 Seminar Abroad must receive prior approval and may not use more than 3 credits earned while abroad towards their specialization. Students must maintain a 3.00 cumulative grade point average with no more than two grades below B.

Requirements

Degree Requirements

Total credits: 30

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 522) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOA 600</td>
<td>Global Competencies</td>
<td>3</td>
</tr>
<tr>
<td>GLOA 605</td>
<td>Interdisciplinary Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>GLOA 610</td>
<td>Economic Globalization and Development</td>
<td>3</td>
</tr>
<tr>
<td>GLOA 620</td>
<td>Human Systems</td>
<td>3</td>
</tr>
<tr>
<td>GLOA 710</td>
<td>Seminar Abroad</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>15</td>
</tr>
</tbody>
</table>

Specialization

Students choose to specialize in one of eight fields by completing 12 credits in that field selected from the courses listed. The specialization is developed in consultation with an advisor. Students who wish to design their own specialization must submit a one-page proposal and receive written approval from the director. Specialization courses must come from at least two academic disciplines.

Global Conflict and Security

Select 12 credits from the following:

- BIOD 610 Advanced Topics in Global Health Security (minimum of 3 credits)
- BIOD 621 Ethics and International Security
- BIOD 705 Intelligence: Theory and Practice
- BIOD 706 Nuclear, Biological, and Chemical Weapons Policy and Security
- BIOD 709 Nonproliferation and Arms Control
- BIOD 722 Examining Terrorist Groups
- BIOD 725 Terrorism and Weapons of Mass Destruction
- CONF 501 Introduction to Conflict Analysis and Resolution
- CONF 652 Conflict Analysis and Resolution for Prevention, Reconstruction, and Stabilization Contexts
- CONF 653 World Religions, Diplomacy, and Conflict Resolution
- CONF 658 Diversity and Difference in Conflict Analysis and Resolution
- CONF 659 Leadership in Conflict Analysis and Resolution
- CONF 720 Ethnic and Cultural Factors in Conflict Resolution
- CONF 736 Globalization and International Conflict
- CONF 746 Peace Building
- GOVT 541 Introduction to Critical Analysis and Strategic Response to Terrorism
- GOVT 742 International Negotiation
- GOVT 745 International Security
- PUAD 634 Management of International Security
- PUBP 650 International Conflict and Crisis Response
- PUBP 651 Peace and Stabilization Operations
- or other course approved by the program director

Total Credits: 12

Global Culture and Society

Select 12 credits from the following:

- ANTH 580 Environmental Anthropology
- ANTH 635 Regional Ethnography
- ANTH 655 Nationalism, Transnationalism, and States: Local and Global Perspectives
- ANTH 721 Culture, Power, and Conflict
- CONF 707 Gender and Violence
- CONF 720 Ethnic and Cultural Factors in Conflict Resolution
- CONF 753 Post-Conflict Contexts: Between Global and Local
- ENGH 665 Seminar in Global Culture
- GOVT 530 Comparative Politics
- GOVT 641 Global Governance
- GOVT 725 Democratic Theory
- GOVT 739 Issues in Comparative and International Politics
- HIST 510 Approaches to Modern World History
- HIST 535 Problems in Comparative World History
- HIST 615 Problems in American History
- MUSI 640 Topics in World Musics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
</tr>
<tr>
<td>SOAN 510</td>
<td>Culture and Globalization</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Racial and Ethnic Relations: American and Selected Global Perspectives</td>
</tr>
<tr>
<td>SPMT 551</td>
<td>Sport in the Global Marketplace</td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
</tr>
</tbody>
</table>

or other course approved by the program director

Total Credits 12

**Global Economics and Development**

This specialization is best suited for students with an academic background in economics or for students who have taken microeconomics, macroeconomics, and calculus with a minimum grade of 3.00 in all three.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 732</td>
<td>Conflict in Development</td>
</tr>
<tr>
<td>ECON 611</td>
<td>Microeconomic Theory</td>
</tr>
<tr>
<td>ECON 612</td>
<td>Microeconomic Theory II</td>
</tr>
<tr>
<td>ECON 615</td>
<td>Macroeconomic Theory</td>
</tr>
<tr>
<td>ECON 676</td>
<td>Comparative Economic Systems</td>
</tr>
<tr>
<td>EVPP 642</td>
<td>Environmental Policy</td>
</tr>
<tr>
<td>GOVT 743</td>
<td>International Political Economy</td>
</tr>
<tr>
<td>ITRN 500</td>
<td>Global Political Economy</td>
</tr>
<tr>
<td>ITRN 503</td>
<td>Macroeconomic Policy in the Global Economy</td>
</tr>
<tr>
<td>ITRN 602</td>
<td>Global Financial Crises and Institutions</td>
</tr>
<tr>
<td>ITRN 603</td>
<td>Global Trade Relations</td>
</tr>
<tr>
<td>ITRN 701</td>
<td>Special Topics in International Commerce and Policy</td>
</tr>
<tr>
<td>ITRN 718</td>
<td>Global Economic and Human Development</td>
</tr>
<tr>
<td>ITRN 757</td>
<td>Business and Politics in Emerging Markets</td>
</tr>
<tr>
<td>ITRN 767</td>
<td>Political Economy and Integration in Latin America</td>
</tr>
<tr>
<td>PUAD 504</td>
<td>Managing in the International Arena: Theory and Practice</td>
</tr>
</tbody>
</table>

Total Credits 12

**Global Education**

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
</tr>
<tr>
<td>EDUC 606</td>
<td>Education and Culture</td>
</tr>
<tr>
<td>EDUC 671</td>
<td>Schools and Culture in the Future</td>
</tr>
<tr>
<td>EDEP 550</td>
<td>Theories of Learning and Cognition</td>
</tr>
<tr>
<td>EDEP 650</td>
<td>High-Stakes Assessment and Accountability Systems</td>
</tr>
<tr>
<td>EDEP 653</td>
<td>Culture and Intelligence</td>
</tr>
<tr>
<td>ENGH 665</td>
<td>Seminar in Global Culture</td>
</tr>
<tr>
<td>SOCI 845</td>
<td>Society and Education</td>
</tr>
</tbody>
</table>

or other course approved by the program director

Total Credits 12

**Global Governance and Public Management**

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 709</td>
<td>Nonproliferation and Arms Control</td>
</tr>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
</tr>
<tr>
<td>GOVT 631</td>
<td>Seminar in Comparative Politics and Institutions</td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
</tr>
<tr>
<td>GOVT 742</td>
<td>International Negotiation</td>
</tr>
<tr>
<td>ITRN 701</td>
<td>Special Topics in International Commerce and Policy</td>
</tr>
<tr>
<td>ITRN 761</td>
<td>European Political and Economic Union</td>
</tr>
<tr>
<td>PUAD 636</td>
<td>The NGO: Policy and Management</td>
</tr>
<tr>
<td>PUAD 701</td>
<td>Cross-Cultural and Ethical Dimensions of International Management</td>
</tr>
<tr>
<td>PUBP 502</td>
<td>Governance and Policy Processes</td>
</tr>
<tr>
<td>PUBP 700</td>
<td>Theory and Practice in Public Policy</td>
</tr>
<tr>
<td>PUBP 783</td>
<td>Global Governance</td>
</tr>
</tbody>
</table>

or other course approved by the program director

Total Credits 12

**Global Health**

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 705</td>
<td>Intercultural Health and Risk Communication</td>
</tr>
<tr>
<td>GCH 543</td>
<td>Global Health</td>
</tr>
<tr>
<td>GCH 560</td>
<td>Environmental Health</td>
</tr>
<tr>
<td>GCH 571</td>
<td>HIV/AIDS: Concepts, Principles, and Interventions</td>
</tr>
<tr>
<td>GCH 602</td>
<td>Global Health Issues Related to Violence</td>
</tr>
<tr>
<td>GCH 611</td>
<td>Health Program Planning and Evaluation</td>
</tr>
<tr>
<td>GCH 622</td>
<td>Mental Health: A Global Perspective</td>
</tr>
<tr>
<td>GCH 628</td>
<td>Refugee Health</td>
</tr>
<tr>
<td>GCH 640</td>
<td>Global Infectious Diseases</td>
</tr>
<tr>
<td>GCH 645</td>
<td>U.S. and Global Public Health Systems</td>
</tr>
<tr>
<td>GGS 540</td>
<td>Health Geography</td>
</tr>
<tr>
<td>GGS 581</td>
<td>World Food and Population</td>
</tr>
<tr>
<td>HAP 609</td>
<td>Comparative International Health Systems</td>
</tr>
<tr>
<td>NUTR 630</td>
<td>Global Nutrition</td>
</tr>
<tr>
<td>PUBP 757</td>
<td>Public Policy in Global Health and Medical Practice</td>
</tr>
<tr>
<td>PUBP 758</td>
<td>Global Threats and Medical Policies</td>
</tr>
</tbody>
</table>

or other course approved by the program director

Total Credits 12

**Global Media and Information Technology**

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 506</td>
<td>Communication in International Organizations</td>
</tr>
<tr>
<td>COMM 630</td>
<td>Theories of Public Relations</td>
</tr>
</tbody>
</table>

Total Credits 12
Accelerated Option Requirements

While undergraduate students, accelerated master's students complete GLOA 600 Global Competencies and either GLOA 605 Interdisciplinary Research Methods or GLOA 610 Economic Globalization and Development with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits (GLOA 605 Interdisciplinary Research Methods or GLOA 610 Economic Globalization and Development and GLOA 620 Human Systems) as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form. The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Higher Education Program

316 Enterprise Hall
Fairfax Campus
Phone: 703-993-2310
Website: highered.gmu.edu

The Higher Education Program prepares students for positions of leadership in teaching, research, and administration at community colleges, four-year colleges, and universities around the globe. The interdisciplinary curriculum focuses on leadership, the scholarship of teaching and learning, administration, and assessment. The program also prepares students for positions in academic and student affairs as well as in associations, government agencies, and industries whose activities relate to or impact higher education.

MAIS Concentration in Higher Education

The program sponsors the concentration in higher education within the master's degree in interdisciplinary studies (MAIS). This concentration prepares individuals for administrative and leadership positions in two-year colleges or four-year colleges and universities. Students may focus on administration or student services.

See the Interdisciplinary Studies, MAIS (p. 534) for more information.

Doctor of Philosophy in Education with Specialization in Higher Education

The doctor of philosophy in education with a specialization in higher education is offered jointly by the Higher Education Program and the College of Education and Human Development. This doctoral program...
prepares students for faculty positions and positions of leadership in
administration and student services through core required coursework in
higher education and through a secondary concentration that can further
disciplinary expertise.

See the Education and Human Development, PhD (p. 183) for more
information.

Certificates
The program offers graduate certificates in college teaching and in
higher education administration. Students may take these as stand-alone
certificates or pursue them concurrently with a graduate degree program. Part of the certificate course work may be applied to the degree subject to the approval of the director of the graduate degree program. Students must apply and be accepted to a graduate certificate program.

Faculty

Program Faculty
Anthony, Arminio (director), Brown Leonard, Jorgenson, Kelly, Lortenson, Lester, Lucas, Owen, Scher, Schwartzstein, Shrum, L. Smith

Programs

• College Teaching Graduate Certificate
• Higher Education Administration Graduate Certificate
• Higher Education and Student Development, MA (pending SCHEV approval)
• Higher Education, PhD (pending SCHEV approval)

College Teaching Graduate Certificate
Banner Code: LA-CERG-CTCH

Academic Advising
316 Enterprise Hall
Fairfax Campus
Email: hepadmin@gmu.edu
Website: highered.gmu.edu/programs/la-cerg-ctch

The certificate in college teaching is designed for graduate students who are planning a career in undergraduate education. The program offers courses that enhance pedagogical skills and explore pedagogical assessment or scholarship with the use of technology in instruction. The graduate certificate in college teaching may be pursued on a part-time or full-time basis.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/College_Teaching/Gedt.html).

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in college teaching, see Application Requirements and Deadlines (http://chss.gmu.edu/programs/LA-CERG-CTCH/application).

Requirements

Certificate Requirements
Total credits: 18

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Core Courses
Students may substitute courses with a disciplinary focus for any of the three required courses with prior written approval of the director.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 602</td>
<td>College Teaching</td>
<td>3</td>
</tr>
<tr>
<td>HE 603</td>
<td>Higher Education in the Digital Age</td>
<td>3</td>
</tr>
<tr>
<td>HE 704</td>
<td>The Scholarship of Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>or HE 605</td>
<td>Learning Assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>9</td>
</tr>
</tbody>
</table>

Practicum

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 685</td>
<td>Practicum</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Electives must be chosen in consultation with the HEP Director and are selected from any HE course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Higher Education Administration Graduate Certificate
Banner Code: LA-CERG-HEDA

Academic Advising
316 Enterprise Hall
Fairfax Campus
Email: hepadmin@gmu.edu
Website: highered.gmu.edu/programs/la-cerg-heda

The certificate is designed for individuals who are planning or enhancing a career in a broad range of administrative positions in higher education institutions. The certificate will provide core knowledge for administrative processes in the context of higher education institutions.

The graduate certificate may be pursued on a part-time or full-time basis.
This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Higher_Education_Administration/Gedt.html).

**Admissions & Policies**

**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in higher education administration, see Application Requirements and Deadlines (http://chss.gmu.edu/programs/LA-CERG-HEDA/application).

**Certificate Requirements**

Total credits: 18

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 621</td>
<td>Higher Education in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HE 722</td>
<td>Organization and Administration in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 624</td>
<td>Finance and Fiscal Management in Higher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

**Additional Course**

Special topics courses, when relevant, may be used to fulfill this requirement with the prior written approval of the director.

Select 3 credits from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 603</td>
<td>Higher Education in the Digital Age</td>
</tr>
<tr>
<td>HE 606</td>
<td>Diversity in Higher Education</td>
</tr>
<tr>
<td>HE 645</td>
<td>The Contemporary College Student</td>
</tr>
</tbody>
</table>

Total Credits 3

**Electives**

Select 6 credits of electives 1

Total Credits 6

1 Electives must be chosen in consultation with the HEP Director and are selected from any HE course (p. 1623).

**Higher Education and Student Development, MA (pending SCHEV approval)**

Banner Code: LA-MA-HESD

Academic Advising

316 Enterprise Hall
Fairfax Campus

Email: hepadmin@gmu.edu
Website: highered.gmu.edu/programs/la-ma-hesd

Note: As of catalog publication in April, this program has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia for consideration as a new degree program. The university cannot accept applications or enroll students in this program until SCHEV approval has been granted.

The program prepares students for positions in higher education administration, student development, non-profit higher education associations, and government organizations. Today’s higher education professionals are required to address both the needs of incoming traditionally aged students, as well as those of older students returning for a degree and special populations. The wide range of student backgrounds in the current complex context requires a holistic approach to college student development.

This master’s degree will prepare future higher education leaders who understand higher education in the digital age, student development, multicultural and diverse populations, program development, professionalism, and learning assessment. This multidisciplinary program offers both thesis and project capstone options and is full and part-time student friendly. Alumni hold positions in areas such as career development, academic advising, assessment, facilities management, admissions, and residence life.

**Admissions & Policies**

**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines on the departmental website.

**Policies**

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Transfer Credit**

Courses applied to the degree are subject to the following restrictions: a maximum of 6 credits may be taken through the Consortium of Universities of the Washington Metropolitan Area; a maximum of 15 credits may be transfer credits; a maximum of 6 of the transfer credits may be from other accredited institutions.

Transfer credits include credits taken before first enrolling as an admitted degree-seeking student (at another institution, in another Mason graduate program, or in Mason non-degree status) or credits taken at another institution after admission to the degree program through study abroad or study elsewhere (which requires prior written approval of the director and the dean). Additional information may be found in AP.6.5.3 Transfer of Credit (p. 88).
Requirements

Degree Requirements
Total credits: 36

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 603</td>
<td>Higher Education in the Digital Age</td>
<td>3</td>
</tr>
<tr>
<td>HE 605</td>
<td>Learning Assessment</td>
<td>3</td>
</tr>
<tr>
<td>HE 606</td>
<td>Diversity in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 610</td>
<td>Research Designs in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 621</td>
<td>Higher Education in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HE 644</td>
<td>Student Services in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 646</td>
<td>Student Development Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

Optional Practicum
Depending upon prior work experience, students may be encouraged to complete a 150 hour practicum related to the student’s learning and career goals.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 685</td>
<td>Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Thesis or Project Capstone
Students may choose a thesis option or project option as described below. Electives can be taken outside of HE courses and should be selected in consultation with the advisor.

Thesis Option
Students selecting the thesis option will complete the course work below. In addition to HE 799 Higher Education Thesis, students will take an additional research methods course, a research apprenticeship, and two electives.

One additional research methods course offered at Mason with approval of an advisor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 785</td>
<td>Research Apprentice</td>
<td>3</td>
</tr>
<tr>
<td>Select 6 credits of electives¹</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>HE 799</td>
<td>Higher Education Thesis (3 credits required)²</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

¹ HE 685 Practicum may apply to this requirement based upon the work experience and with the approval of the student’s advisor.
² A project is a product the student creates from existing literature such as a traditional research monograph that is smaller in scale than a thesis and/or does not rely on the collection of original data. It is a deliverable with a practical application, such as a manual, handbook, or workshop grounded in research literature.

Higher Education, PhD (pending SCHEV approval)
Banner Code: LA-PHD-HEDU

Academic Advising
316 Enterprise Hall
Fairfax Campus
Email: hepadmin@gmu.edu
Website: highered.gmu.edu/programs/la-phd-hedu

Note: As of catalog publication in April, this program has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia for consideration as a new degree program. The university cannot accept applications or enroll students in this program until SCHEV approval has been granted.

The PhD focuses on leadership, the scholarship of teaching and learning, administration, and assessment. This interdisciplinary, graduate-level curriculum prepares individuals for positions of leadership in teaching, research, and administration at community colleges, four-year colleges, and universities around the globe. The program also prepares students for positions in associations, government agencies, and industries whose activities relate to or impact higher education. Students may concentrate in administration, the scholarship of teaching and learning, or individualized studies (one they create in consultation with an advisor).

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66).

For specific information, see Application Requirements and Deadlines (http://highered.gmu.edu/programs/la-phd-hedu/application) on the college web site.

Policies
For policies governing all graduate degrees, see Graduate Policies (p. 87).

Reduction of Credit
Students must have a master’s degree before being admitted to the PhD. A reduction of credit of up to 24 credits may be received based on the previous master’s degree and is determined on an individual basis.
Requirements

Degree Requirements
Total credits: 72

Students choose from one of three secondary concentrations: Higher Education Administration, Scholarship of Teaching and Learning, or Individualized Study. Each concentration is designed around a specific sub-field and will be guided by a student's professional and research goals.

Core Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 702</td>
<td>Contemporary and Critical Theories in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 703</td>
<td>Digital Technologies and Learning</td>
<td>3</td>
</tr>
<tr>
<td>HE 704</td>
<td>The Scholarship of Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>HE 705</td>
<td>Access and Social Justice</td>
<td>3</td>
</tr>
<tr>
<td>HE 710</td>
<td>Leadership in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 722</td>
<td>Organization and Administration in Higher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 18

Research Methods

Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 805</td>
<td>Research Methodologies in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 806</td>
<td>Qualitative Methods in Higher Education Research</td>
<td>3</td>
</tr>
<tr>
<td>HE 807</td>
<td>Quantitative Methods in Higher Education Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Two Additional Methods Courses

Students will choose two additional methods courses with one being in either advanced qualitative or quantitative methods. 1

Total Credits: 15

Additional possible advanced methods courses include case study methodology, mixed-methods, structural equation modeling, and multivariate statistics. The advanced methods courses are offered in the Departments of Psychology (p. 443) and Sociology and Anthropology (p. 482) in the College of Humanities and Social Sciences, as well as the College of Education and Human Development (p. 154), and must be approved by the advising portfolio committee.

Concentration in Higher Education Administration (HEDA)

Students in the higher education administration concentration will acquire advanced knowledge and understanding of legal issues, finance and budgeting, institutional assessment, leadership theories and practices, and the role of student services.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 624</td>
<td>Finance and Fiscal Management in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 701</td>
<td>Higher Education Law</td>
<td>3</td>
</tr>
<tr>
<td>HE 711</td>
<td>Policy Analysis in Higher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentration in Scholarship of Teaching and Learning (STL)

Students in the scholarship of teaching and learning concentration acquire advanced knowledge and understanding of the latest theories and research on pedagogy, student learning, learning assessment, and teaching with technology.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 602</td>
<td>College Teaching</td>
<td>3</td>
</tr>
<tr>
<td>HE 603</td>
<td>Higher Education in the Digital Age</td>
<td>3</td>
</tr>
<tr>
<td>HE 605</td>
<td>Learning Assessment</td>
<td>3</td>
</tr>
<tr>
<td>HE 645</td>
<td>The Contemporary College Student</td>
<td>3</td>
</tr>
</tbody>
</table>

One elective course chosen from either the higher education administration concentration or another course at Mason. 1

Total Credits: 15

Choice of elective will be approved by the portfolio committee.

Concentration in Individualized Study (INDV)

Students in the individualized study concentration will acquire advanced skills in an area intentionally designed to meet a set of objectives clearly articulated by the student and approved by the portfolio committee. This concentration will likely include courses with a more multidisciplinary perspective and be taken from programs across Mason. When consistent with Mason policy and students' learning goals, students may use master's course work toward individualized study concentration credits.

Select fifteen credits that meet objectives and have been approved by the portfolio committee. 1

Total Credits: 15

Electives

Student select an additional three courses as electives. These are designed to provide additional content knowledge and skills in subjects that relate to both areas of concentrations.

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 606</td>
<td>Diversity in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 644</td>
<td>Student Services in Higher Education</td>
<td>3</td>
</tr>
<tr>
<td>HE 646</td>
<td>Student Development Theory</td>
<td>3</td>
</tr>
<tr>
<td>HE 713</td>
<td>The Internationalization of Higher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Portfolio Review

Students will engage in a comprehensive portfolio review process throughout their course work to document accomplishments, assess student growth and development, and provide opportunity for faculty to suggest changes that more closely tie student research and professional goals to the program of study. Three portfolios must be submitted.
1. the first after a student completes 18 credits (portfolio 1)
2. the second after the completion of 36 credits (portfolio 2)
3. and the third once course work is completed to finalize dissertation plans, steps, and timeline.

The portfolio review process requires a committee of three faculty members who review the portfolios and meet with the student after each portfolio is submitted.

**Advancement to Candidacy**

Students must advance to candidacy within six years of enrollment in the program and graduate from the program within nine years. Students will advance to candidacy after completing all course work successfully completing all three portfolio reviews, and successfully completing HE 998 Doctoral Dissertation Proposal with an approved dissertation proposal.

**Dissertation**

To enroll in HE 998 Doctoral Dissertation Proposal, students must have a dissertation chair. Once students enroll in HE 998 Doctoral Dissertation Proposal, students are required to form a dissertation committee consisting of three faculty with one designated as a chair. At least one member of the committee must be from the Higher Education Program unit. Students must also have two additional members with graduate faculty status who could be from another department or college at George Mason University.

The dissertation should use theoretical and social science or humanities methods to address a problem within higher education research, teaching, and practice that is framed by the empirical literature. The dissertation process begins after the student has successfully completed all required 48 credit hours and successfully completed three portfolio reviews.

Once enrolled in HE 998 Doctoral Dissertation Proposal, students in this degree program must maintain continuous registration in HE 998 Doctoral Dissertation Proposal or HE 999 Doctoral Dissertation each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in HE 999 Doctoral Dissertation, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of HE 999 Doctoral Dissertation.

Students complete a minimum of 3 credits of HE 998 Doctoral Dissertation Proposal and a minimum of 3 credits of HE 999 Doctoral Dissertation. They must apply a minimum of 15 dissertation credits (HE 998 Doctoral Dissertation Proposal and HE 999 Doctoral Dissertation combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

<table>
<thead>
<tr>
<th></th>
<th>HE 998</th>
<th>HE 999</th>
<th>Total Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral Proposal</td>
<td>1-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dissertation</td>
<td></td>
<td>1-12</td>
<td>2-15</td>
</tr>
</tbody>
</table>

**Individualized Study Program**

A253 Robinson Hall
Fairfax Campus
Phone: 703-993-4556

Website: bis.gmu.edu

The bachelor of individualized study (BIS) provides an alternative to the traditional baccalaureate degree. It offers students a distinctive educational opportunity that allows them to integrate previous experiences into university course work. Recognizing that college-level learning may be acquired through varied professional, military, and personal experience, the Individualized Study Program provides mechanisms for translating experiential learning into academic credit. It accepts transfer credits from traditional institutions of higher education, as well as credits earned through other appropriate means.

In this degree program, most students design their own individualized interdisciplinary program of study. Other students who are interested in early childhood education and who meet specific eligibility requirements can pursue a more prescribed curriculum that leads to a concentration in early childhood education studies.

**Credit for Nontraditional Modes of Learning**

The BIS program allows students to receive college credit for learning acquired through a variety of nontraditional methods. For details, see the Individualized Study (BIS) (p. 529) section of the catalog.

**Programs**

- Individualized Study, BIS

**Individualized Study, BIS**

Banner Code: LA-BIS-INDV

A253 Robinson Hall
Fairfax Campus

Website: bis.gmu.edu/programs/la-bis-indv

The Bachelor of Individualized Study (BIS) Program at George Mason University is an undergraduate degree completion program with a 42-year history of serving adult students. The program combines an interdisciplinary academic framework and a writing-intensive, research-based curriculum to provide students with individualized degree plans. The BIS Program offers students intensive support services, course flexibility, and generous transfer credit options. Students create interdisciplinary concentrations to meet their own educational needs: to advance in their current employment, to prepare for graduate or professional programs, or to plan a path toward a career change.

**Admissions & Policies**

**Admissions**

Students who are interested in the bachelor of individualized study degree must attend an information session. In addition to applying to Mason through the Office of Admissions, they need to apply separately to the BIS Program. The schedule of BIS information sessions and the BIS application are available on the BIS Program website (http://bis.gmu.edu).
Eligibility

Adult transfer applicants, age 25 or older may be considered for the BIS only with the following minimum criteria:

1. 12 credits of transferable college coursework as determined by the Office of Admissions
2. Cumulative collegiate grade point average of 2.00+

Admission is directly to BIS with no change to another major without reapplying. The concentration in early childhood education studies is an exception to the age requirement.

Policies

Students pursuing a bachelor of individualized study must meet the baccalaureate degree requirements for all undergraduates: they need to complete 120 credits with 45 credits at or above the 300 level and at least 30 credits at Mason.

BIS students may elect to take a minor in addition to their BIS concentration. 15 credits of the minor must be applied uniquely to the minor and not to the concentration. For students pursuing the concentration in early childhood studies, the minor is required for the degree.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Credit for Nontraditional Modes of Learning

The BIS program allows students to receive college credit for learning acquired through a variety of nontraditional methods indicated below. The maximum allowable credits are indicated for each category.

- Nationally recognized exam programs such as the College Level Examination Program (CLEP) when the particular exam has been approved for Mason credit: See CLEP Examination for an approved list. A maximum of 45 maximum credits can be earned through exams. After matriculation, students are limited to taking and applying credits for the CLEP exam in "Information Systems and Computer Applications": Students with a qualifying score on this exam will be awarded credit for IT 104T. Students receiving credit for IT 104T must still meet the university information technology ethics requirement (see Mason Core section of this catalog). Credit for other CLEP exams awarded after matriculation may not be applied.
- Certain university approved industry, government, or military training credits if such credits are indexed and recommended as college-level credit by the American Council on Education (ACE). To be eligible for Mason credit, training and course specifics must exactly match what is in the ACE guide and be approved for Mason credit. The specific credits must also be approved by the program director and the dean. A maximum of 45 credits can be earned through ACE-approved training. A maximum of 60 total combined credits can be accepted for exams and ACE-approved training. For example, if 45 credits are accepted by ACE-approved training, a maximum of 15 credits can be accepted for exams. Students may not take these courses for credit once they have matriculated at Mason.
- Experiential learning demonstrated by portfolios subject to approval by the program director and the dean (30 maximum credits).
- College-level credit earned at institutions accredited by bodies other than recognized regional accrediting organizations subject to approval by the program director and the dean. These credits can only be considered if the institution is listed in Accredited Institutions of Postsecondary Education published by ACE (30 maximum credits) and only if they are taken before the student matriculates at Mason.

Students may not pursue credit for options 1, 2, and 4 once they have matriculated at Mason. They must complete the third option within their first 30 credits after matriculation. Although the types of credit noted above may be applied to a bachelor of individualized study degree, if a BIS student changes majors, credit awarded in these ways cannot be used toward other majors. These nontraditional credits are not transferable to other degree programs at Mason.

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 529) tab.

Students pursuing a bachelor of individualized study degree must complete four required courses and one concentration.

Core Courses in the Major

Students must complete each of the four core courses with a minimum grade of 2.00.

In BIS 390 The Research Process (or BIS 391 The Research Process for Honors for students pursuing honors in the major), students develop a project proposal. An approved proposal from BIS 390 The Research Process or BIS 391 The Research Process for Honors is a prerequisite to enroll in BIS 490 RS: Senior Project (Mason Core) (p. 135).

In BIS 490 RS: Senior Project (Mason Core) (p. 135), students complete a senior capstone project that varies according to the individual program of study. It may be an investigative or creative project, and must be appropriate to the student’s interdisciplinary concentration. This course requires significant writing and fulfills the Mason Core synthesis requirement. It is a research intensive course designated RS by OSCAR. The project is evaluated by the BIS 490 RS: Senior Project (Mason Core) (p. 135) instructor in consultation with the student’s faculty mentor and others as determined by the BIS director.

BIS 490 RS: Senior Project (Mason Core) (p. 135) and BIS 491 Senior Project Presentation are taken concurrently when no more than 6 credits remain in the concentration.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIS 300</td>
<td>Understanding Interdisciplinary Studies</td>
<td>3</td>
</tr>
<tr>
<td>BIS 390</td>
<td>The Research Process</td>
<td>3</td>
</tr>
<tr>
<td>or BIS 391</td>
<td>The Research Process for Honors</td>
<td></td>
</tr>
<tr>
<td>BIS 490</td>
<td>RS: Senior Project (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BIS 491</td>
<td>Senior Project Presentation</td>
<td>1</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

Concentrations in the Major

Students must complete one concentration of 24-42 credits. Of the credits applied to the concentration, at least 15 credits must be at the 300 level or above and a maximum of 6 credits can have grades of C- or D (grades below 2.00). The total credits applied to the concentration must represent a minimum GPA of 2.00.
Courses applied to a concentration may not also be used to fulfill Mason Core requirements.

**Individualized Concentration (IND)**

Students may do an individualized concentration to meet their own academic needs and interests. The concentration is developed in close consultation with BIS staff and a faculty mentor. Students may incorporate into their individualized concentrations up to 9 credits of previously earned college course work or previously earned nontraditional credit from other institutions. In addition to the 4 core courses, students complete between 24 and 36 credits, depending on the topic and the student's preparation.

Select 24 to 36 credits from a minimum of two disciplines 24-36

Total Credits 24-36

Students are encouraged to include UNIV 304 Bachelor Individualized Studies Transfer Transition in the concentration. Students are also encouraged to include BIS 489 Directed Readings and Research and complete it before taking BIS 490 RS: Senior Project (Mason Core) (p. 135).

**Concentration in Early Childhood Education Studies (ECES)**

This concentration offers students holding a Northern Virginia Community College associate's degree in applied science in early childhood development the opportunity to obtain a BIS in early childhood education studies and a minor in business or other relevant minor. This concentration does not lead to teacher licensure in early childhood education.

To receive this concentration, students complete a minimum of 34 credits beyond the associate's degree in addition to the four core BIS courses, electives, and Mason Core requirements needed to reach at least 120 credits.

**Admission Requirements**

Students are eligible for this concentration if they have an associate’s degree in applied science in early childhood development. Unlike the individualized concentration, there is no age restriction regarding admission into this BIS concentration.

**Interdisciplinary Courses**

**Human Growth and Development**

EDUC 302 Human Growth and Development 3

**Course Focused on Diverse Young Learners**

ECED 402 Foundations of Language and Literacy for Diverse Prekindergarten and Kindergarten Learners 3

or ECED 403 Inclusive Curriculum for Young Learners: Planning Instruction and Guidance

**Linguistic Development of Infants and Toddlers**

ECED 422 Developing Language, Literacy, and Communication of Diverse Infants and Toddlers 3

or ECED 423 Early Intervention for Infants Toddlers with Disabilities: Collaborative Consultative Approaches

**Research Methods**

GOVT 300 Research Methods and Analysis (Mason Core) (p. 135) 4

or SOCI 303 Methods and Logic of Inquiry

**Electives at the 300-400-level**

Select 6 credits of electives relevant to the concentration in consultation with their faculty mentor 6

Total Credits 19

**Optional Self-Selected Minor**

Select 15-23 credits of self-selected minor 15-23

Total Credits 15-23

**Mason Core**

BIS students complete a modified Mason Core (p. 135) program of 36 credits. The Mason Core requirements may include courses not listed here; consult the BIS program for more information. Courses used to meet the Mason Core requirements cannot be used to meet a requirement for a concentration.

Students pursuing the concentration in early childhood education studies meet Mason Core requirements as specified in the advising agreement between NVCC and Mason.

**Mason Core for Early Childhood Education Studies Concentration NVCC Coursework**

ENGH 101 Composition (Mason Core) (p. 135) (lower level written communication) 3

COMM 100 Public Speaking (Mason Core) (p. 135) (oral communication) 3

Social Sciences 6

MATH or STAT 3

Information Technology 3

**Mason**

ENGH 302 Advanced Composition (Mason Core) (p. 135) (upper level written communication) 3

Natural Science (p. 141) 3-4

Humanities (including 3 credits of arts) (p. 135) 6

Social Science (p. 135) 3

BIS 490 RS: Senior Project (Mason Core) (p. 135) (synthesis) 3

Total Credits 36-37

**Mason Core for Individualized Concentration**

**English Composition**

ENGH 101 Composition (Mason Core) (p. 135) 3

ENGH 302 Advanced Composition (Mason Core) (p. 135) 3

Total Credits 6

**Humanities**

Select three courses from the following: 9

Any ARTH course (p. 1143)

Any AVT course (p. 1152)

Any COMM course (p. 1286)

Any DANC course (p. 1399)

Any ENGH course (p. 1476) 1

Any MUSI course (p. 1740)

Any PHIL course (p. 1818) 2

Any RELI course (p. 1904)

Any THR course (p. 2007)
Any course from a foreign language department

Total Credits: 9

1. Except for ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135), ENGH 101 Composition (Mason Core) (p. 135), ENGH 302 Advanced Composition (Mason Core) (p. 135)

2. Except for PHIL 173 Logic and Critical Thinking, PHIL 376 Symbolic Logic

### Social and Behavioral Science
Select three courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any ANTH course (p. 1119)</td>
<td></td>
</tr>
<tr>
<td>Any CRIM course (p. 1372)</td>
<td></td>
</tr>
<tr>
<td>Any ECON course (p. 1413)</td>
<td></td>
</tr>
<tr>
<td>Any GOVT course (p. 1588)</td>
<td></td>
</tr>
<tr>
<td>Any HIST course (p. 1628)</td>
<td></td>
</tr>
<tr>
<td>Any LING course (p. 1694)</td>
<td></td>
</tr>
<tr>
<td>Any PSYC course (p. 1844)</td>
<td></td>
</tr>
<tr>
<td>Any SOCI course (p. 1923)</td>
<td></td>
</tr>
<tr>
<td>WMST 200 Introduction to Women and Gender Studies (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 9

1. Except for GGS 102 Physical Geography (Mason Core) (p. 135), GGS 309 Meteorology and Climate

### Mathematics or Statistics
Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 106 Quantitative Reasoning (Mason Core) (p. 135) (or any MATH course above 106)</td>
<td></td>
</tr>
<tr>
<td>STAT 250 Introductory Statistics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3

### Information Technology
Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 104 Introduction to Computing (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>Any course that fulfills the Mason Core IT proficiency requirement (all components including ethics)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3

### Natural Science
Select any 3-4 credit lab or non lab course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any ASTR course (p. 1179)</td>
<td></td>
</tr>
<tr>
<td>Any BIOL course (p. 1211)</td>
<td></td>
</tr>
<tr>
<td>Any CHEM course (p. 1244)</td>
<td></td>
</tr>
<tr>
<td>Any CLIM course (p. 1279)</td>
<td></td>
</tr>
<tr>
<td>Any EVPP course (p. 1501)</td>
<td></td>
</tr>
<tr>
<td>Any GEOL course (p. 1568)</td>
<td></td>
</tr>
<tr>
<td>Any PHYS course (p. 1828)</td>
<td></td>
</tr>
<tr>
<td>CONS 401 Conservation Theory</td>
<td></td>
</tr>
<tr>
<td>GGS 102 Physical Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 309 Meteorology and Climate</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3-4

### Synthesis Course
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 301 Science in the News</td>
<td></td>
</tr>
<tr>
<td>INTS 318 Exploring Virginia’s Watersheds</td>
<td></td>
</tr>
<tr>
<td>INTS 395 Field-Based Work</td>
<td></td>
</tr>
<tr>
<td>INTS 401 Conservation Biology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3-4

### Additional Electives
Any remaining credits may be completed with electives to bring the degree total to 120.

### Honors

#### Honors in the Major
Highly-qualified students may apply to graduate with honors in the major. Students should apply the semester before they intend to enroll in BIS 390 The Research Process. If accepted, students must complete BIS 391 The Research Process for Honors in place of BIS 390 The Research Process, in addition to an individualized section of BIS 490 RS: Senior Project (Mason Core) (p. 135). To graduate with honors in the major, students must complete these two courses with a minimum GPA of 3.50, maintain a minimum cumulative GPA of 3.75, and successfully present their research during the Senior Capstone Project presentations (by earning a grade of 2.0 or better in BIS 491 Senior Project Presentation).

### Accelerated Master's
The accelerated master's programs in the list below specify the individualized study BIS as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason University.

#### Individualized Study, BIS/Applied Information Technology, Accelerated MS Overview
Highly-qualified students in the Individualized Study, BIS (p. 529) have the option of obtaining an accelerated Applied Information Technology, MS (p. 1046).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

#### Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Mason undergraduate students in the BIS Program can apply in the semester in which they will have completed 90 or more credits (including 15 Mason resident credits) applicable toward the BIS. Students must have an overall GPA of at least 3.30 to apply to the program. Criteria for admission are identical to
criteria for admission into the MS in AIT Program, except that students do not need to have completed an undergraduate degree prior to acceptance into the accelerated program.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition Form (http://registrar.gmu.edu/forms).

Accelerated Option Requirements
Students in the accelerated master’s option must maintain a minimum 3.30 GPA in the undergraduate segment until they have satisfied all requirements for the BIS degree. On completion and conferral of the undergraduate degree they submit the Bachelor’s/Accelerated Master’s Transition Form (http://registrar.gmu.edu/forms) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. Students must complete all credits that satisfy requirements of the BIS program and those of the MSAIT program, with two courses overlapping from the courses necessary to earn the BIS with a concentration IND (individualized), applied information technology emphasis as listed below.

Note: All of the prerequisite courses indicated below must be passed with a grade of C or higher.

### Emerging Technologies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 597</td>
<td>Developing IT Leaders of Integrity</td>
<td>3</td>
</tr>
<tr>
<td>GBUS 540</td>
<td>Analysis of Financial Decisions</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

### Cyber Security

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 673</td>
<td>Cyber Incident Handling and Response</td>
<td>3</td>
</tr>
<tr>
<td>ISA 650</td>
<td>Security Policy</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

### Intelligence Technologies

Select two from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 675</td>
<td>Overview of the National Intelligence Community</td>
<td>6</td>
</tr>
<tr>
<td>AIT 676</td>
<td>Intelligence Technologies, Research and Development in the Intelligence Community</td>
<td>6</td>
</tr>
<tr>
<td>AIT 677</td>
<td>Intelligence Analysis Methods</td>
<td>6</td>
</tr>
<tr>
<td>AIT 678</td>
<td>National Security Challenges</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

---

Individualized Study, BIS/Telecommunications, Accelerated MS

**Overview**
Highly-qualified students in the Individualized Study, BIS (p. 529) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**
Students in the Individualized Study, BIS (p. 529) program may apply for this option if they have earned 90 undergraduate credits (including 15 Mason resident credits) with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Telecommunications, MS (p. 1039).

**Accelerated Option Requirements**
Students must complete all requirements for the BIS and MS programs, with 6 credits overlap.

Students select TCOM courses from the list below to meet the requirements of the accelerated program. Six credits of TCOM courses will be applied to meet the requirements of both the BIS and MS TCOM programs. An additional three credits of TCOM courses is required for the BIS Individualized Concentration (IND) with emphasis on telecommunication. Note that accelerated students can only take the courses in the list below if they passed the listed prerequisite course with a B or higher.

**BIS Concentration**
Total credits: 34-46

Students who are pursuing the Individualized Study, BIS (p. 529), Individualized concentration (IND) with an emphasis on telecommunications must take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Code</strong></td>
<td><strong>Title</strong></td>
<td><strong>Credits</strong></td>
</tr>
<tr>
<td>Select an additional 500-level TCOM course(s) from the list below</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIS 300</td>
<td>Understanding Interdisciplinary Studies</td>
<td>3</td>
</tr>
<tr>
<td>BIS 390</td>
<td>The Research Process</td>
<td>3</td>
</tr>
<tr>
<td>BIS 490</td>
<td>RS: Senior Project (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BIS 491</td>
<td>Senior Project Presentation</td>
<td>1</td>
</tr>
<tr>
<td>ECE 301</td>
<td>Digital Electronics</td>
<td>3</td>
</tr>
<tr>
<td>IT 341</td>
<td>Data Communications and Network Principles</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
</tbody>
</table>

Select additional courses related to telecommunication 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>31-43</strong></td>
</tr>
</tbody>
</table>

1 Required to reach the necessary number of credits for the BIS Individualized concentration.

**Telecommunications Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
</tbody>
</table>
Interdisciplinary Studies Program

TCOM 505 Networked Multicomputer Systems 1.5
TCOM 510 Client-Server Architectures and Applications 1.5
TCOM 530 Data Communications Fundamentals 3
TCOM 535 The TCP/IP Suite of Internet Protocols 3
TCOM 551 Digital Communication Systems 3
TCOM 607 Satellite Communications 3
TCOM 608 Optical Communications Systems 3
TCOM 631 Voice Over IP 3

Note:
Accelerated students who have passed IT 341 Data Communications and Network Principles with a grade of B or higher will not be required to take TCOM 530 in the Telecommunications, MS core. Other TCOM courses may be approved on a case-by-case basis.

See each course for individual prerequisite requirements.

Degree Conferral
Students must apply the semester before they expect to complete the BIS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Interdisciplinary Studies Program
Meredith Lair, Director
Phone: 703-993-8762
Website: mais.gmu.edu

The master’s degree program in interdisciplinary studies (MAIS) is designed for students who seek a degree that integrates knowledge from several disciplines. It addresses a rapidly evolving demand for specialized and individualized graduate study. Students choose one of ten structured concentrations or devise an individualized program of study when traditional degree programs do not meet their evolving careers or life goals.

The degree requires course work from a home department and selected courses from other disciplines. Students complete their degrees with a project or thesis.

Concentrations
Students pursuing a master's degree program in interdisciplinary studies can choose established concentrations in these areas:

- Computational Social Science
- Energy and Sustainability
- Folklore Studies
- Higher Education
- Neuroethics
- Religion, Culture, and Values
- Social Entrepreneurship
- Social Justice and Human Rights

- War and the Military in Society
- Women and Gender Studies

For a variety of reasons, traditional graduate programs are not able to meet the specific educational goals of some students. They can choose an individualized concentration. With the help of a faculty advisor, they design an individualized program of study that includes courses from several academic disciplines.

Faculty
Concentration Heads
Armindo, Axtell, Breglia, Crooks, Fraser, Gorski, Hamner, Hattery, Kabbani, Lair, McCarron, Rashkover

Programs
- Interdisciplinary Studies, MAIS

Interdisciplinary Studies, MAIS
Banner Code: LA-MAIS-ISIN

Academic Advising
324 Enterprise Hall
Fairfax Campus
Email: mais@gmu.edu
Website: mais.gmu.edu/programs/LA-MAIS-ISIN

The MA in interdisciplinary studies is for students who seek a master’s degree that integrates knowledge from several disciplines. It addresses the rapidly evolving demand for unique graduate study by promoting advanced scholarship that transcends traditional disciplinary boundaries. Students can pursue one of the following structured interdisciplinary concentrations and also have the opportunity to design an individualized concentration to meet the special needs of their careers.

The MAIS in Interdisciplinary Studies with a concentration in Energy and Sustainability is a Green Leaf program (p. 102).

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the MA in Interdisciplinary Studies, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/LA-MAIS-ISIN/application).

Applicants must show a capacity for original thought in cross-disciplinary research. There may be additional skills required of students applying to specific concentrations. Students will be admitted to the Individualized Studies concentration only if the applicant identifies a Mason Faculty member appropriate for the intended course of study who is willing to serve as the student’s advisor.
### Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

### Credit Restrictions

Courses applied to the degree are subject to the following restrictions:

- a maximum of 6 credits may be earned through independent study or directed readings and research courses
- a maximum of 6 credits may be taken through the Consortium of Universities of the Washington Metropolitan Area
- a maximum of 15 credits may be transfer credits
- a maximum of 6 of the transfer credits may be from other accredited institutions

Transfer credits include credits taken before first enrolling as an admitted degree-seeking student (at another institution, in another Mason graduate program, or in Mason nondegree status) or credits taken at another institution after admission to the degree program through study abroad or study elsewhere (which requires prior written approval of the director and the dean). Additional information may be found in Academic Policies (p. 74).

### Requirements

#### Degree Requirements

Total credits: 36

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 534) tab.

Students pursuing this degree must successfully complete 36 credits of graduate coursework in one of the concentrations which follow. Students must submit a curriculum worksheet that has been approved by their concentration head and the director. All students complete their work in the program with a project or thesis.

#### Concentration in Computational Social Science (CSS)

Computational social science (CSS) is a relatively new interdisciplinary science in which social science questions are investigated with modern computational tools. Computational social scientists investigate complex social phenomena such as economic markets, traffic control, and political systems by simulating the interactions of the many actors in such systems on computers. They hope to gain insights which will lead to better management of the behavior of the larger social systems, i.e., prevention of market crashes, smoothed traffic flow, or maintenance of political stability. The intractability of many social problems calls for the new approaches provided by computational social science.

CSS is a highly interdisciplinary field that requires teams to plan and complete projects, be they undertaken by government, industry, or non-profit entities. Project managers of such teams, overseeing all elements of project design and execution, tend to hold PhDs. The MAIS concentration will train students to be members of these project teams, able to meaningfully contribute to background research and to project design, execution, and communication.

Prior background should include a bachelor's degree in one of the social sciences, in computer science, in engineering, or in a relevant discipline, as well as undergraduate courses in these and related areas. Bachelor's degrees in other areas are also eligible, but the student may be required to take additional courses in social science, mathematics, or computer science as prerequisites to admission.

#### Required Course of Proseminar

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 796</td>
<td>MAIS ProSeminar</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits**: 1

#### Core Courses

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 600</td>
<td>Introduction to Computational Social Science</td>
<td>3</td>
</tr>
<tr>
<td>CSS 605</td>
<td>Object-Oriented Modeling in Social Science</td>
<td>3</td>
</tr>
<tr>
<td>CSS 610</td>
<td>Agent-based Modeling and Simulation</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Electives

Select three electives from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 620</td>
<td>Origins of Social Complexity</td>
<td></td>
</tr>
<tr>
<td>CSS 625</td>
<td>Complexity Theory in the Social Sciences</td>
<td></td>
</tr>
<tr>
<td>CSS 645</td>
<td>Spatial Agent-Based Models of Human-Environment Interactions</td>
<td></td>
</tr>
<tr>
<td>CSS 692</td>
<td>Social Network Analysis</td>
<td></td>
</tr>
<tr>
<td>CSS 739</td>
<td>Topics in Computational Social Science</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 18

1. The required CSS courses provide an understanding of the conceptual, technical, and practical foundations of computational social science.
2. The electives provide an understanding of the technical foundations and current work in at least two subfields of computational social science.

#### Research Course

The research course provides students with exposure to the most current ongoing research in the field and allows them to further develop their computational research expertise.

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 796</td>
<td>Directed Reading and Research</td>
<td>3</td>
</tr>
<tr>
<td>CSS 898</td>
<td>Research Colloquium in Computational Social Science</td>
<td></td>
</tr>
<tr>
<td>CSS 899</td>
<td>Colloquium in Computational Social Science</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 3

#### Electives

The electives allow students to acquire a substantive specialization as well as additional training in social and computational science. Because of the broad spectrum of social science phenomena, methodologies, and student backgrounds, there is a large pool of potential courses. Electives may include any Mason master’s-level course in computational social science, social science, computer science, statistics, or other quantitative methods such as data visualization, information technology, and geographic information science. Electives should be selected in conjunction with and approval of the student's advisor and the Director of CSS Graduate Studies. If the student does not have prior coursework in multivariate statistical analysis, the electives should include at least one such course relevant for the student’s chosen specialization.
Students who elect to complete a 4-credit project or thesis take 9 elective credits. Students who complete a 1-credit project take 12 elective credits.

**Proposal**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 797</td>
<td>Interdisciplinary Studies Proposal</td>
<td>1</td>
</tr>
</tbody>
</table>

**Project or Thesis**

Nine to twelve credits of electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 798</td>
<td>Interdisciplinary Studies Project</td>
<td>1-4</td>
</tr>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis</td>
<td>4</td>
</tr>
</tbody>
</table>

**Concentration in Energy and Sustainability (EAS)**

This concentration is designed for students interested in careers in energy and sustainability-related positions in the public, private, or non-profit sectors, including law, national and international policy, media, government, and business. As one of the University’s Green Leaf academic programs, the concentration in energy and sustainability focuses on finding ways to meet present needs for energy and material goods without compromising the ability of future generations to meet their needs. A sustainability education lies at the intersection of environmental science, engineering, economics, business, public policy, social justice, and many other areas. Energy required to fuel all of these endeavors is a crucial component of sustainability.

**Required Course of Interdisciplinary Studies Proseminar**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 796</td>
<td>MAIS ProSeminar</td>
<td>1</td>
</tr>
</tbody>
</table>

**Core Courses in Energy and Sustainability**

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 533</td>
<td>Energy Policy</td>
<td>3</td>
</tr>
<tr>
<td>GGS 507</td>
<td>Sustainable Development</td>
<td>3</td>
</tr>
</tbody>
</table>

**Natural Science Course**

- PHYS 581: Topics in Renewable Energy (3 credits)
- GEOL 521: Geology of Energy Resources (3 credits)

**Total Credits**

13

**Energy, Sustainability or Environmental Policy**

Students choose from the following courses or other relevant courses chosen in consultation with an advisor.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 760</td>
<td>National Security Technology and Policy</td>
<td></td>
</tr>
<tr>
<td>ECON 695</td>
<td>Special Topics in Economics (when the topic involves environmental or sustainability policy)</td>
<td></td>
</tr>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science (when the topic involves energy or sustainability policy; take 3 credits)</td>
<td></td>
</tr>
<tr>
<td>EVPP 638</td>
<td>Corporate Environmental Management and Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 642</td>
<td>Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>GGS 525</td>
<td>Economics of Human/Environment Interactions</td>
<td></td>
</tr>
</tbody>
</table>

**Humanities or Social Science Approaches to Sustainability and Environmental Issues**

Students choose from the following courses or other relevant courses chosen in consultation with an advisor.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 660</td>
<td>Climate Change and Sustainability Communication Campaigns</td>
<td></td>
</tr>
<tr>
<td>HIST 615</td>
<td>Problems in American History (when the topic involves environmental or sustainability issues)</td>
<td></td>
</tr>
<tr>
<td>ECON 695</td>
<td>Special Topics in Economics (when the topic involves environmental or sustainability policy)</td>
<td></td>
</tr>
<tr>
<td>INTS 540</td>
<td>Contemporary Issues in Social Justice Human Rights</td>
<td></td>
</tr>
<tr>
<td>ITRN 760</td>
<td>International Issues in Social Justice Human Rights</td>
<td></td>
</tr>
<tr>
<td>PHIL 643</td>
<td>Environmental Ethics</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

6

**Planning, Modeling, or Management**

Students choose from the following courses or other relevant courses chosen in consultation with an advisor.

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 601</td>
<td>Infrastructure Modeling</td>
<td>3-4</td>
</tr>
<tr>
<td>EVPP 650</td>
<td>Ecosystem Analysis and Modeling</td>
<td></td>
</tr>
<tr>
<td>EVPP 693</td>
<td>Directed Studies in Environmental Science and Public Policy (take 3 credits)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

3-4

**Natural Science**

Students choose from the following courses or other relevant courses chosen in consultation with an advisor.

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 690</td>
<td>Scientific Basis of Climate Change</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 607</td>
<td>Fundamentals of Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 677</td>
<td>Applied Ecology and Ecosystem Management</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

3

**Electives**

Students who wish to take MAIS 798 Interdisciplinary Studies Project for their capstone research experience will take one course (3 credits) of electives from courses listed below or other relevant course chosen in consultation with an advisor. Students who wish to take MAIS 799 Interdisciplinary Studies Thesis will not take an elective course.

Select 0-3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 760</td>
<td>National Security Technology and Policy</td>
<td></td>
</tr>
<tr>
<td>CEIE 601</td>
<td>Infrastructure Modeling</td>
<td></td>
</tr>
<tr>
<td>CLIM 690</td>
<td>Scientific Basis of Climate Change</td>
<td></td>
</tr>
</tbody>
</table>
COMM 660  Climate Change and Sustainability Communication Campaigns
ECON 695  Special Topics in Economics (when the topic involves environmental or sustainability policy)
EVPP 505  Selected Topics in Environmental Science (when the topic involves energy or sustainability policy; take 3 credits)
EVPP 607  Fundamentals of Ecology
EVPP 638  Corporate Environmental Management and Policy
EVPP 642  Environmental Policy
EVPP 650  Ecosystem Analysis and Modeling
EVPP 677  Directed Ecology and Ecosystem Management
EVOL 521  Geology of Energy Resources
GGS 525  Economics of Human/Environment Interactions
HIST 615  Problems in American History (when the topic involves environmental or sustainability issues)
INTS 540  Contemporary Issues in Social Justice Human Rights
ITRN 760  International Environmental Politics
PHIL 643  Environmental Ethics
PHYS 581  Topics in Renewable Energy
PUBP 710  Topics in Public Policy (when the topic involves environmental or sustainability issues)
RELI 636  Religion and the Natural Environment

Total Credits 0-3

Research Methods Course
Students choose one of the following courses or other relevant courses in consultation with an advisor.

Select one course from the following: 3
BINF 690  Numerical Methods for Bioinformatics
EVPP 632  Qualitative Research Methods for Environmental Scientists
EVPP 650  Ecosystem Analysis and Modeling
EVPP 651  Multivariate Data Analysis for Ecology and Environmental Science
OR 682  Computational Methods in Engineering and Statistics
PUBP 710  Topics in Public Policy
RELI 620  Methods and Logic of Social Inquiry

Total Credits 3

Proposal
MAIS 797  Interdisciplinary Studies Proposal 1

Total Credits 1

Project or Thesis
Students who wish to do a project in lieu of a thesis will take 1 credit of MAIS 798 Interdisciplinary Studies Project and an additional 3 credit elective course from the courses listed under the electives requirement. Students who choose to write a thesis will take 4 credits of MAIS 799 Interdisciplinary Studies Thesis and no additional electives.

Zero to three credits of electives 0-3
Select one from the following: 1-4
MAIS 798  Interdisciplinary Studies Project (minimum of 1 credit)
MAIS 799  Interdisciplinary Studies Thesis (take 4 credits)

Total Credits 4

Concentration in Folklore Studies (FLKS)
This concentration explores the processes of tradition that move through multiple expressive forms, such as folktales, folk beliefs, folk medicine, folk art, folksong, and literature. A discipline based on ethnographic fieldwork, folklore offers students a chance to work in communities and collect living traditional materials that are critical to human identity and values. Interdisciplinary by nature, folklore thrives on local particularities and compelling global connections. Internships in the many Washington, D.C., metropolitan area folklore organizations are central to students’ experiences. This course of study prepares students for careers in cultural agencies, governmental organizations, teaching institutions, and advanced study in the humanities.

Students pursuing this concentration must complete at least 6 credits of courses from outside the English Department.

Required Course of Proseminar
MAIS 796  MAIS ProSeminar 1

Total Credits 1

Core Courses
Special Topics in Folklore
Select 9 credits from the following: 1
ENGH 590  Topics in Folk Narrative
ENGH 591  Topics in Folklore Studies
ENGH 681  Advanced Topics in Folklore Studies
ENGH 798  Directed Reading and Research (take 3 credits)

Pathways in Folklore Scholarship
ENGH 681  Advanced Topics in Folklore Studies (when topic is Pathways to Folklore Scholarship)

Internship in Folklore
Three credits of
ENGH 604  Internship in Folklore

Research Methodology Course
Select 3 credits from the following: 3
ENGH 701  Research in English Studies
HIST 610  The Study and Writing of History
SOCI 634  Qualitative Research Methods

Total Credits 18
Courses may be repeated.

Specialization
Students choose an area of specialization which must be approved by a faculty advisor. Specialization topics include public folklore (museums, archives, arts and humanities councils, and nonprofit organizations); folklore (ethnicity and immigration); folklore and literature; folklore and the teaching of writing and literature; folklore and history; and folklore and conflict resolution. Students can also opt for open specialization, with courses chosen in consultation with advisor. Possibilities include folklore and editing, applied storytelling, folklore and mythology, folklore and art history, folklore and gender studies, and folklore and communication.

Electives
Electives require the prior written approval of a faculty advisor. Students who elect to do a 1 credit project take 6 elective credits. Students who do a 4 credit thesis take 3 elective credits.

<table>
<thead>
<tr>
<th>Select one to two electives</th>
<th>3-6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>3-6</td>
</tr>
</tbody>
</table>

Proposal

<table>
<thead>
<tr>
<th>MAIS 797</th>
<th>Interdisciplinary Studies Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>1</td>
</tr>
</tbody>
</table>

Project or Thesis
Select one from the following:

<table>
<thead>
<tr>
<th>MAIS 798</th>
<th>Interdisciplinary Studies Project (take 1 credit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis (take 4 credits)</td>
</tr>
</tbody>
</table>

Total Credits | 1-4 |

Concentration in Higher Education (HEDU)
This concentration prepares individuals for administrative and leadership positions in colleges and universities, associations, and government agencies whose activities affect higher education. Within the concentration, students may choose to emphasize administration or student affairs.

Required Course of Proseminar

<table>
<thead>
<tr>
<th>MAIS 796</th>
<th>MAIS ProSeminar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits</td>
<td>1</td>
</tr>
</tbody>
</table>

Core Courses

| HE 621 | Higher Education in the United States |
| HE 601 | The Community College |

Select three additional core courses from relevant courses in consultation with an advisor.

Total Credits | 12 |

Research Methodology
Select one course of research methodology courses

Total Credits | 3 |

Specialization

| HE 722 | Organization and Administration in Higher Education |

Total Credits | 3 |

Electives
Select three to four electives in consultation with advisor.

<table>
<thead>
<tr>
<th>MAIS 798</th>
<th>Interdisciplinary Studies Project (minimum of 1 credit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis (take 4 credits)</td>
</tr>
</tbody>
</table>

Total Credits | 1-4 |

Concentration in Neuroethics (NETH)
The MAIS concentration in neuroethics is a joint program of the interdisciplinary Neuroscience Program and the Department of Philosophy. It offers students a unique opportunity to study key ethical issues arising from advances in neuroscience research and technologies. The degree is suitable for students interested in doctoral work in neuroscience, cognitive science, clinical bioethics, or the study of law. It also can serve as an entry point for employment into government or private sector industries of ethic and policy related brain science issues.

The degree is intended for students interested in doctoral work in neuroscience, cognitive science, or bioethics. It also can help students who will work on medical and scientific research projects in government or the private sector.

Admission to the Neuroethics Program is open to students with an undergraduate degree in many fields. Applicants should demonstrate proficiency in at least two of the following academic areas as evidenced by 18 or more credits of undergraduate or graduate coursework.

- Biology
- Bioengineering
- Chemistry
- Ethics/Philosophy
- Medical Education
- Neuroscience
- Psychology

Students in the MAIS program in neuroethics must complete 32 course credits consisting of a proseminal, five core courses and six electives.
that match the educational objectives of the student. In addition, students are required to write a thesis or complete a two-semester project, for a total of 36 credits.

Required Course of Proseminar
MAIS 796 MAIS ProSeminar 1
Total Credits 1

Core Courses in Ethics and Neuroscience
PHIL 640 History of Ethical Theory 3
PHIL 642 Biomedical Ethics 3
NEUR 602 Cellular Neuroscience 3
NEUR 612 Neuroethics 3
NEUR 709 Neuroscience Seminars 1
Total Credits 13

Electives
Students may choose to specialize in cognitive neuroethics or public neuroethics. All students are encouraged to plan their coursework in consultation with the neuroethics concentration head.

Specialization in Cognitive Neuroethics
Select 18 credits from the courses below or other relevant course chosen in consultation with an advisor. 18

BIOL 572 Human Genetics
COMM 620 Health Communication
NEUR 600 Chemistry and the Brain
NEUR 651 Molecular Neuropharmacology
NEUR 741 Introduction to Neuroimaging
NEUR 702 Research Methods
NEUR 742 Cognitive Neuroscience
PSYC 527 Introduction to Neurobiology
PSYC 531 Mammalian Neurobiology
PSYC 557 Psychometric Methods
Total Credits 18

Specialization in Public Neuroethics
Select 18 credits from the courses below or other relevant course chosen in consultation with an advisor. 18

COMM 620 Health Communication
COMM 639 Science Communication
COMM 642 Science and the Public
NEUR 611 Philosophical Foundation of Neuroscience
NEUR 651 Molecular Neuropharmacology
PHIL 643 Environmental Ethics
PHIL 645 Research Ethics
PHIL 694 Special Topics in Contemporary Philosophy (when the topic is related to neuroethics)
PHIL 721 Advanced Seminar in Philosophy (when the topic is related to neuroethics)
PHIL 733 Current Issues in Cognitive Science
PSYC 527 Introduction to Neurobiology
PSYC 685 Cognitive Neuroscience
PSYC 701 Cognitive Bases of Behavior
Total Credits 18

Proposal
MAIS 797 Interdisciplinary Studies Proposal 1
Total Credits 1

Project or Thesis
Students cap their study by writing a master's thesis or completing a two-semester project in an area of neuroethics. The project may involve student observation and involvement in scientific research, clinical work, or policy setting.

Select one from the following: 3

MAIS 798 Interdisciplinary Studies Project (take 3 credits)
MAIS 799 Interdisciplinary Studies Thesis (take 3 credits)
Total Credits 3

Concentration in Religion, Culture, and Values (RCV)
The concentration in religion, culture, and values is particularly relevant for students who are interested in careers in law, national and international government, print and media journalism, library sciences, archives and museums, public and social service, teaching, advanced graduate studies, and religious communities and institutions. The Washington, DC metropolitan area is rich in the presence of many major religious traditions and their places of worship.

The core courses introduce students to the study of religion as a unique and rigorous intellectual discipline. Students learn to evaluate a variety of perspectives on religion and gain a clear understanding of the dimension of the sacred in all aspects of human life including those commonly designated "secular". Students discover how religious perceptions of the sacred respond to an evolving world and relate to and influence cultures, institutions, and values.

Students also examine the effects of historical crises and the forces of change on religions including contemporary religious pluralism and inter-religious dialogue. Students gain a deeper knowledge of specific traditions and a more profound understanding of values and worldviews from the viewpoint of cultural diversity and religious pluralism.

Required Course of Proseminar
MAIS 796 MAIS ProSeminar 1
Total Credits 1

Core Courses
Select two courses from the following: 6

RELI 630 Approaches to the Study of Religion
RELI 631 Sacred as Secular in Modern Spirituality
RELI 632 World Religions in Conflict and Dialogue
RELI 635 World Religions in Transition and Transformation
Total Credits 6

Religious Studies
Select two or three courses from the following: 6-9

RELI 591 Special Topics in Religious Studies (may be repeated for credit)
RELI 633  Ethical Perspectives of World Religions
RELI 636  Religion and the Natural Environment
RELI 642  Sacred Language, Scripture, and Culture

Total Credits 6-9

Research Methodology

HIST 610  The Study and Writing of History 3
or SOCI 634  Qualitative Research Methods

Total Credits 3

Specialization

Specialization in Religion, Culture, and Communication
Students take the course below and one or two other relevant courses chosen in consultation with an advisor.

COMM 605  Intercultural Communication 3

Total Credits 3

Specialization in Religious Traditions and Conflict Analysis and Resolution

CONF 695  Selected Topics (if appropriate) 3
CONF 702  Peace Studies 3
CONF 722  Conflict and Religion 3

Total Credits 9

Specialization in Religion, Culture, and Ethics

RELI 633  Ethical Perspectives of World Religions 3
PHIL 640  History of Ethical Theory 3
PHIL 643  Environmental Ethics 3

Total Credits 9

Specialization in Religion, Values, and International Politics

GOVT 540  International Relations 3
GOVT 741  Advanced Seminar in International Politics (if appropriate) 3

Total Credits 6

Electives

Students choose electives in consultation with their advisor, bearing in mind their specialization, project, or thesis topic. Any of the courses under the specializations listed above or courses from other disciplines listed below may be used as electives.

Select one to four courses from the following: 3-12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 535</td>
<td>Anthropology and the Human Condition: Seminar I</td>
</tr>
<tr>
<td>ANTH 615</td>
<td>Ritual and Power in Social Life</td>
</tr>
<tr>
<td>ANTH 684</td>
<td>Independent Study in Sociocultural Anthropology</td>
</tr>
<tr>
<td>COMM 605</td>
<td>Intercultural Communication</td>
</tr>
<tr>
<td>CONF 695</td>
<td>Selected Topics</td>
</tr>
<tr>
<td>CONF 702</td>
<td>Peace Studies</td>
</tr>
<tr>
<td>CONF 722</td>
<td>Conflict and Religion</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
</tr>
<tr>
<td>ENGH 591</td>
<td>Topics in Folklore Studies</td>
</tr>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
</tr>
<tr>
<td>HIST 510</td>
<td>Approaches to Modern World History</td>
</tr>
<tr>
<td>PHIL 617</td>
<td>Movements and Issues in the History of Political Philosophy</td>
</tr>
<tr>
<td>PHIL 640</td>
<td>History of Ethical Theory</td>
</tr>
<tr>
<td>PHIL 643</td>
<td>Environmental Ethics</td>
</tr>
<tr>
<td>SOCI 614</td>
<td>Sociology of Culture</td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
</tr>
</tbody>
</table>

Total Credits 3-12

Proposal

MAIS 797  Interdisciplinary Studies Proposal 1

Total Credits 1

Project or Thesis

Select one from the following: 1-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 798</td>
<td>Interdisciplinary Studies Project</td>
</tr>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis (take 4 credits)</td>
</tr>
</tbody>
</table>

Total Credits 1-4

Concentration in Social Entrepreneurship (SOCE)

The concentration in social entrepreneurship will equip students with the subject matter expertise, strategic knowledge, technical support, and social networks needed to create, operate, develop, and accelerate startups; bring ideas to scale; and improve an existing program’s effectiveness. These future leaders will learn about sustainability, ethical leadership, strategic management, and working effectively within complex networks made up of divergent groups of stakeholders. All students will complete a capstone research project and an experiential learning requirement that deliver practical knowledge and real-world experience. This degree is suitable for students seeking careers in government, business, or the non-profit sector.

Required Course of Proseminar

MAIS 796  MAIS ProSeminar 1

Total Credits 1

Core Courses

Social Entrepreneurship and Leadership

Three credits of 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 595</td>
<td>Experiential Learning (when topic is Foundations of Social Innovation)</td>
</tr>
</tbody>
</table>

Three credits of 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 595</td>
<td>Experiential Learning (when topic is Leading Social Change)</td>
</tr>
</tbody>
</table>

Business

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBUS 540</td>
<td>Analysis of Financial Decisions</td>
</tr>
<tr>
<td>GBUS 697</td>
<td>Special Topics in Graduate School of Business (when topic is Introduction to Entrepreneurship)</td>
</tr>
<tr>
<td>MBA 711</td>
<td>Entrepreneurship</td>
</tr>
</tbody>
</table>

Total Credits 9

Interdisciplinary Perspectives and Competencies in Social Entrepreneurship

Students take three courses from the list of competencies below to complement the skills they have already acquired through formal
education and professional experience, or other courses to enhance their skills, including oral and written communication, that are chosen in consultation with an advisor.

### Environmental and Public Policy

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 638</td>
<td>Corporate Environmental Management and Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 761</td>
<td>Social Entrepreneurship and Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 784</td>
<td>Entrepreneurship, Economics, and Public Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

#### Finance and Accounting

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBUS 540</td>
<td>Analysis of Financial Decisions</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 655</td>
<td>Philanthropy and Fund Raising</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 664</td>
<td>Nonprofit Financial Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

### Business and Project Management

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GBUS 697</td>
<td>Special Topics in Graduate School of Business</td>
<td></td>
</tr>
<tr>
<td>or MBA 711</td>
<td>(when topic is Introduction to Entrepreneurship)</td>
<td></td>
</tr>
<tr>
<td>MBA 712</td>
<td>Project Management</td>
<td></td>
</tr>
<tr>
<td>MBA 714</td>
<td>Managing Growth of Small Businesses</td>
<td></td>
</tr>
<tr>
<td>MBA 752</td>
<td>Turning Ideas into Successful Companies</td>
<td></td>
</tr>
<tr>
<td>PUAD 505</td>
<td>Introduction to Management of Nonprofits</td>
<td></td>
</tr>
<tr>
<td>PUAD 658</td>
<td>Social Entrepreneurship and Nonprofit Enterprise</td>
<td></td>
</tr>
<tr>
<td>PUAD 659</td>
<td>Nonprofit Law, Governance, and Ethics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 9

#### Leadership and Well-Being

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 595</td>
<td>Experiential Learning (when topic is Mindfulness and Leadership)</td>
<td>1-3</td>
</tr>
<tr>
<td>INTS 595</td>
<td>Experiential Learning (when the topic is Leadership and Positive Organizations)</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Total Credits 2-6

### Subject Matter Expertise

Students must develop expertise in the social problem they seek to address through entrepreneurship. Possible areas of focus include global and/or local poverty, homelessness, human trafficking, conflict resolution, women’s rights, racial inequality, educational and health-care access, climate change, environmental sustainability, and human rights, among other possible topics.

Students take:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 540</td>
<td>Contemporary Issues in Social Justice</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Human Rights</td>
<td></td>
</tr>
</tbody>
</table>

6 credits of courses related to the student’s chosen subject matter area of expertise, chosen in consultation with an advisor.

Total Credits 6

### Experiential Learning Requirement

Students will seek out and/or create an opportunity for experiential learning that aligns with a social mission. Experiential learning opportunities can include internships, service-learning, consulting projects, and field studies or research (including overseas). Because the intention is to develop and apply newly acquired skills, students may not use work done previously or their current employment to fulfill this requirement. All experiential learning projects must be approved by the social entrepreneurship concentration head the semester before registering for the course. Students may register for an individualized section of INTS 595 Experiential Learning or another graduate-level internship or practicum course to fulfill this requirement. Students must complete the experiential learning component before registering for MAIS 798 Interdisciplinary Studies Project or MAIS 799 Interdisciplinary Studies Thesis.

#### Proposal

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 797</td>
<td>Interdisciplinary Studies Proposal</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 1

#### Project or Thesis

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 798</td>
<td>Interdisciplinary Studies Project (take 4 credits)</td>
<td></td>
</tr>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis (take 4 credits)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 4

### Concentration in Social Justice and Human Rights (SJHR)

The social justice and human rights concentration is designed to cultivate a deep theoretical understanding of the social, political, cultural, historical, and economic implications of a wide array of social injustices and human rights issues. Students are engaged in the applied process of imagining and actualizing holistic and complex strategies for creating and sustaining a more equitable, just, and humane world.

#### Required Course of Proseminar

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 796</td>
<td>MAIS ProSeminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 1

### Core Courses

#### Foundational Course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 540</td>
<td>Contemporary Issues in Social Justice</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Human Rights</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

#### Ecological Justice Course

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 682</td>
<td>Principles of Environmental Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 643</td>
<td>Environmental Ethics</td>
<td></td>
</tr>
<tr>
<td>SOCI 635</td>
<td>Environment and Society</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

### Emphasis Courses

Select 9 credits of courses with an emphasis on a specific social justice or human rights issue or context or a specific region, chosen in consultation with a faculty advisor.

Total Credits 9
Examples of issue emphases include racial justice, human trafficking, or children’s rights. Context emphases examples include the education, corporate, or government sector. Regional emphases examples include the Middle East, Latin America, or Southeast Asia.

Electives
Select 12 electives from the following, chosen in consultation with a faculty advisor

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 601</td>
<td>Theories of Conflict and Conflict Resolution</td>
</tr>
<tr>
<td>CONF 695</td>
<td>Selected Topics</td>
</tr>
<tr>
<td>CONF 702</td>
<td>Peace Studies</td>
</tr>
<tr>
<td>CONF 709</td>
<td>War, Violence, and Conflict Resolution</td>
</tr>
<tr>
<td>CONF 720</td>
<td>Ethnic and Cultural Factors in Conflict Resolution</td>
</tr>
<tr>
<td>CONF 722</td>
<td>Conflict and Religion</td>
</tr>
<tr>
<td>CONF 723</td>
<td>Conflict and Gender</td>
</tr>
<tr>
<td>CONF 728</td>
<td>Human Rights Theory and Practice in Comparative Perspective</td>
</tr>
<tr>
<td>CONF 739</td>
<td>Collective Action, Social Movements, and Globalization</td>
</tr>
<tr>
<td>CONF 746</td>
<td>Peace Building</td>
</tr>
<tr>
<td>CONF 749</td>
<td>World Religions, Violence, and Conflict Resolution</td>
</tr>
<tr>
<td>HE 606</td>
<td>Diversity in Higher Education</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
</tr>
<tr>
<td>EDUC 892</td>
<td>Social Justice and Equity in International Education</td>
</tr>
<tr>
<td>EDUC 894</td>
<td>Seminar in Multicultural Education</td>
</tr>
<tr>
<td>GOVT 727</td>
<td>Restorative Justice</td>
</tr>
<tr>
<td>GOVT 841</td>
<td>Ethics and Human Rights in International Affairs</td>
</tr>
<tr>
<td>PUAD 642</td>
<td>Environmental Policy</td>
</tr>
<tr>
<td>PUAD 649</td>
<td>Advocacy and Lobbying</td>
</tr>
<tr>
<td>PUBP 736</td>
<td>International Migration and Public Policy</td>
</tr>
<tr>
<td>PUBP 765</td>
<td>Human Smuggling and Trafficking</td>
</tr>
<tr>
<td>SOCI 605</td>
<td>Gender and Social Structure</td>
</tr>
<tr>
<td>SOCI 623</td>
<td>Racial and Ethnic Relations: American and Selected Global Perspectives</td>
</tr>
<tr>
<td>SOCI 641</td>
<td>Micro Sociology: Inequality and Everyday Life</td>
</tr>
<tr>
<td>WMST 600</td>
<td>Special Topics (when topic is Narratives of Human Rights: Violations Against Women and Girls; Gender, Sexuality, and Human Rights; or Gender, Sexuality, and Disability)</td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
</tr>
</tbody>
</table>

Total Credits: 12

1 At least 6 of these credits must focus on a social justice or human rights issue, context, or region unrelated to the student’s chosen emphasis.

Research Methods Course
HE 610 Research Designs in Higher Education 3

Proposal
MAIS 797 Interdisciplinary Studies Proposal 1

Total Credits: 1

Project or Thesis
Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 798</td>
<td>Interdisciplinary Studies Project</td>
</tr>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis</td>
</tr>
</tbody>
</table>

Total Credits: 4

Concentration in War and the Military in Society (WMS)
Recent events have demonstrated the degree to which military issues affect social groups, global politics, and the world economy. Understanding the ways in which armies are raised and funded, the reasons troops serve, the conditions military personnel and civilians endure during wartime, and the multifaceted and evolving ways in which nations conceive of the military apparatus has direct bearing on future policy decisions.

The concentration in war and the military in society emphasizes scholarship that examines issues of international security and conflict in the past, present, and future. It equips students with the skills to understand the interconnected nature of those elements and to examine critically the ways in which they have changed and continue to change over time.

Required Course of Proseminar
MAIS 796 MAIS ProSeminar 1

Total Credits: 1

Core Courses
Select two courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 721</td>
<td>Culture, Power, and Conflict</td>
</tr>
<tr>
<td>BIOD 610</td>
<td>Advanced Topics in Global Health Security (take 3 credits; when topic is U.S. military intervention since Vietnam)</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
</tr>
</tbody>
</table>

Select two courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 615</td>
<td>Problems in American History (when topic is The American Civil War)</td>
</tr>
<tr>
<td>HIST 675</td>
<td>Problems in Military History</td>
</tr>
<tr>
<td>HIST 677</td>
<td>The Vietnam War</td>
</tr>
</tbody>
</table>

Total Credits: 12

Electives
Students choose electives in consultation with an advisor, bearing in mind their specialization and proposed topic for their project or thesis. Students interested in the intellectual consideration of the military, war, and society should choose courses in anthropology, history, religious studies, and sociology. Students interested in practical applications of the study of the military, war, and society to contemporary security issues should choose courses in biodefense, geography, and government. Students may take additional courses from the core requirements as electives with permission from their advisor, but their coursework overall must include at least six credits in two or more disciplines.
Students who choose to do a project complete seven electives (21 credits); those who choose a thesis complete six electives (18 credits).

Select seven or six electives from the following: 18-21

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 609</td>
<td>Biodefense Strategy</td>
</tr>
<tr>
<td>BIOD 706</td>
<td>Nuclear, Biological, and Chemical Weapons Policy and Security</td>
</tr>
<tr>
<td>GGS 590</td>
<td>Selected Topics in Geography (when topic is Military Geography or insurgency)</td>
</tr>
<tr>
<td>HIST 635</td>
<td>Problems in European History (when topic is the Fall of the Roman Empire)</td>
</tr>
<tr>
<td>HIST 679</td>
<td>War and Remembrance</td>
</tr>
<tr>
<td>PUBP 504</td>
<td>Grand Strategy</td>
</tr>
<tr>
<td>PUBP 506</td>
<td>Ethics and the Use of Force</td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
</tr>
<tr>
<td>WMST 600</td>
<td>Special Topics (when topic is Women and Nationalism)</td>
</tr>
</tbody>
</table>

Total Credits 18-21

Proposal MAIS 797 Interdisciplinary Studies Proposal 1
Total Credits 1

Project or Thesis

Select one from the following: 1-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 798</td>
<td>Interdisciplinary Studies Project (minimum of 1 credit)</td>
</tr>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis (take 4 credits)</td>
</tr>
</tbody>
</table>

Total Credits 1-4

Concentration in Women and Gender Studies (WGST)

The concentration in women and gender studies promotes advanced scholarship that transcends traditional boundaries. Students combine required coursework in women and gender studies with courses in a discipline of interest such as history, literature, sociology, anthropology, health, education, philosophy, social work, conflict analysis and resolution, or the arts. The program accommodates both full-time and part-time students.

Of the coursework required for this concentration as described below, at least 24 credits must be in courses related to the study of women and gender and 12 credits in courses in a field focus. All courses related to the study of women and gender must be approved by the head of the concentration in women and gender studies. Students must earn a grade of B or higher in the core courses.

Students interested in pursuing a dual master’s program linking the MAIS degree and a master’s degree in another discipline should discuss their interest with the graduate program directors of both programs and review the university policies regarding Individualized Dual Master’s Degree Programs. Students approved to pursue dual master’s study linking the MAIS degree with a concentration in women and gender studies and the MA philosophy degree will complete WMST 630 Feminist Theories across the Disciplines/PHIL 658 Feminist Theory and 3 additional credits of WMST courses to apply to the philosophy degree as elective credit. Six credits of approved PHIL credits will apply to the MAIS degree as elective credit.

Required Course of Proseminar MAIS 796 MAIS ProSeminar 1
Total Credits 1

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
</tr>
</tbody>
</table>

Total Credits 9

Field Focus

Students complete 12 credits in one field (not limited to a single discipline) chosen and developed in consultation with a faculty advisor, including 9 credits in a course that addresses the study of women and gender.

Total Credits 12

Electives

Students must take at least 6 credits in courses that address the study of women and gender and that are not part of the field focus. Three of these credits must be in a WMST designated course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 611</td>
<td>Feminist Research Practice (not required but highly recommended)</td>
</tr>
</tbody>
</table>

Total Credits 9-12

Proposal MAIS 797 Interdisciplinary Studies Proposal 1
Total Credits 1

Project or Thesis

Select one from the following: 1-4

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIS 798</td>
<td>Interdisciplinary Studies Project (minimum 1 credit)</td>
</tr>
<tr>
<td>MAIS 799</td>
<td>Interdisciplinary Studies Thesis (take 4 credits)</td>
</tr>
</tbody>
</table>

Total Credits 1-4

Individualized Concentration (IND)

This concentration is for students who wish to design a graduate program to meet the special needs of their careers and life plans. Students usually choose this option because traditional graduate programs do not meet their specific goals. Students, with help from their faculty advisor, design a unique program of study that includes courses from several academic departments.

Students have access to most graduate courses offered by Mason but must meet all course prerequisites. Each student must submit a curriculum worksheet approved by the student’s advisor and director during the first semester enrolled. Any subsequent amendments must have the approval of the student’s advisor and the director.

Required Course of Proseminar MAIS 796 MAIS ProSeminar 1
Total Credits 1
Disciplinary Focus
Select a minimum of 12 and a maximum of 18 credits in one discipline.
Total Credits: 12-18

Complementary Disciplines
Students take 9-18 courses in complementary disciplines. These require the approval of faculty advisor and MAIS director.
Total Credits: 9-18

Research Methods
Students take a research methods course approved by faculty advisor and MAIS director.
Total Credits: 3

Proposal
MAIS 797 Interdisciplinary Studies Proposal
Total Credits: 1

Project or Thesis
Select one from the following:
MAIS 798 Interdisciplinary Studies Project (minimum of 1 credit)
MAIS 799 Interdisciplinary Studies Thesis (take 4 credits)
Total Credits: 1-4

Accelerated Master’s

Bachelor’s Degree (selected)/ Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview
Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studies (p. 477).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

Code | Title | Credits
---|---|---
RELI 630 | Approaches to the Study of Religion | 6
RELI 631 | Sacred as Secular in Modern Spirituality | 
RELI 632 | World Religions in Conflict and Dialogue | 
RELI 633 | Ethical Perspectives of World Religions | 
RELI 635 | World Religions in Transition and Transformation | 
RELI 636 | Religion and the Natural Environment | 
RELI 642 | Sacred Language, Scripture, and Culture | 

Total Credits: 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

Code | Title | Credits
---|---|---
RELI 630 | Approaches to the Study of Religion | 6
RELI 631 | Sacred as Secular in Modern Spirituality | 
RELI 632 | World Religions in Conflict and Dialogue | 
RELI 633 | Ethical Perspectives of World Religions | 
RELI 635 | World Religions in Transition and Transformation | 
RELI 636 | Religion and the Natural Environment | 

Total Credits: 6
The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)**

**Overview**
Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master's in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**
Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

**Accelerated Option Requirements**
While undergraduate students, accelerated master's students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**
Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td>6</td>
</tr>
</tbody>
</table>

**Total Credits**

6

**Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)**

**Overview**
Highly-qualified undergraduates in select majors may apply to the accelerated master's degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master's degree in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**
Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

**Accelerated Option Requirements**
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application,
they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td>3</td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td>3</td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 695</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>CSI 685</td>
<td>Fundamentals of Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 643</td>
<td>Environmental Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 581</td>
<td>Topics in Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 620</td>
<td>Methods and Logic of Social Inquiry</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor’s Degree (any)/Interdisciplinary Studies, Accelerated MAIS (Energy and Sustainability Concentration)**

**Overview**

Highly-qualified undergraduates in any major may apply to the accelerated master’s degree in interdisciplinary studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in interdisciplinary studies with a concentration in energy and sustainability after satisfactory completion of 150 credits, sometimes within five years. For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to this program, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/LA-MAIS-ISIN/application) on the departmental website.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

Select two from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 695</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>CSI 685</td>
<td>Fundamentals of Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 643</td>
<td>Environmental Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 581</td>
<td>Topics in Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 620</td>
<td>Methods and Logic of Social Inquiry</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Recommended Majors**

Chemistry, economics, mathematics, physics, and relevant concentrations in the Bachelor of Individualized Study (BIS) degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 695</td>
<td>Special Topics in Economics</td>
<td>3</td>
</tr>
<tr>
<td>CSI 685</td>
<td>Fundamentals of Materials Science</td>
<td>3</td>
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<tr>
<td>PHIL 643</td>
<td>Environmental Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 581</td>
<td>Topics in Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 620</td>
<td>Methods and Logic of Social Inquiry</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76) for more information.
Bachelor's Degree (any)/Interdisciplinary Studies, Accelerated MAIS (Folklore Studies Concentration)

Overview
Highly-qualified undergraduates in any major may apply to the accelerated master's degree in interdisciplinary studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in interdisciplinary studies with a concentration in folklore studies after satisfactory completion of 150 credits, sometimes within five years. For more detailed information, see AP.1.4.4 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to this program, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/LA-MAIS-ISIN/application) on the departmental website.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete six credits of ENGH 590 Topics in Folk Narrative and/or ENGH 591 Topics in Folklore Studies with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 590</td>
<td>Topics in Folk Narrative</td>
<td>6</td>
</tr>
<tr>
<td>ENGH 591</td>
<td>Topics in Folklore Studies</td>
<td></td>
</tr>
<tr>
<td>ENGH 681</td>
<td>Advanced Topics in Folklore Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 610</td>
<td>The Study and Writing of History</td>
<td></td>
</tr>
<tr>
<td>SOCI 634</td>
<td>Qualitative Research Methods</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76) for more information.

Latin American Studies Program
Phone: 703-993-1010
Website: las.gmu.edu

The bachelor’s degree in Latin American studies presents students with the opportunity to study one of the world’s most diverse and fascinating regions. Contemporary Latin America is the product of a long and turbulent history of conquest, resistance, and cultural mixing. The result is a rich and unique amalgam of African, indigenous, and European cultures. Understanding these complex societies has never been more crucial than it is today since people of Latin American descent represent more than 13% of the population of the United States. Knowledge of Latin American history, culture, society, and politics is indispensable for anyone who seeks to understand the contemporary United States and its place in the world.

Majors in Latin American studies develop a broad expertise in the region while pursuing an individualized program of study that suits their own particular interests. Student improve their language skills and take courses in many disciplines including anthropology, dance, economics, folklore, geography, government, history, and literature. The course work culminates in a seminar where students develop a research project under the mentorship of a faculty expert.

Faculty
Berroa (Modern and Classical Languages), Bristol (History and Art History), Burt (Schar School of Policy and Government), Greet (History and Art History), Karush (History and Art History, director), Leeman (Modern and Classical Languages), Lepore (Dance), Meyer (Economics), Rabin (Modern and Classical Languages), Rogers (Modern and Classical Languages), Seligmann (Sociology and Anthropology), Shutika (English), Vivancos-Pérez (Modern and Classical Languages)

Programs
Latin American Studies Minor
Latin American Studies, BA

Latin American Studies Minor
Banner Code: LAS

Academic Advising
Email: las@gmu.edu
Website: las.gmu.edu/programs/la-minor-la-las/requirements/

Latin American Studies focuses on the diverse and connected regions, societies, and cultures of Latin America. Students find that combining this minor with a major in another discipline is particularly attractive to employers. Latin American studies enhances a major in Spanish or anthropology for a career in teaching or human rights work; a major in communication for a career in journalism; and a major in business
Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18
Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 548) tab.

Core Courses
Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 331</td>
<td>Government and Politics of Latin America</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 3

Language Proficiency
Students minoring in Latin American studies must demonstrate reading, speaking, or writing knowledge of Spanish or Portuguese by exam or by achieving a minimum grade of 2.00 in a 300-level course in the language selected. Upper-level Latin American literature or culture courses taught in Spanish or Portuguese may be used to satisfy the electives requirement.

Electives
Select five electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
</tr>
<tr>
<td>GOVT 331</td>
<td>Government and Politics of Latin America</td>
</tr>
</tbody>
</table>

Total Credits: 15

Humanities Course Related to Latin America
Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 315</td>
<td>Folklore and Folklife</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 322</td>
<td>Introduction to Latin American Culture (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>SPAN 325</td>
<td>Major Hispanic Writers (Mason Core)        (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

Latin American Studies, BA
Banner Code: LA-BA-LAS

Email: las@gmu.edu
Website: las.gmu.edu/programs/LA-BA-LAS

The BA in Latin American studies looks at contemporary Latin America and its progress through a long and turbulent history of conquest, resistance, and cultural mixing. The result is a rich and unique blend of African, indigenous, and European cultures. Majors develop a broad expertise in the region while also pursuing an individualized program of study that suits their interests. Students improve their language skills and take courses in many disciplines, including anthropology, dance, economics, folklore, geography, government, history, and literature. All students have opportunities for research, global engagement, public service, and career preparation.
Seminar Course  
LAS 499  Research Seminar in Latin American Studies (Mason Core) (p. 135)  3

Total Credits  3

Language Requirement  
All Latin American studies majors must demonstrate reading, speaking, or writing knowledge of Spanish or Portuguese by exam or achieving a minimum grade of 2.00 in a 300-level course in the language selected. Upper-level Latin American literature or culture courses taught in Spanish or Portuguese may be used to satisfy the electives requirement.

Electives in Latin American Studies  
Select four electives in Latin American studies  1  12

Total Credits  12

1 Students may satisfy the electives requirement with any course that contains a significant emphasis on Latin America or the culture, politics, sociology, or history of Latinos living in the United States. In addition, students are strongly encouraged to use an internship (LAS 490 Internship) or a study-abroad program to fulfill some of these credits. The electives must be approved by the director of the program. Upper-level Latin American literature or culture courses taught in Spanish or Portuguese may be used to satisfy the electives requirement.

Writing-Intensive Requirement  
The university requires all students to complete at least one course designated "writing intensive" in their major at the 300 level or above. Students majoring in Latin American studies should consult with the director for a course to fulfill this requirement.

Upper Level Requirement  
Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree  
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies  
Select 3 credits from the following:  3

PHIL (p. 1818)  1
RELI (p. 1904)

1 The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences  
Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)  1

ANTH (p. 1119)  1
CRIM (p. 1372)  1
ECON (p. 1413)  1
GOVT (p. 1588)  1
HIST (p. 1628)  2
LING (p. 1694)  1
PSYC (p. 1844)  1
SOCI (p. 1923)  1

1 2

HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.
### Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by: ¹</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or achieving a satisfactory score on an approved proficiency test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or completing the following ASL three course sequence:</td>
<td></td>
</tr>
<tr>
<td>EDSE</td>
<td>American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td>EDSE</td>
<td>American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td>EDSE</td>
<td>American Sign Language (ASL) III</td>
<td></td>
</tr>
</tbody>
</table>

¹ Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>Introduction to Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of Island Asia</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Ancient Mesoamerica (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of India (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Myth, Magic, and Mind (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of the Caribbean</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH</td>
<td>Issues in Anthropology: Social Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ARAB</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>ARAB</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB</td>
<td>Topics in Arabic Religious Thought and Texts</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Survey of Latin American Art (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Survey of African Art (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
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<tr>
<td>ARTH</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core)</td>
<td>3</td>
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<tr>
<td>ARTH</td>
<td>Art of the Islamic World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Arts of India (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Arts of Southeast Asia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Arts of China (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>Arts of Japan (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH</td>
<td>The Silk Road (Mason Core)</td>
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</tr>
<tr>
<td>ARTH</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN</td>
<td>Introduction to Classical Chinese (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
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<td>CHIN</td>
<td>Major Chinese Writers (Mason Core)</td>
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<tr>
<td>DANC</td>
<td>World Dance</td>
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<td>ECON</td>
<td>Economic Development of Latin America (Mason Core)</td>
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<td>ECON</td>
<td>African Economic Development (Mason Core)</td>
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<tr>
<td>FREN</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<td>FREN</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
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<td>GGS</td>
<td>Major World Regions (Mason Core)</td>
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<td>GGS</td>
<td>Geography of Latin America</td>
<td>3</td>
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<tr>
<td>GGS</td>
<td>Geography of North Africa and the Middle East</td>
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<td>GGS</td>
<td>Geography of the Soviet Succession States</td>
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<td>GGS</td>
<td>Select Topics in GGS</td>
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<tr>
<td>GOVT</td>
<td>Non-Western Political Theory</td>
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<td>GOVT</td>
<td>Government and Politics of the Middle East and North Africa</td>
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<td>Government and Politics of Asia</td>
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<td>Central Asian Politics</td>
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<td>Chinese Foreign Policy</td>
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<td>GOVT</td>
<td>Islam and Politics</td>
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<td>GOVT</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
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<td>GOVT</td>
<td>Political Economy of East Asia</td>
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<tr>
<td>HIST</td>
<td>Survey of East Asian History (Mason Core)</td>
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550  Latin American Studies, BA
<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
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<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
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<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<td>HIST 282</td>
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<td>HIST 326</td>
<td>Stalinism</td>
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<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
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<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
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<td>HIST 353</td>
<td>History of Traditional China</td>
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<td>HIST 354</td>
<td>Modern China</td>
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<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
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<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
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<td>Post-1949 China (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td>3</td>
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<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
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<td>HIST 426</td>
<td>The Russian Revolution</td>
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<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
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<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
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<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
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<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
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<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core) (p. 135)</td>
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<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
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<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
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<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
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<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
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<tr>
<td>RELI 272</td>
<td>Islam</td>
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<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
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<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
</tr>
<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
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<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur’an and Hadith</td>
<td>3</td>
</tr>
<tr>
<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundation Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Synthesis/Capstone Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

**Additional Electives**

Any remaining credits may be completed with electives to bring the degree total to 120
Honors

Honors in the Major

Latin American studies majors who have completed 75 credits (a minimum of 15 in Latin American studies, 6 of which must have been taken at Mason) with an overall minimum GPA of 3.50 and a minimum GPA of 3.50 in the major may apply to pursue advanced work leading to graduation with honors in the major. The application consists of a transcript, a recommendation from one of the LAS faculty, and a brief description of a proposed research project.

Once accepted into the program, students pursuing honors in the major complete a two-course sequence LAS 491 Directed Reading for Honors in Latin American Studies and LAS 499 Research Seminar in Latin American Studies (Mason Core) (p. 135) (an honors section), which must be taken in successive semesters. In this sequence, students complete an advanced research project under the guidance of a faculty member. To graduate with honors in the major, students must earn a minimum GPA of 3.50 in the honors courses.

Middle East and Islamic Studies Program

Phone: 703-993-5404
Website: meis.gmu.edu

The interdisciplinary program in Middle East and Islamic Studies offers a distinctive and innovative approach to the study of the Middle East, of Islam and of Muslim societies across the globe. The program seeks to situate the study of the Middle East and Islam within a globalized world. Students develop a broad understanding of the region, its history and its contemporary complexities with respect to society, politics, culture and economy.

The Middle East and Islamic Studies Program comprises four distinct curricula: a master's program in Middle East and Islamic studies (MEIS), a graduate certificate program, and two undergraduate minor programs (Middle East studies and Islamic studies). Because these programs are interdisciplinary, undergraduate and graduate students may take courses from a range of disciplines to fulfill minor, graduate degree or certificate requirements. Undergraduate students should consult the specific listing, Middle East Studies minor (p. 554) or Islamic Studies minor (p. 553) for more details. Graduate students should consult with the MEIS director.

Undergraduate Program

Minors

The Middle East and Islamic Studies Program offers two minors for undergraduates.

The Middle East Studies minor provides students with a firm grounding in the history, politics, and culture of this important region. Students develop an understanding of the diverse dynamics and complex forces that shape modern Middle East realities.

The Islamic Studies minor introduces students to the diverse and dynamic experience of Muslims globally and locally. Through interdisciplinary course offerings, students acquire an understanding of Islamic religious traditions, history, politics, society and culture. A three-credit course is also required in a language spoken in a Muslim majority country (Arabic, Persian, Turkish).

Graduate Program

Master's Degree

The program offers a master's degree in Middle East and Islamic studies. Students study historical and contemporary topics - as well as theory and methodology - from regional and global perspectives. The unique interdisciplinary nature of the program provides students with a thorough foundation in the major debates and issues in the study of the Middle East, of Islam and of Muslim societies across the globe.

Graduate Certificate

The graduate certificate in Middle East and Islamic studies allows students to examine the complex issues involved in understanding the Middle East and the broader Islamic world from a variety of perspectives. Students study both contemporary and historical developments in these regions; they take courses in various disciplines, including political science, history, and religious studies, and have the opportunity to take elective courses in an even broader set of disciplines, including sociology, anthropology, literature, and art history.

Bachelor's/Accelerated Master's Program

Highly qualified undergraduates in select majors may apply to the accelerated master's degree program in Middle East and Islamic studies. If accepted, students will be able to earn an undergraduate degree in their chosen major and a graduate degree in Middle East and Islamic studies after satisfactory completion of 144 credits, often within five years. Credit limits and course requirements require advanced planning and consultation with the student’s undergraduate advisor and MEIS director. See link below for more information on the accelerated master's.

Ali Vural Ak Center for Global Islamic Studies

web: islamicsudiescenter.gmu.edu (http://islamicsudiescenter.gmu.edu)

The Ali Vural Ak Center for Global Islamic Studies is an interdisciplinary research center whose goal is to provide a sound and nuanced understanding of Muslim societies and the Islamic faith, its role in world history and patterns of globalization. The center regularly sponsors lectures and conferences, runs major research projects and hosts international scholars. The center supports the academic curriculum through its on-campus and off-campus activities.

Middle East Studies

web: meis.gmu.edu (http://meis.gmu.edu)

The interdisciplinary Middle East Studies program at George Mason provides students with a firm grounding in the history, politics, and culture of this important region. Under the guidance of internationally recognized faculty, students develop an understanding of the diverse dynamics and complex forces that shape modern Middle East realities. Students have the opportunity to examine new Middle East diasporas and transnational communities in the West, as well as the role of the Middle East in a changing geopolitical environment marked by the rise of China, India and the re-emergence of Russia.
The minor is designed for students interested in the societies, cultures, history, and politics of the Islamic world. It offers students the opportunity to study the many societies that have significant Muslim populations. These societies are not just in the Middle East; they stretch from North Africa to Southeast Asia and beyond, including Europe as well as North America. To fulfill the requirements for the minor, students take a wide variety of courses from a range of departments. These courses provide students with a broad and well-rounded understanding of Islam.

The minor will enhance students' opportunities for future study and employment, especially in the Washington, D.C. area.

**Faculty**

Amireh, Bakhash, Butler, Dakake (director), DeCaroli, Haddad, Hamdani, Katz, Lukacs, Mandaville, McGlinchey, Paden, Salawdeh

**Admissions & Policies**

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
Today, more than ever before, Middle East politics have become intertwined with American politics and the lives of many Americans. The minor is designed to equip undergraduates with a firm multidisciplinary grounding in the region, its history, and its international relations.

**Faculty**
Amireh, Bakhash, Bryant, Butler, Dakake, Gopin, Haddad (director), Hamdani, Katz, Lukacs, Mandaville, Paczynska, Rouhana, Salawdeh

**Admissions & Policies**
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 554) tab.

In partial fulfillment of coursework for the minor, students are strongly encouraged to participate in a study abroad program in the Middle East.

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

**Electives**
Select four electives from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARAB 325</td>
<td>Major Arab Writers/Stories (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>ARAB 330</td>
<td>Reading and Conversation I</td>
<td></td>
</tr>
<tr>
<td>ARAB 331</td>
<td>Reading and Conversation II</td>
<td></td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western (if region studied is relevant to Middle East studies)</td>
<td></td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>CONF 340</td>
<td>Global Conflict Analysis and Resolution</td>
<td></td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (if literatures studied are relevant to Middle East studies)</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td></td>
</tr>
<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 445</td>
<td>Human Rights</td>
<td></td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (if region studied is relevant to Middle East studies)</td>
<td></td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td></td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td></td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td></td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur'an and Hadith</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

1 Special topics courses, when relevant, may be used to fulfill this requirement with prior written approval of the director.

**Middle East and Islamic Studies Graduate Certificate**

**Banner Code:** LA-CERG-MEIS

**Academic Advising**
A216 Robinson Hall
Fairfax Campus

Email: mes@gmu.edu
Website: meis.gmu.edu/programs/LA-CERG-MEIS
The graduate certificate allows students to examine the complex issues involved in understanding the Middle East and the broader Islamic world from a variety of perspectives. Students study both contemporary and historical developments in these regions; they take core courses in various disciplines, including political science, history, and religious studies, and have the opportunity to take elective courses in an even broader set of disciplines, including sociology, anthropology, literature, and art history.

The graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in Middle East and Islamic Studies, see Application Requirements and Deadlines (http://meis.gmu.edu/programs/la-cerg-meis/application).

Requirements

Certificate Requirements

Total credits: 18

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>3</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Electives

Select two electives from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 635</td>
<td>Regional Ethnography (when topic is Middle East and North Africa)</td>
</tr>
<tr>
<td>ARTH 599</td>
<td>Special Topics in Art History and the Decorative Arts (when topic is Middle East or Islamic art)</td>
</tr>
<tr>
<td>ARTH 699</td>
<td>Topics in Art History (when topic is Middle East or Islamic art)</td>
</tr>
<tr>
<td>CONF 653</td>
<td>World Religions, Diplomacy, and Conflict Resolution</td>
</tr>
<tr>
<td>CONF 722</td>
<td>Conflict and Religion</td>
</tr>
<tr>
<td>ENGH 665</td>
<td>Seminar in Global Culture (when topic is Middle East or Muslim world)</td>
</tr>
<tr>
<td>FREN 553</td>
<td>Topics in North African Francophone Literature and Culture</td>
</tr>
<tr>
<td>FRLN 550</td>
<td>Special Topics (when topic is a language of the Middle East or Muslim world)</td>
</tr>
<tr>
<td>FRLN 551</td>
<td>Special Topics (when topic is a language of the Middle East or Muslim world)</td>
</tr>
</tbody>
</table>

Middle East and Islamic Studies, MA

Banner Code: LA-MA-MEIS

Academic Advising

A216 Robinson Hall
Fairfax Campus
Email: mes@gmu.edu
Website: meis.gmu.edu/programs/la-ma-meis

The MA in Middle East and Islamic Studies introduces students to the major methodological and theoretical issues and debates in the study of the Islamic tradition and of Middle Eastern societies. The program situates the study of the Middle East and Islam within a globalized world. The curriculum covers topics of recent scholarly significance including political Islam, the political economy of business-government networks, the relationship between "resource wars" and the "war on terrorism," new diasporas and transnational Muslim communities in the "West," and the changed geopolitical environments of Muslim and Middle Eastern countries. The degree prepares students for a variety of post-graduate opportunities in academia, government, and an expanding job market for people with this expertise.

Admissions & Policies

Admissions

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For specific information, see Application Requirements and Deadlines (http://globalaffairs.gmu.edu/programs/application/LA-MA-GLOA) on the departmental website.

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).
Requirements

Degree Requirements

Total credits: 30

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>3</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td>3</td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one methods course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 650</td>
<td>Methods in Anthropology</td>
</tr>
<tr>
<td>HIST 610</td>
<td>Study and Writing of History</td>
</tr>
<tr>
<td>SOCI 620</td>
<td>Methods and Logic of Social Inquiry</td>
</tr>
<tr>
<td>GOVT 500</td>
<td>The Scientific Method and Research Design</td>
</tr>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
</tr>
<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
</tr>
</tbody>
</table>

Language Proficiency

Prior to graduating, students must demonstrate professional competency in one of five major languages of the Middle East and Muslim world: Arabic, Persian, Turkish, Hebrew, or Urdu.

A waiver for this requirement may be received either through 1) documentation verifying primary language of instruction at either the high school or university level in respective foreign language; transcripts showing coursework at the advanced level in respective foreign language or 2) an examination with an appropriate faculty/examiner designated by the director in consultation with the program’s steering committee.

Electives

In addition to the following list, electives may include special topics courses when relevant, directed readings and research, study abroad courses, internships, and other courses with the approval of the program director. Students who choose to complete a research project or write a thesis take 3 or 6 fewer elective credits.

Select five electives from the following: 15

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 635</td>
<td>Regional Ethnography (when topic is Middle East and North Africa)</td>
</tr>
<tr>
<td>ARTH 599</td>
<td>Special Topics in Art History and the Decorative Arts (when topic is Middle Eastern or Islamic art)</td>
</tr>
<tr>
<td>ARTH 699</td>
<td>Topics in Art History (when topic is Middle East or Islamic art)</td>
</tr>
<tr>
<td>CONF 653</td>
<td>World Religions, Diplomacy, and Conflict Resolution</td>
</tr>
<tr>
<td>CONF 722</td>
<td>Conflict and Religion</td>
</tr>
<tr>
<td>ENGH 665</td>
<td>Seminar in Global Culture (when topic is Middle East or Muslim world)</td>
</tr>
<tr>
<td>FREN 553</td>
<td>Topics in North African Francophone Literature and Culture</td>
</tr>
<tr>
<td>FRLN 550</td>
<td>Special Topics (when topic is a language of the Middle East or Muslim world)</td>
</tr>
</tbody>
</table>

Optional Research Project or Thesis

Research Project

Students choosing to complete a research project take one of the following courses, and one less elective.

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 798</td>
<td>Political Science Research Project</td>
</tr>
<tr>
<td>HIST 798</td>
<td>Directed Research and Writing in History</td>
</tr>
<tr>
<td>SOCI 696</td>
<td>Independent Study</td>
</tr>
<tr>
<td>ANTH 796</td>
<td>Master’s Research Project</td>
</tr>
<tr>
<td>MEIS 798</td>
<td>Research Project in Middle East and Islamic Studies</td>
</tr>
</tbody>
</table>

Thesis

Students who choose to write a thesis should be aware of the policies governing theses as stated in AP.6.9.3 Master’s Thesis (p. 91). They must follow the thesis enrollment policy of the university and once enrolled in MEIS 799 Thesis Research and Writing in Middle East and Islamic Studies, maintain continuous enrollment.

Students choosing to complete a thesis take 6 fewer credits of electives.

Six credits of 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 799</td>
<td>Thesis Research and Writing in Middle East and Islamic Studies</td>
</tr>
</tbody>
</table>

Accelerated Master’s

Bachelor’s Degree (selected)/Middle East and Islamic Studies, Accelerated MA

Overview

Highly-qualified undergraduates pursuing a BA in select majors (listed below) may apply to the accelerated master’s degree in Middle East and Islamic Studies.
and Islamic studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in Middle East and Islamic studies after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**
- government and international politics (p. 917)
- global affairs (p. 509)
- history (p. 394)
- religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- sociology (p. 494)
- anthropology (p. 484)

It is preferred, though not required, that the student have a minor in Middle East studies or Islamic studies.

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Middle East and Islamic studies, see Application Requirements and Deadlines (http://meis.gmu.edu/programs/la-ma-acel-meis).

**Accelerated Option Requirements**
While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td>6</td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
</tbody>
</table>

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Russian and Eurasian Studies Program**
Phone: 703-993-1233  
Website: russianstudies.gmu.edu

The Russian and Eurasian Studies program brings together experienced Mason faculty who will guide your exploration of this region’s culture, gender, class, ethnicity, economy, government, and politics. All majors have the opportunity to study abroad in Moscow or St. Petersburg. They acquire the language skills needed to function successfully in social settings and a variety of careers.

The bachelor’s degree in Russian and Eurasian studies allows students to choose a concentration in one of three areas:
- Russian language and culture
- Russia studies
- Eurasia studies

**Faculty**

**Program Faculty**
Barnes (History and Art History), Bockman (Sociology and Anthropology), Boettke (Economics), Christensen (Modern and Classical Languages), Johnsen-Neshati (Theater), Katz (Schar School of Policy and Government), Kelly (History and Art History), Korostelina (Institute for Conflict Analysis and Resolution), Levine (Modern and Classical Languages, director), McGlinchey (Schar School of Policy and Government), Pacynska (Institute for Conflict Analysis and Resolution), Vasilyeva-Roberts (Modern and Classical Languages)
Russian and Eurasian Studies, BA

Banner Code: LA-BA-REST

Website: russianstudies.gmu.edu/programs/LA-BA-REST

Russian and Eurasian studies majors study the Russian language, spoken worldwide by some 250 million people, while also acquiring a foundational knowledge of the history, culture, literature, politics, sociology, economics, and geography of the region. This degree program is flexible, enabling students to focus their interests in one of three concentrations: Russia studies, Russian language and culture, and Eurasia studies. Russian and Eurasian studies prepares students for a wide range of career options in the private sector, government, and education. All students have opportunities for research, global-engagement, public service, and career preparation.

Admissions & Policies

Policies

Students pursuing this degree must complete 33 credits in one of the concentrations available with a minimum GPA of 2.00.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 558) tab.

Students pursuing this degree complete the requirements for one of the available concentrations.

Concentrations in the Major

Concentration in Eurasia Studies (EURS)
The Eurasia studies concentration is designed to provide students with interdisciplinary training in the study of Eurasia, with special focus on Central Asia and secondarily on Russia/the Soviet Union and Eastern Europe. Students will develop a high degree of competence in the history, politics, and culture of Eurasia and a basic competence in a relevant language.

Russian or Other Eurasian-Related Language
Select two courses of Russian or other Eurasian-related language

Total Credits

Courses used to meet this requirement may be in the same language that is used to meet the college language requirement, in which case the student needs to complete 6 credits beyond intermediate proficiency (beyond courses numbered 210 at Mason). With the approval of the director, courses used to meet this requirement may be in a Eurasian-related language that was not used to meet the college language requirement at a level approved by the director.

Social Science Courses at the 300- and 400-Level
Select two social science courses at the 300- and 400-level

Total Credits

Courses used to fulfill this requirement must focus primarily on Central Asia and Eurasia and may be in any social science discipline (ANTH, ECON, GGS, GOVT, SOCI).

History Courses at the 300- and 400-Level
Select two history courses at the 300- and 400-level

Total Credits

Courses used to fulfill this requirement must focus primarily on Central Asia and Eurasia.

Literature or Film Courses at the 300- and 400-Level
Select two literature or film courses at the 300- and 400-level

Total Credits

Courses used to fulfill this requirement must be related to Eurasia.

Courses at the 300- and 400-Level
Students choose from courses that focus predominantly on Eurasia. The courses used to meet this requirement may be in any field of study including special topics courses and other courses that deal primarily with the geographic areas covered in the Russian and Eurasian studies major. To use a special topics course or other course with variable content to meet this requirement, students should seek the advanced written approval of the director. (Special topics courses may be repeated for credit when the topic is different.) The following courses when the topic is relevant, among others, may be used to meet this requirement.

Select three courses at the 300- and 400-level from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Core Area</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>HIST 388</td>
<td>Topics in European History</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>HIST 499</td>
<td>RS: Senior Seminar in History (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td>GOVT 338</td>
<td>Government and Politics of Russia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVT 444</td>
<td>Issues in International Studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVT 447</td>
<td>Revolution and International Politics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RUSS 470</td>
<td>Topics in (Post) Soviet Film</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON 380</td>
<td>Economies in Transition (Mason Core)</td>
<td></td>
<td>135</td>
</tr>
</tbody>
</table>
**Any 300- or 400-level CONF course (p. 1345)**

Total Credits 9

**Concentration in Russia Studies (RUSS)**

The Russia studies concentration is designed to provide students with in-depth interdisciplinary training in Russia and the Soviet Union. Students will develop a high degree of competence in Russian history, politics, society, and culture as well as a basic competence in the Russian language and the broader Eurasian context.

**Required Language Courses**

Other relevant advanced language courses may be used to fulfill this requirement with the prior written approval of the director. Majors are encouraged to take additional advanced Russian language courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 250</td>
<td>Gateway to Advanced Russian</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 380</td>
<td>Advanced Russian I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

**Russian or Soviet History**

When the topic is relevant, HIST 300 Introduction to Historical Method (Mason Core) (p. 135), HIST 388 Topics in European History, or HIST 499 RS: Senior Seminar in History (Mason Core) (p. 135) may be used to fulfill this requirement with the prior written approval of the director.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 326</td>
<td>Stalinism</td>
</tr>
<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
</tr>
<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
</tr>
</tbody>
</table>

Total Credits 6

**Social Sciences Dealing Primarily with Russia**

Any topically appropriate courses in any social science discipline (ANTH, ECON, GGS, GOVT, SOCI) may be used to fulfill this requirement with the prior written approval of the director.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 338</td>
<td>Government and Politics of Russia</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
</tr>
<tr>
<td>ECON 380</td>
<td>Economies in Transition (Mason Core)</td>
</tr>
</tbody>
</table>

(p. 135) |

Total Credits 6

**Russian Literature or Culture**

Other relevant courses may be used to fulfill this requirement with the prior written approval of the director.

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 310</td>
<td>Readings in Russian Literature</td>
</tr>
<tr>
<td>RUSS 311</td>
<td>Contemporary Russian Short Fiction</td>
</tr>
<tr>
<td>RUSS 325</td>
<td>Major Russian Writers (Mason Core)</td>
</tr>
</tbody>
</table>

(p. 135) |
| RUSS 326    | A Survey of Russian Literature (Mason Core) (p. 135) |
| HIST 300    | Introduction to Historical Method (Mason Core) (p. 135) |
| HIST 312    | Nationalism in Eastern Europe            |
| HIST 328    | Rise of Russia (Mason Core) (p. 135)     |
| HIST 329    | Modern Russia and the Soviet Union (Mason Core) (p. 135) |
| HIST 387    | Topics in Global History (Mason Core)    |

(p. 135) |
| HIST 388    | Topics in European History               |
| HIST 426    | The Russian Revolution                   |
| HIST 499    | RS: Senior Seminar in History (Mason Core) (p. 135) |
| THR 352     | Dramatic Literature Seminar              |
| ECON 380    | Economies in Transition (Mason Core)     |

(p. 135) |
| GGS 330     | Geography of the Soviet Succession States |

Total Credits 6

**Courses at the 300 and 400 Level**

Students choose from courses that focus predominantly on Eastern Europe, Russia, or Central Asia. Courses used to meet this requirement may be in any field of study including special topics courses and other courses that deal primarily with the geographic areas covered in the Russian and Eurasian studies major. To use a special topics course or other course with variable content to meet this requirement, students should seek the advanced written approval of the director. (Special topics courses may be repeated for credit when the topic is different.) Examples of courses that may meet this requirement:

Select three courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 302</td>
<td>Russian Conversation and Composition</td>
</tr>
<tr>
<td>RUSS 303</td>
<td>Russian Advanced Conversation</td>
</tr>
<tr>
<td>RUSS 310</td>
<td>Readings in Russian Literature</td>
</tr>
<tr>
<td>RUSS 311</td>
<td>Contemporary Russian Short Fiction</td>
</tr>
<tr>
<td>RUSS 325</td>
<td>Major Russian Writers (Mason Core)</td>
</tr>
</tbody>
</table>

(p. 135) |
| RUSS 326    | A Survey of Russian Literature (Mason Core) (p. 135) |
| RUSS 327    | A Survey of Russian Literature (Mason Core) (p. 135) |
| RUSS 353    | Russian Civilization (Mason Core)        |

(p. 135) |
| RUSS 354    | Contemporary Post-Soviet Life (Mason Core) (p. 135) |
| RUSS 381    | Advanced Russian II                      |
| RUSS 401    | Readings in the Social Sciences          |
| RUSS 407    | Russian Drama and Theater                |
| RUSS 410    | Russian Poetry                           |
| RUSS 470    | Topics in (Post) Soviet Film             |
| RUSS 480    | Fourth-Year Russian                      |
| RUSS 481    | Fourth-Year Russian                      |
| HIST 300    | Introduction to Historical Method (Mason Core) (p. 135) |
| HIST 312    | Nationalism in Eastern Europe            |
| HIST 328    | Rise of Russia (Mason Core) (p. 135)     |
| HIST 329    | Modern Russia and the Soviet Union (Mason Core) (p. 135) |
| HIST 387    | Topics in Global History (Mason Core)    |

(p. 135) |
| HIST 388    | Topics in European History               |
| HIST 426    | The Russian Revolution                   |
| HIST 499    | RS: Senior Seminar in History (Mason Core) (p. 135) |
| THR 352     | Dramatic Literature Seminar              |
| ECON 380    | Economies in Transition (Mason Core)     |

(p. 135) |
| GGS 330     | Geography of the Soviet Succession States |

Total Credits 6
GOVT 338  Government and Politics of Russia
GOVT 340  Central Asian Politics
GOVT 444  Issues in International Studies
GOVT 447  Revolution and International Politics

Total Credits 9

Concentration in Russian Language and Culture (RULC)
Students in the Russian language and culture concentration develop a high degree of competence in Russian language and culture and a basic familiarity with Russian and Eurasian history and politics.

Required Courses in Advanced Russian
RUSS 380  Advanced Russian I 3
RUSS 381  Advanced Russian II 3
RUSS 480  Fourth-Year Russian
or RUSS 481  Fourth-Year Russian

Total Credits 9

Russian Culture or History
RUSS 353  Russian Civilization (Mason Core) (p. 135) 3
or HIST 328  Rise of Russia (Mason Core) (p. 135)
RUSS 354  Contemporary Post-Soviet Life (Mason Core) (p. 135)
or HIST 329  Modern Russia and the Soviet Union (Mason Core) (p. 135)

Total Credits 6

Russian Literature or Cinema in Translation
Select two courses from the following:

RUSS 325  Major Russian Writers (Mason Core) (p. 135)
RUSS 326  A Survey of Russian Literature (Mason Core) (p. 135)
RUSS 327  A Survey of Russian Literature (Mason Core) (p. 135)
RUSS 470  Topics in (Post) Soviet Film

Total Credits 6

Courses Taught in Russian
Select three courses from the following:

RUSS 302  Russian Conversation and Composition
RUSS 303  Russian Advanced Conversation
RUSS 310  Readings in Russian Literature
RUSS 311  Contemporary Russian Short Fiction
RUSS 401  Readings in the Social Sciences
RUSS 410  Russian Poetry
RUSS 481  Fourth-Year Russian

Total Credits 9

Social Sciences
Students choose from courses dealing with Russia. Any other topically appropriate course in a social science discipline (ANTH, ECON, GGS, GOVT, SOCI) may be used to fulfill this requirement with the prior written approval of the director.

Select one course from the following:

GOVT 338  Government and Politics of Russia

ECON 380  Economies in Transition (Mason Core) (p. 135)

GGS 330  Geography of the Soviet Succession States

Total Credits 3

Writing-Intensive Requirement
The university requires all students to complete at least one course designated “writing intensive” in their majors at the 300 level or above. Students majoring in Russian and Eurasian studies may fulfill this requirement by successfully completing RUSS 302 Russian Conversation and Composition, RUSS 325 Major Russian Writers (Mason Core) (p. 135), or RUSS 407 Russian Drama and Theater.

Upper Level Requirement
Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

College Level Requirements for the BA Degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL</td>
<td>(p. 1818)</td>
<td>3</td>
</tr>
<tr>
<td>RELI</td>
<td>(p. 1904)</td>
<td></td>
</tr>
</tbody>
</table>

1 Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
<td>1</td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
<td></td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
<td></td>
</tr>
<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
<td>2</td>
</tr>
<tr>
<td>LING</td>
<td>(p. 1694)</td>
<td></td>
</tr>
<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
<td></td>
</tr>
<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
<td></td>
</tr>
</tbody>
</table>

Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)

1 Note that the following courses may not be used to fulfill this requirement:
- ANTH 1123
- CRIM 1125
- ECON 1415
- GOVT 1590
- HIST 1600
- LING 1604
- PSYC 1845
- SOCI 1925
Or choose from the following GGS courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
<td></td>
</tr>
</tbody>
</table>

1 The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

2 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or achieving a satisfactory score on an approved proficiency test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or completing the following ASL three course sequence:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EDSE 115 American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EDSE 116 American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EDSE 219 American Sign Language (ASL) III</td>
<td></td>
</tr>
</tbody>
</table>

1 Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits (additional to Mason Core Global Understanding requirement)</td>
<td></td>
</tr>
</tbody>
</table>

1 Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td></td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td></td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
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<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
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<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
<td>3-6</td>
</tr>
<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 103</td>
<td>Musics of the World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
</tr>
<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur'an and Hadith</td>
<td>3</td>
</tr>
<tr>
<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chsundergrad.gmu.edu).
Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundation Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Synthesis/Capstone Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

Additional Elective Courses
Any remaining credits may be completed with elective courses to bring the degree total to 120

Accelerated Master's

The accelerated master's program below specifies the BA in Russian and Eurasian Studies as a feeder degree for its program. It is important to note, however, that many accelerated master's programs are available for any bachelor's degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Bachelor's Degree (selected)/Middle East and Islamic Studies, Accelerated MA

Overview
Highly-qualified undergraduates pursuing a BA in select majors (listed below) may apply to the accelerated master's degree in Middle East and Islamic studies. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor's degree in their chosen major and a master's degree in Middle East and Islamic studies after satisfactory completion of 144 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
- government and international politics (p. 917)
- global affairs (p. 509)
- history (p. 394)
- religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- sociology (p. 494)
- anthropology (p. 484)

It is preferred, though not required, that the student have a minor in Middle East studies or Islamic studies.

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MA in Middle East and Islamic studies, see Application Requirements and Deadlines (http://meis.gmu.edu/programs/la-ma-acel-meis).

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select two courses from the following:</td>
<td>6</td>
</tr>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td></td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 632</td>
<td>Politics and Societies of the Middle East</td>
<td></td>
</tr>
<tr>
<td>RELI 644</td>
<td>Islamic Texts and Contexts</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master's degree, students should use the Bachelor's/Accelerated Master's Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 6 additional graduate credits from the following:</td>
<td>6</td>
</tr>
<tr>
<td>MEIS 500</td>
<td>Critical Issues and Debates in Middle East and Islamic Studies</td>
<td></td>
</tr>
<tr>
<td>HIST 575</td>
<td>Approaches to Middle East and Islamic History</td>
<td></td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics (when content focus is the Middle East)</td>
<td></td>
</tr>
<tr>
<td>GOVT 733</td>
<td>Islam and Politics</td>
<td></td>
</tr>
</tbody>
</table>
The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

School of Integrative Studies
Phone: 703-993-1436
Website: integrative.gmu.edu

The School of Integrative Studies offers a distinctive experience that addresses contemporary social, global, and environmental challenges. Students connect academic interests with hands-on learning to prepare for a life and career with meaning and impact. Based in the College of Humanities and Social Sciences, SIS focuses on critical and creative thinking, engaged scholarship and diversity in thought. Graduates will lead the way as a new brand of professionals whose understanding of the liberal arts and commitment to a just world can build the cross-sector approaches necessary to solve pressing global, social and environmental problems.

An integrative, interdisciplinary learning environment, SIS offers the benefits of small, discussion-based courses while providing access to the academic resources of a large public research university. Drawing on its award-winning faculty, SIS provides students with transformative experiential learning opportunities including internships, field and international study, and independent research and service. Both the structure and curriculum of SIS prepares graduates who are engaged, well-rounded scholars who consistently assume leadership roles in the fields of business, law, government, healthcare, education, and the nonprofit sector, among others.

Undergraduate Programs
The School of Integrative Studies offers a bachelor of arts and a bachelor of science degree in integrative studies, and a bachelor of arts in environmental and sustainability studies (joint degree with Environmental Science and Policy in the College of Science).

The integrative studies curriculum is based on intensive, interdisciplinary learning communities, coordinated with traditional academic programs. The result is an integrated program of study that emphasizes collaboration, experiential learning, and self-reflection. All students complete their degree programs with an interdisciplinary concentration.

The environmental and sustainability studies degree provides students with theoretical and practical knowledge of three aspects of environmental and sustainability studies: people, prosperity, and planet. In addition to required core courses, students develop more in-depth knowledge in one of four concentrations. This degree prepares students for employment and graduate study in fields related to social justice, business and public policy, and environmental protection as they relate to the environment and sustainability.

Transfer Students
The School of Integrative Studies welcomes transfer students from other four-year institutions or community colleges, as well as from other academic units within Mason. Academic advisors work with students to utilize transfer credits and create a plan for timely completion of the bachelor’s degree. All transfer students are required to take INTS 391 Introduction to Integrative Studies within their first two semesters and meet with an academic advisor as soon as possible.

Minors
The School of Integrative Studies offers minors in childhood studies, well-being, leadership, multimedia, nonprofit studies, and social justice. All are available to students in any major in the university.

The Sustainability Studies Minor (p. 685) is offered jointly by the Department of Environmental Science and Policy and the School of Integrative Studies.

Centers
The School of Integrative Studies houses Social Action and Integrative Learning (SAIL), which serves all students and faculty in the university.

Faculty

School Faculty
Administration
Kelly Dunne, Executive Director
Misty Krell, Director of Student Services
Marlon Dortch, Associate Director of Student Services
Patricia Mathison, Director, Social Action and Integrative Learning (SAIL)

Professor
Garner

Associate Professors
Eby, Freeman, Gilmore, Gorski, Lucas, Muir, Owen, Wood, Wingfield, Unruh

Assistant Professors
Chen, Erakat

Term Professor
Scott-Constantine

Term Associate Professor
Fuertes

Term Assistant Professors
Dalton, Dunne, Maskell, McCarron

Adjunct Faculty
Cairnie, Carmack, Guenther, Holder, Johnson, Klinger, Lennon, Mitchell, Ryan, Stephens, Sweetman, Villa, Zelensky

Affiliate Faculty
Thurston

Programs
• Childhood Studies Minor
• Conservation Studies Minor (CHSS)
• Environmental and Sustainability Studies, BA (CHSS)
Childhood Studies Minor

Banner Code: CHDS

Academic Advising
402 Enterprise Hall
Fairfax Campus
Email: sisinfo@gmu.edu
Website: integrative.gmu.edu/programs/la-minor-nc-chds

The interdisciplinary minor is designed for students who have a child-related focus in their major and for those who want to explore the topic of childhood. This minor focuses on the study of issues concerning children and their representations, including their experiences in society within historical and contemporary cultures and global contexts. The curriculum fosters thinking about childhood theory, research, policy and the practical applications of this knowledge to decisions regarding children and youth. The minor provides enough flexibility for students to choose relevant courses in keeping with their primary interests.

Faculty
Dunne, Garner (director), Gorski, Mahatmya

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 16

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 565) tab.

Core Courses
Three to four credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>INTS 312</td>
<td>Images and Experiences of Childhood: Social Construct, Literature, and Film</td>
</tr>
<tr>
<td>INTS 316</td>
<td>Introduction to Childhood Studies</td>
</tr>
</tbody>
</table>

Total Credits 3-4

Electives
Select three courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 315</td>
<td>Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective</td>
</tr>
<tr>
<td>CRIM 302</td>
<td>Delinquency</td>
</tr>
<tr>
<td>CRIM 406</td>
<td>Family Law and the Justice System</td>
</tr>
<tr>
<td>EDUC 302</td>
<td>Human Growth and Development</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>INTS 319</td>
<td>Contemporary Youth Studies</td>
</tr>
<tr>
<td>INTS 321</td>
<td>Parent-Child Relations</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PSYC 313</td>
<td>Child Development</td>
</tr>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
</tr>
<tr>
<td>PSYC 414</td>
<td>Behavior Disorders of Childhood</td>
</tr>
<tr>
<td>SOCI 302</td>
<td>Sociology of Delinquency</td>
</tr>
<tr>
<td>SOCI 309</td>
<td>Marriage, Families, and Intimate Life</td>
</tr>
<tr>
<td>SOCI 360</td>
<td>Youth Culture and Society</td>
</tr>
<tr>
<td>SOCW 415</td>
<td>Child and Family Welfare</td>
</tr>
</tbody>
</table>

Total Credits 9

Conservation Studies Minor (CHSS)

Banner Code: CNST

Academic Advising
Lisa Des Jardins, Academic Program Coordinator and Advisor
Email: ldesjard@gmu.edu
Website: smconservation.gmu.edu

This minor is designed for undergraduate students who wish to augment their main academic program with conservation studies taught in an experiential manner. There are three, semester-long options by which students can complete the minor including ones that focus on "Conservation, Biodiversity and Society", "Wildlife Ecology and Conservation", or "Endangered Species Conservation". These semesters are grounded in natural science, and offer a collection of four to five interdisciplinary courses that combine public policy, sociology, conflict resolution, and global awareness with hands-on experience. Students are in residence at the Smithsonian Conservation Biology Institute in Front Royal, Virginia, and are taught by Mason faculty, Smithsonian scientists and practitioners.

The minor is available only to students who enroll in any of the Smithsonian Mason Semesters, semester-long residential programs held at the Smithsonian Conservation Biology Institute in Front Royal, VA. The semesters are offered jointly by the College of Humanities and Social Sciences and the College of Science under the auspices of the Smithsonian-Mason School of Conservation (http://smconservation.gmu.edu).

This is a Green Leaf program (p. 102).
Policies
Eight credits of coursework must be unique to the minor and students pursuing this minor must complete one of the options with a minimum grade of 2.00 in each course. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15-16

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 566) tab.

Conservation, Biodiversity and Society Option

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 320</td>
<td>Conservation in Practice</td>
<td>3</td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td>4</td>
</tr>
<tr>
<td>CONS 410</td>
<td>Human Dimensions in Conservation</td>
<td>3</td>
</tr>
<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 16

Wildlife Ecology and Conservation Option (fall semester only)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td>4</td>
</tr>
<tr>
<td>CONS 405</td>
<td>Landscape and Macrosystems Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits: 15

Endangered Species and Conservation Option (spring semester only)

<table>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 406</td>
<td>Small Population Management</td>
<td>4</td>
</tr>
<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning</td>
<td>4</td>
</tr>
<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits: 15

Environmental and Sustainability Studies, BA (CHSS)

Banner Code: LA-BA-EVSS

Website: http://ess.gmu.edu/

The BA in Environmental and Sustainability Studies is a joint program between the College of Humanities and Social Sciences (p. 295) and the College of Science (p. 593).

This degree provides students with theoretical and practical knowledge of three aspects of environmental and sustainability studies: people, prosperity, and planet. In addition to required core courses, students develop more in-depth knowledge in one of six concentrations. This degree prepares students for employment and graduate study in fields related to social justice, business and public policy, and environmental protection as they relate to the environment and sustainability.

This is a Green Leaf program (p. 102).

Admissions & Policies

Policies
Students pursuing this degree must complete a minimum of 60 credits within the major, with a minimum grade of 2.00 in each course. For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements
Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 566) tab.

Of the credits required for this degree, 14 credits simultaneously fulfill core requirements for the major and Mason Core requirements, and, depending on the concentration and electives chosen, up to 9 credits may simultaneously fulfill Mason Core requirements and college BA requirements.

Core Courses in the Major

Core requirements may satisfy Mason Core requirements in natural science (EVPP 110 The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135), EVPP 111 The Ecosphere: An Introduction to Environmental Science II (Mason Core) (p. 135)) and the college BA requirement for social and behavioral science (GOVT 361 Introduction to Environmental Policy).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<tbody>
<tr>
<td>EVPP 110</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135)</td>
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<tr>
<td>EVPP 111</td>
<td>The Ecosphere: An Introduction to Environmental Science II (Mason Core) (p. 135)</td>
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The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135) and The Ecosphere: An Introduction to Environmental Science II (Mason Core) (p. 135) and Human Dimensions of the Environment

Environmental Biology: Molecules and Cells and Environmental Science: Biological Diversity and Ecosystems and Environmental Science: Biomes and Human Dimensions

Environmental Justice

Statistics

Sociology of Business and Public Policy

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<td>GGS 307</td>
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<td>Leadership Theory and Practice</td>
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<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core) (p. 135)</td>
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<td>Required Courses</td>
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<td></td>
<td>or GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core) (p. 135)</td>
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<td></td>
<td>EVPP 322</td>
<td>Managing People and Organizations in a Global Economy</td>
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<td>EVPP 366</td>
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<tr>
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<td>ECON 105</td>
<td>Environmental Economics for the Citizen (Mason Core) (p. 135)</td>
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<td>EVPP 322</td>
<td>Business and Sustainability</td>
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<td>EVPP 361</td>
<td>Introduction to Environmental Policy (satisfies the college BA requirement for social and behavioral science)</td>
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<td>or GOVT 361</td>
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<td>SOCI 313</td>
<td>Statistics for the Behavioral Sciences (Mason Core) (p. 135)</td>
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<td>or BIOL 214</td>
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<td>Integration, Analysis, Innovation</td>
<td>INTS 210</td>
<td>Sustainable World</td>
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<td>EVPP 480</td>
<td>Sustainability in Action (Mason Core) (p. 135)</td>
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<td>INTS 490</td>
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Managing People and Organizations in a Global Economy and OM 303 Operations Management for MBUS 306 Managing Projects and Operations. Both courses cannot be taken for credit. Students who have taken and received credit for both ACCT 203 Survey of Accounting and FNAN 303 Financial Management shall substitute the combination for MBUS 300 Accounting in a Global Economy. All three courses cannot be taken for credit.

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Environmental and Sustainability Studies, BA (CHSS)

EVPP 436 The Human Dimensions of Global Climate Change 3

Total Credits 9-10

### Three Courses

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<td>Global Environmental Hazards</td>
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<td>Population Geography (Mason Core) (p. 135)</td>
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<td>GGS 309</td>
<td>Meteorology and Climate</td>
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<td>GGS 312</td>
<td>Physical Climatology</td>
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<td>GGS 314</td>
<td>Severe and Extreme Weather</td>
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<tr>
<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core) (p. 135) (satisfies the college BA requirement in philosophy and religious studies)</td>
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<td>PHIL 343</td>
<td>Topics in Environmental Philosophy (Mason Core) (p. 135) (satisfies the college BA requirement in philosophy and religious studies)</td>
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Other course work with advisor approval

Total Credits 9

### Concentration in Conservation and Sustainability (CSUS)

Smithsonian-Mason Program

Students complete one of the programs offered through the Smithsonian-Mason School of Conservation in cooperation with the Smithsonian Conservation Biology Institute.

#### Conservation, Biodiversity and Society Option (16 credits)

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<td>CONS 401</td>
<td>Conservation Theory</td>
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<td>CONS 402</td>
<td>Applied Conservation</td>
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<td>CONS 410</td>
<td>Human Dimensions in Conservation (Mason Core) (p. 135)</td>
<td>3</td>
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<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core) (p. 135)</td>
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Total Credits 16

#### Wildlife, Ecology, and Conservation Option (15 credits)

Offered only in Fall semesters, students complete four required courses:

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<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
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<td>CONS 405</td>
<td>Landscape and Macrosystems Ecology</td>
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<td>CONS 496</td>
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Total Credits 15

#### Endangered Species and Conservation Option (15 credits)

Offered only in Spring semesters, students complete four required courses:

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<td>CONS 406</td>
<td>Small Population Management</td>
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<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning (Mason Core) (p. 135)</td>
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<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
<td>5</td>
</tr>
</tbody>
</table>

Total Credits 15

### Concentration in Environmental Policy and Economics (EVPE)

The requirements for this concentration satisfy the Mason Core requirement in social and behavioral science (ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135)) and, depending on the elective chosen, may fulfill the college BA requirement in non-Western culture (ECON 362 African Economic Development (Mason Core) (p. 135)).

#### Required Courses

Completion of these courses will satisfy the Mason Core social and behavioral science requirement.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 338</td>
<td>Economics of Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 362</td>
<td>Intermediate Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 351</td>
<td>Administration in the Political System</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 362</td>
<td>Intermediate Environmental Policy</td>
<td>3</td>
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</tbody>
</table>

Total Credits 12

#### Six Credits

Select a minimum of six credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CONF 340</td>
<td>Global Conflict Analysis and Resolution</td>
<td>6</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 311</td>
<td>Intermediate Macroeconomics</td>
<td></td>
</tr>
<tr>
<td>ECON 330</td>
<td>Public Finance</td>
<td></td>
</tr>
<tr>
<td>ECON 345</td>
<td>Introduction to Econometrics</td>
<td></td>
</tr>
<tr>
<td>ECON 360</td>
<td>Economics of Developing Areas (Mason Core) (p. 135)</td>
<td></td>
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<tr>
<td>Code</td>
<td>Title</td>
<td>Credits</td>
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<tr>
<td>ECON 412</td>
<td>Game Theory and Economics of Institutions</td>
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</tr>
<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
<td></td>
</tr>
<tr>
<td>EVPP 396</td>
<td>Directed Topic in Environmental Science and Policy</td>
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<tr>
<td>EVPP 432</td>
<td>Energy Policy</td>
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<tr>
<td>GEOL 420</td>
<td>Earth Science and Policy (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
<td></td>
</tr>
<tr>
<td>GOVT 336</td>
<td>Political Development and Change</td>
<td></td>
</tr>
<tr>
<td>GOVT 339</td>
<td>Issues in the Politics of Advanced Industrial Societies</td>
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<tr>
<td>GOVT 343</td>
<td>International Political Economy</td>
<td></td>
</tr>
<tr>
<td>GOVT 357</td>
<td>Urban Governance and Planning</td>
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<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
<tr>
<td>INTS 371</td>
<td>Food Systems and Policy</td>
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</tr>
<tr>
<td>Other course work with advisor approval</td>
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**Total Credits**: 6

**Concentration in Equity and Environmental Justice (EQEJ) Required Courses**

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<tbody>
<tr>
<td>EVPP 362</td>
<td>Intermediate Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 436</td>
<td>The Human Dimensions of Global Climate Change</td>
<td>3</td>
</tr>
<tr>
<td>INTS 336</td>
<td>Poverty, Wealth and Inequality in the US</td>
<td>3</td>
</tr>
<tr>
<td>INTS 337</td>
<td>Social Justice Consciousness and Personal Transformation</td>
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**Total Credits**: 12

**Six Credits**

Select a minimum of six credits from the following:

<table>
<thead>
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<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CONF 394</td>
<td>Human Rights and Inequality</td>
<td>3</td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
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</tr>
<tr>
<td>GOVT 445</td>
<td>Human Rights</td>
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<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
<tr>
<td>INTS 338</td>
<td>Animal Rights and Humane Education</td>
<td></td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
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<tr>
<td>INTS 402</td>
<td>Plants and People - Sustenance, Ceremony, and Sustainability</td>
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<tr>
<td>SOCI 320</td>
<td>Social Structure and Globalization (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
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</table>

**Total Credits**: 6

**Concentration in Sustainable Food and Agriculture (SFG) Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>INTS 370</td>
<td>Sustainable Food Systems</td>
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<tr>
<td>INTS 371</td>
<td>Food Systems and Policy</td>
<td>3</td>
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<tr>
<td>INTS 470</td>
<td>Professional Pathways in Sustainable Food Systems</td>
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</table>

**Total Credits**: 10

**Eight Credits**

Select a minimum of eight credits from the following:

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<tr>
<td>ANTH 366</td>
<td>Food and Human Evolution</td>
<td></td>
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<tr>
<td>ANTH 376</td>
<td>Food and Culture</td>
<td></td>
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<tr>
<td>BIOL 344</td>
<td>Plant Diversity and Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 345</td>
<td>Plant Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 436</td>
<td>The Human Dimensions of Global Climate Change</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
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<tr>
<td>INTS 338</td>
<td>Animal Rights and Humane Education</td>
<td></td>
</tr>
<tr>
<td>INTS 402</td>
<td>Plants and People - Sustenance, Ceremony, and Sustainability</td>
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<tr>
<td>NUTR 295</td>
<td>Introduction to Nutrition (Mason Core) (p. 135)</td>
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<tr>
<td>NUTR 408</td>
<td>Food Security</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 8

**Writing-Intensive Requirement**

The university requires all students to complete at least one course designated as "writing intensive" in their major at the 300 level or above. Students majoring in environmental and sustainability studies should consult an advisor to learn how to fulfill this requirement.

**Upper Level Requirement**

Students seeking a bachelor’s degree must apply at least 45 credits of upper-level courses (numbered 300 or above) toward graduation requirements.

**College Level Requirements for the BA Degree**

In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

**Philosophy or Religious Studies**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL (p. 1818)</td>
<td></td>
<td>1</td>
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<tr>
<td>RELI (p. 1904)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 6
Note that the following courses may not be used to fulfill this requirement:
- PHIL 323 Classical Western Political Theory
- PHIL 324 Modern Western Political Theory
- PHIL 327 Contemporary Western Political Theory
- PHIL 393 Humanities College to Career
- PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

### Social and Behavioral Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH</td>
<td>(p. 1119)</td>
</tr>
<tr>
<td>CRIM</td>
<td>(p. 1372)</td>
</tr>
<tr>
<td>ECON</td>
<td>(p. 1413)</td>
</tr>
<tr>
<td>GOVT</td>
<td>(p. 1588)</td>
</tr>
<tr>
<td>HIST</td>
<td>(p. 1628)</td>
</tr>
<tr>
<td>LING</td>
<td>(p. 1694)</td>
</tr>
<tr>
<td>PSYC</td>
<td>(p. 1844)</td>
</tr>
<tr>
<td>SOCI</td>
<td>(p. 1923)</td>
</tr>
</tbody>
</table>

Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement)¹

Or choose from the following GGS courses:
- GGS 101 Major World Regions (Mason Core) (p. 135)
- GGS 103 Human Geography (Mason Core) (p. 135)
- GGS 110 Introduction to Geoinformation Technologies
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography
- GGS 306 Urban Geography
- GGS 315 Geography of the United States
- GGS 316 Geography of Latin America
- GGS 320 Geography of Europe
- GGS 325 Geography of North Africa and the Middle East
- GGS 330 Geography of the Soviet Succession States
- GGS 357 Structures in Urban Governance and Planning
- GGS 380 Geography of Virginia

¹ The two courses used to fulfill the combined college and Mason Core (p. 135) requirements must be from different disciplines in the social and behavioral sciences.

### Foreign Language

Intermediate-level proficiency in one foreign language, fulfilled by:¹

- Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)
- Or achieving a satisfactory score on an approved proficiency test
- Or completing the following ASL three course sequence:
  - EDSE 115 American Sign Language (ASL I)
  - EDSE 116 American Sign Language (ASL II)
  - EDSE 219 American Sign Language (ASL) III

¹ Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

### Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>Course</td>
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<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
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<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
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<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
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<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
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<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
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<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
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<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
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<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
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<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
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<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
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<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
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<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
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<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
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<td>Geography of North Africa and the Middle East</td>
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<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<td>Select Topics in GGS</td>
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<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
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<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
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<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
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<td>GOVT 340</td>
<td>Central Asian Politics</td>
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<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
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<td>GOVT 345</td>
<td>Islam and Politics</td>
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<tr>
<td>GOVT 432</td>
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<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
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<tr>
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<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
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<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
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<tr>
<td>HIST 354</td>
<td>Modern China</td>
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<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
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<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
</tr>
<tr>
<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
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<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
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<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
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<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>
Additional Elective Courses

Any remaining credits may be completed with elective courses to bring the degree total to 120.

Accelerated Master’s

The accelerated master’s programs in the list below specify the BA in environmental and sustainability studies as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master’s degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students...
must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Bachelor's Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS**

**Overview**

This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master's program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>13</td>
</tr>
<tr>
<td>BIOL</td>
<td>Biostatistics for Biology Majors</td>
<td></td>
</tr>
<tr>
<td>BIOL</td>
<td>Foundations of Ecology and Evolution</td>
<td></td>
</tr>
<tr>
<td>Option 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVPP</td>
<td>Environmental Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>EVPP</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
<td></td>
</tr>
<tr>
<td>EVPP</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
<td></td>
</tr>
<tr>
<td>EVPP</td>
<td>Environmental Microbiology Essentials Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

| Option 3: | Conservation Theory                                    |         |
| CONS  | Applied Conservation                                   |         |
| CONS  | Biodiversity Monitoring                                |         |
| EVPP  | Environmental Microbiology Essentials Laboratory        |         |

By the beginning of the undergraduate's senior year, they should first submit a Graduate Application for Accelerated Master's Program form (obtained from the Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us)). Secondly, in their senior year accelerated master's students must complete the two graduate courses indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. They must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. Upon completion and conferral of the undergraduate degree in a Green Leaf-designated (p. 102) program, in the semester indicated in the application, they must additionally submit the Bachelor's/Accelerated Master's Transition form (found on the Office of the University Registrar website (http://registrar.gmu.edu/forms)) and will subsequently be admitted into graduate status.

By at least the beginning of their senior year, they should seek out a faculty member in the Department of Environmental Science and Policy (p. 661) who is willing to serve as their advisor (unless the student is planning to enroll in the MS concentration in Environmental Management). This advisor will aid the student in choosing the appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master's concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason (called "program faculty") can serve as master's advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.

**Application Requirements**

Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog, excluding the GRE exam requirement (which is not required for those enrolled in the accelerated program). This includes three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate's proposed MS research), and a letter from their advisor stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate's research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department's website (http://esp.gmu.edu/academic-programs/graduate/admissions).

**Reserve Graduate Credits**

Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate...
environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master’s program and must then complete an additional 27-31 credits to receive the master’s degree.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master’s degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor’s credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.

### Integrative Studies, BA

**Banner Code: LA-BA-INTS**

**Academic Advising**
402 Enterprise Hall
Fairfax Campus

Email: sisinfo@gmu.edu
Website: integrative.gmu.edu/programs/la-ba-ints

The BA in integrative studies brings together research, theory and practice across numerous disciplines. Integrative studies majors select a multidisciplinary concentration or work with student services staff to develop their own concentration, uniquely suited to their academic and career goals. Integrative studies majors explore new topics and experiences while gaining the knowledge and skills needed to enter the workforce. Required coursework is offered in small classes with ample room for discussion, collaborative learning, and experiential learning, including in-community projects, volunteer opportunities, field work, internships and work with faculty on research that directly engages current social and global challenges.

### Admissions & Policies

**Policies**

Students must fulfill all Requirements for Bachelor’s Degrees (p. 84) including the Mason Core (p. 135). Integrative studies students may fulfill lower level Mason Core requirements through approved integrative studies (INTS) coursework. Students pursuing a BA in integrative studies must complete a minimum of 30 credits of (INTS) coursework, with at least 18 credits at the 300 and 400 levels. These 30 INTS credits fulfill the writing intensive and synthesis Mason Core requirements. In addition, students must complete ENGH 302 Advanced Composition (Mason Core) (p. 135). Students must have a minimum GPA of 2.00 in courses applied to the major. Before registering, students should see an advisor to help plan their degree program to meet Mason requirements. The advisor also can help students choose electives or a minor.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

### Degree Requirements

**Total credits: minimum 120**

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 574) tab.

Before registering, students should see an advisor to help plan their degree program to meet Mason requirements. The advisor also can help students choose electives or a minor.

### Concentrations in the Major

A concentration is the equivalent of a major in a traditional degree program. Students choose from an established multidisciplinary concentration below or create with faculty an individualized program of study to fit their interests and needs. Concentration coursework combines integrative studies (INTS) classes with coursework from other Mason units (departments, schools, and colleges). While fulfilling the concentration requirements, students are also responsible for completing a minimum of 30 credits of INTS coursework. Any INTS courses required for the concentration will apply. Students must present a minimum GPA of 2.00 in courses applied to the concentration.

### Childhood Studies (CHDS)

Students complete the following coursework:

#### Seven Required Courses (minimum of 23 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 312</td>
<td>Images and Experiences of Childhood: Social Construct, Literature, and Film</td>
<td>3-6</td>
</tr>
<tr>
<td>INTS 316</td>
<td>Introduction to Childhood Studies</td>
<td>4</td>
</tr>
<tr>
<td>INTS 317</td>
<td>Issues in Family Relationships</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>Developmental Psychology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 313</td>
<td>Child Development</td>
<td>3</td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>or SOCI 313</td>
<td>Statistics for the Behavioral Sciences (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 23-27

### Additional Courses

Select three courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 315</td>
<td>Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective</td>
</tr>
<tr>
<td>ENGH 452</td>
<td>Critical Study of Children’s Literature</td>
</tr>
<tr>
<td>HEAL 350</td>
<td>Interventions for Populations and Communities at Risk</td>
</tr>
<tr>
<td>INTS 231</td>
<td>Introduction to Community Studies</td>
</tr>
<tr>
<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
</tr>
</tbody>
</table>
George Mason University

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 310</td>
<td>Violence and Gender</td>
</tr>
<tr>
<td>INTS 319</td>
<td>Contemporary Youth Studies</td>
</tr>
<tr>
<td>INTS 320</td>
<td>Construction of Differences: Race, Class, and Gender</td>
</tr>
<tr>
<td>INTS 321</td>
<td>Parent-Child Relations</td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
</tr>
<tr>
<td>NUTR 295</td>
<td>Introduction to Nutrition (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>NUTR 420</td>
<td>Strategies for Nutrition Education</td>
</tr>
<tr>
<td>NUTR 421</td>
<td>Community Nutrition</td>
</tr>
<tr>
<td>NUTR 422</td>
<td>Nutrition throughout the Life Cycle</td>
</tr>
<tr>
<td>NUTR 423</td>
<td>Nutrition and Chronic Illnesses</td>
</tr>
<tr>
<td>NUTR 466</td>
<td>Nutrition and Weight Management: Obesity, Anorexia, and Bulimia</td>
</tr>
<tr>
<td>PSYC 314</td>
<td>Adolescent Development</td>
</tr>
<tr>
<td>PSYC 324</td>
<td>Personality Theory</td>
</tr>
<tr>
<td>PSYC 325</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>PSYC 362</td>
<td>Psychology of Gender</td>
</tr>
<tr>
<td>SOCW 415</td>
<td>Child and Family Welfare</td>
</tr>
<tr>
<td>SOCI 302</td>
<td>Sociology of Delinquency</td>
</tr>
<tr>
<td>SOCI 360</td>
<td>Youth Culture and Society</td>
</tr>
</tbody>
</table>

Total Credits: 9-18

**International Studies (INST)**

Students complete the following coursework:

**Language Proficiency**

All students must demonstrate language proficiency at the intermediate level through coursework (a Mason course numbered 210) or proficiency testing.

**Foundational Courses**

- INTS 303 Introduction to International Studies 3
- INTS 362 Social Justice and Human Rights 3
- INTS 435 Leadership in a Changing Environment 4

Total Credits: 10

**Religious Studies**

Select one course from the following:

- RELI 341 Global Perspectives on Spirituality and Healing (Mason Core) (p. 135)
- RELI 360 Religion and Politics
- RELI 401 Death and the Afterlife in World Religions
- RELI 405 Religion, Values, and Globalization
- RELI 407 Women in the World’s Religions
- RELI 490 Comparative Study of Religions (Mason Core) (p. 135)

Total Credits: 3

**Geography**

Select one course from the following:

- GGS 302 Global Environmental Hazards
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography

Total Credits: 3

**Globalization**

Select one course from the following:

- ANTH 300 Civilizations
- ANTH 332 Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)
- CULT 320 Globalization and Culture
- GLOA 101 Introduction to Global Affairs (Mason Core) (p. 135)
- INTS 348 Digital Futures
- SOCI 120 Globalization and Society (Mason Core) (p. 135)
- SOCI 320 Social Structure and Globalization (Mason Core) (p. 135)

Total Credits: 3

**Sustainability**

Select one course from the following:

- INTS 210 Sustainable World
- INTS 334 Environmental Justice
- INTS 401 Conservation Biology
- INTS 402 Plants and People - Sustenance, Ceremony, and Sustainability
- PHIL 243 Global Environmental Ethics (Mason Core) (p. 135)

Total Credits: 3-6

**Politics**

Select one course from the following:

- ANTH 312 Political Anthropology (Mason Core) (p. 135)
- GGS 301 Political Geography
- GOVT 322 International Relations Theory
- INTS 422 An Experiential Approach to American Foreign Policy

Total Credits: 3

**Social Action and Conflict Transformation**

Select one course from the following:

- INTS 300 Law and Justice
- INTS 302 Argument and Advocacy
- INTS 304 Social Movements and Community Activism
- INTS 314 Conflict, Trauma and Healing
- INTS 315 Spirituality and Conflict Transformation
- INTS 416 Refugee and Internal Displacement
- SOCI 308 Race and Ethnicity in a Changing World

Total Credits: 3-6

**Creative Arts**

Select one course from the following:

- DANC 118 World Dance (Mason Core) (p. 135)

Total Credits: 3-4
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 318</td>
<td>Global Perspectives: World Dance Forms (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ENGH 362</td>
<td>Global Voices (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ENGH 366</td>
<td>The Idea of a World Literature (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ENGH 367</td>
<td>World Literatures in English</td>
<td></td>
</tr>
<tr>
<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>INTS 346</td>
<td>Art as Social Action</td>
<td></td>
</tr>
<tr>
<td>INTS 446</td>
<td>Art, Beauty, and Culture (Students take 3 credits.)</td>
<td></td>
</tr>
<tr>
<td>THR 359</td>
<td>World Stages (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 3-4

**Electives**

Select three electives

**Total Credits**: 9-12

1 Students take three additional courses focused on an international area of their interest with the advice and approval of an adviser.

**Leadership and Organizational Development (LODV)**

**Required Courses**

*Understanding the interdisciplinary nature of leadership and its application to personal, organizational and societal development*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 204</td>
<td>Leadership Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits**: 7

**Additional Course**

*Developing a heightened sense of self, including: inner knowledge, core values, intersecting identities, well-being, and impact on others*

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 405</td>
<td>Women and Leadership</td>
<td></td>
</tr>
<tr>
<td>INTS 355</td>
<td>Mindfulness, Meaning Well-Being</td>
<td></td>
</tr>
<tr>
<td>HEAL 312</td>
<td>Health and Wellness Choices</td>
<td></td>
</tr>
<tr>
<td>PSYC 417</td>
<td>Science of Well Being</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 3-4

**Additional Course**

*Understanding ethical approaches to leadership and change, and applying ethics in personal and organizational processes*

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 404</td>
<td>Ethics and Leadership</td>
<td></td>
</tr>
<tr>
<td>PHIL 305</td>
<td>Business Ethics</td>
<td></td>
</tr>
<tr>
<td>PHIL 358</td>
<td>Ethics and Economics</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 3-4

**Additional Course**

*Understanding team and organizational learning*

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 420</td>
<td>Work Effectiveness Skills</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
<tr>
<td>MBUS 301</td>
<td>Managing People and Organizations in a Global Economy</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 3-4

**MGMT 301**  People and Organizations
**PSYC 231**  Social Psychology (Mason Core) (p. 135)

**Total Credits**: 3-4

**Additional Course**

*Demonstrating competence in personal and professional communication*

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 202</td>
<td>Public Speaking and Critical Thinking Skills</td>
<td></td>
</tr>
<tr>
<td>COMM 201</td>
<td>Small Group Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 306</td>
<td>Issues in Intercultural Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 332</td>
<td>Nonverbal Communication</td>
<td></td>
</tr>
<tr>
<td>MBUS 302</td>
<td>Managing Information in a Global Economy</td>
<td></td>
</tr>
<tr>
<td>MIS 301</td>
<td>Introduction to Business Information Systems</td>
<td></td>
</tr>
<tr>
<td>or MIS 303</td>
<td>Introduction to Business Information Systems (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 3-4

**Additional Courses**

Select four courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 301</td>
<td>Financial Accounting and Managerial Decision Making</td>
<td></td>
</tr>
<tr>
<td>ACCT 303</td>
<td>Accounting for Decision Making</td>
<td></td>
</tr>
<tr>
<td>BULE 303</td>
<td>Legal Environment of Business</td>
<td></td>
</tr>
<tr>
<td>BUS 210</td>
<td>Business Analytics I</td>
<td></td>
</tr>
<tr>
<td>BUS 303</td>
<td>Develop Professional Skills II: Advanced Elements</td>
<td></td>
</tr>
<tr>
<td>BUS 310</td>
<td>Business Analytics II</td>
<td></td>
</tr>
<tr>
<td>FNAN 303</td>
<td>Financial Management</td>
<td></td>
</tr>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
<td></td>
</tr>
<tr>
<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
<tr>
<td>INTS 420</td>
<td>Work Effectiveness Skills</td>
<td></td>
</tr>
<tr>
<td>INTS 431</td>
<td>Principles of Fund Raising</td>
<td></td>
</tr>
<tr>
<td>MGMT 301</td>
<td>People and Organizations</td>
<td></td>
</tr>
<tr>
<td>MIS 303</td>
<td>Introduction to Business Information Systems (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MKTG 303</td>
<td>Principles of Marketing</td>
<td></td>
</tr>
<tr>
<td>OM 210</td>
<td>Statistical Analysis for Management</td>
<td></td>
</tr>
<tr>
<td>OM 303</td>
<td>Operations Management</td>
<td></td>
</tr>
<tr>
<td>PSYC 231</td>
<td>Social Psychology (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>SOCI 304</td>
<td>The Future of Work</td>
<td></td>
</tr>
<tr>
<td>SOM 301</td>
<td>Business Models: A Communication Approach</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 12-18

**MBUS - any course**

Other relevant courses with approval of advisor

**Total Credits**: 12-18
### Legal Studies (LGLS)

#### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INTS 202</td>
<td>Public Speaking and Critical Thinking Skills</td>
<td>4</td>
</tr>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 173</td>
<td>Logic and Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>INTS 300</td>
<td>Law and Justice</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 301</td>
<td>Public Law and the Judicial Process</td>
<td>3</td>
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<tr>
<td>PHIL 311</td>
<td>Philosophy of Law</td>
<td>3</td>
</tr>
<tr>
<td>BULE 303</td>
<td>Legal Environment of Business</td>
<td>3</td>
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#### Additional Course

Select one from the following:

<table>
<thead>
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<th>Credits</th>
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<tbody>
<tr>
<td>GOVT 407</td>
<td>Law and Society</td>
<td>3</td>
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<tr>
<td>GOVT 422</td>
<td>Constitutional Interpretation</td>
<td></td>
</tr>
<tr>
<td>GOVT 423</td>
<td>Constitutional Law: Civil Rights and Liberties</td>
<td></td>
</tr>
<tr>
<td>GOVT 443</td>
<td>Law and Ethics of War</td>
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<tr>
<td>GOVT 446</td>
<td>International Law and Organization</td>
<td></td>
</tr>
<tr>
<td>GOVT 452</td>
<td>Administrative Law and Procedures</td>
<td></td>
</tr>
<tr>
<td>CRIM 424</td>
<td>Constitutional Law: Criminal Process and Rights</td>
<td></td>
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<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>3</strong></td>
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#### Additional Courses

Select three courses from the following:

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<tr>
<td>Any undergraduate CRIM course</td>
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<tr>
<td>Any CONF course</td>
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<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
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<tr>
<td>COMM 230</td>
<td>Case Studies in Persuasion</td>
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<tr>
<td>COMM 430</td>
<td>Persuasion</td>
<td></td>
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<td>COMM 475</td>
<td>Journalism Law</td>
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<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td></td>
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<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td></td>
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<tr>
<td>ECON 310</td>
<td>Money and Banking</td>
<td></td>
</tr>
<tr>
<td>ECON 335</td>
<td>Environmental Economics</td>
<td></td>
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<tr>
<td>ECON 390</td>
<td>International Economics (Mason Core) (p. 135)</td>
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<td>ECON 415</td>
<td>Law and Economics</td>
<td></td>
</tr>
<tr>
<td>GOVT 307</td>
<td>Legislative Behavior</td>
<td></td>
</tr>
<tr>
<td>GOVT 420</td>
<td>American Political Thought</td>
<td></td>
</tr>
<tr>
<td>INTS 204</td>
<td>Leadership Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
<td></td>
</tr>
<tr>
<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
<td></td>
</tr>
<tr>
<td>INTS 335</td>
<td>Ethics, Communication, and Freedom</td>
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</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
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<tr>
<td>INTS 336</td>
<td>Poverty, Wealth and Inequality in the US</td>
<td></td>
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<tr>
<td>INTS 416</td>
<td>Refugee and Internal Displacement</td>
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<tr>
<td>INTS 420</td>
<td>Work Effectiveness Skills</td>
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<tr>
<td>PHIL 309</td>
<td>Bioethics (Mason Core) (p. 135)</td>
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<td><strong>Total Credits</strong></td>
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<td><strong>9-16</strong></td>
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### Liberal Arts for the Teaching Professions (LATP)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SOCI 301</td>
<td>Criminology</td>
<td></td>
</tr>
<tr>
<td>SOCI 302</td>
<td>Sociology of Delinquency</td>
<td></td>
</tr>
<tr>
<td>SOCI 471</td>
<td>Prevention and Deterrence of Crime</td>
<td></td>
</tr>
<tr>
<td><strong>Other relevant courses with approval of advisor</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>9-16</strong></td>
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</table>

### Social Innovation (SINN)

Students complete a minimum of 33 credits of coursework.

#### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INTS 203</td>
<td>Inquiry for Action: Facilitating Change</td>
<td>6</td>
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<tr>
<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
<td>4</td>
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<td><strong>Total Credits</strong></td>
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#### Social Impact

Select two social impact courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
<td></td>
</tr>
<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
<td></td>
</tr>
<tr>
<td>INTS 346</td>
<td>Art as Social Action</td>
<td></td>
</tr>
<tr>
<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
<td></td>
</tr>
<tr>
<td>PSYC 427</td>
<td>Community Engagement for Social Change (Mason Core) (p. 135)</td>
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<tr>
<td>SOCI 352</td>
<td>Social Problems and Solutions (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
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<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6-8</strong></td>
</tr>
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#### Enterprise Course

Select two enterprise courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AMGT 410</td>
<td>Arts Advocacy and Community</td>
<td></td>
</tr>
<tr>
<td>GOVT 353</td>
<td>Social Entrepreneurship</td>
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</tr>
<tr>
<td>MBUS 304</td>
<td>Entrepreneurship: Starting and Managing a New Enterprise</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>7-8</strong></td>
</tr>
</tbody>
</table>
### Policy Course
Select one policy course from the following: 3-6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>GOVT 351</td>
<td>Administration in the Political System</td>
</tr>
<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
</tr>
<tr>
<td>INTS 302</td>
<td>Argument and Advocacy</td>
</tr>
<tr>
<td>INTS 348</td>
<td>Digital Futures</td>
</tr>
<tr>
<td>INTS 371</td>
<td>Food Systems and Policy</td>
</tr>
<tr>
<td>INTS 436</td>
<td>Social Justice Education</td>
</tr>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
</tr>
<tr>
<td>SOCI 340</td>
<td>Power, Politics, and Society</td>
</tr>
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</table>

**Total Credits**: 3-6

### Nonprofit Course
Select one nonprofit course from the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>GOVT 358</td>
<td>Nonprofit Financial Planning</td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
</tr>
<tr>
<td>INTS 431</td>
<td>Principles of Fund Raising</td>
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**Total Credits**: 4

### Ethics Course
Select one ethics course from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>COMM 454</td>
<td>Free Speech and Ethics (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>INTS 404</td>
<td>Ethics and Leadership</td>
</tr>
<tr>
<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>PHIL 305</td>
<td>Business Ethics</td>
</tr>
<tr>
<td>PHIL 355</td>
<td>Theories of Ethics</td>
</tr>
<tr>
<td>PHIL 358</td>
<td>Ethics and Economics</td>
</tr>
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</table>

**Total Credits**: 3-4

### Social Justice and Human Rights (SJHR)
Students complete the following coursework:

#### Core Courses
- INTS 337: Social Justice Consciousness and Personal Transformation 3
- INTS 362: Social Justice and Human Rights 3

**Total Credits**: 6

#### Domestic Rights and Justice
Select a minimum of 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>INTS 336</td>
<td>Poverty, Wealth and Inequality in the US</td>
</tr>
<tr>
<td>INTS 347</td>
<td>Gender Representation in Popular Culture</td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
</tr>
<tr>
<td>WMST 308</td>
<td>Introduction to Lesbian, Gay, Bisexual, Transgender, Transsexual, and Queer Studies</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

#### Global Rights and Justice
Select 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>INTS 416</td>
<td>Refugee and Internal Displacement</td>
</tr>
<tr>
<td>ANTH 331</td>
<td>Refugees (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CONF 394</td>
<td>Human Rights and Inequality</td>
</tr>
<tr>
<td>CRIM 308</td>
<td>Human Rights and Justice</td>
</tr>
<tr>
<td>WMST 314</td>
<td>Stories of Gender and Human Rights</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

### Environmental and Ecological Justice

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
</tr>
<tr>
<td>or INTS 338</td>
<td>Animal Rights and Humane Education</td>
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</table>

**Total Credits**: 3-4

### Activism and Social Change
Select 7-8 credits from the following: 7-8

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
</tr>
<tr>
<td>INTS 346</td>
<td>Art as Social Action</td>
</tr>
<tr>
<td>INTS 436</td>
<td>Social Justice Education</td>
</tr>
<tr>
<td>PSYC 461</td>
<td>Special Topics</td>
</tr>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
</tr>
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</table>

**Total Credits**: 7-8

### Electives
Select 9 credits from the following: 9

Any course chosen from the above categories not already taken to meet a concentration requirement

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>AFAM 390</td>
<td>Special Topics in African and African American Studies (when topic is relevant with prior written approval of advisor)</td>
</tr>
<tr>
<td>ANTH 365</td>
<td>Human Variation</td>
</tr>
<tr>
<td>ANTH 370</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>ANTH 488</td>
<td>Gender, Sexuality, and Culture</td>
</tr>
<tr>
<td>COMM 365</td>
<td>Gender, Race, and Class in the Media</td>
</tr>
<tr>
<td>CULT 320</td>
<td>Globalization and Culture</td>
</tr>
<tr>
<td>EDUC 203</td>
<td>Disability in American Culture (Mason Core) (p. 135)</td>
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<tr>
<td>EVPP 436</td>
<td>The Human Dimensions of Global Climate Change</td>
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<td>FRLN 385</td>
<td>Multilingualism, Identity, and Power (Mason Core) (p. 135)</td>
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<tr>
<td>GCH 496</td>
<td>Violence in Today's Society</td>
</tr>
<tr>
<td>GOVT 445</td>
<td>Human Rights</td>
</tr>
<tr>
<td>HIST 337</td>
<td>Race and Gender in American Sports</td>
</tr>
<tr>
<td>HIST 340</td>
<td>Basketball and the American Experience</td>
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<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
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<td>INTS 210</td>
<td>Sustainable World</td>
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<td>INTS 300</td>
<td>Law and Justice</td>
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<td>INTS 302</td>
<td>Argument and Advocacy</td>
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<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
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<tr>
<td>INTS 310</td>
<td>Violence and Gender</td>
</tr>
<tr>
<td>INTS 315</td>
<td>Spirituality and Conflict Transformation</td>
</tr>
<tr>
<td>INTS 316</td>
<td>Introduction to Childhood Studies</td>
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<tr>
<td>INTS 320</td>
<td>Construction of Differences: Race, Class, and Gender</td>
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<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
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<td>INTS 361</td>
<td>Neighborhood, Community, and Identity</td>
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<tr>
<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core) (p. 135)</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
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</tr>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
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<tr>
<td>SOCI 315</td>
<td>Contemporary Gender Relations</td>
</tr>
<tr>
<td>SOCI 320</td>
<td>Social Structure and Globalization (Mason Core)</td>
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<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
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<td>SOCI 382</td>
<td>Education in Contemporary Society</td>
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<tr>
<td>WMST 200</td>
<td>Introduction to Women and Gender Studies (Mason Core)</td>
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<td>WMST 307</td>
<td>Women and Work</td>
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<td>WMST 402</td>
<td>Queer Theory</td>
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Social Science for Education (SSED)

<table>
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<th>Course Title</th>
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<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>HIST 121</td>
<td>Formation of the American Republic (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>HIST 125</td>
<td>Introduction to World History (Mason Core)</td>
<td>(p. 135)</td>
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Select one from the following:

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HIST 391</td>
<td>History of Virginia to 1800</td>
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</tr>
<tr>
<td>HIST 392</td>
<td>History of Virginia Since 1800</td>
<td></td>
</tr>
<tr>
<td>HIST 122</td>
<td>Development of Modern America (Mason Core)</td>
<td>(p. 135)</td>
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</table>

Select 9 credits of upper-division HIST coursework

Select 6 credits of GGS coursework

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INTS 302</td>
<td>Argument and Advocacy</td>
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<tr>
<td>INTS 422</td>
<td>An Experiential Approach to American Foreign Policy</td>
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Total Credits 9

Women and Gender Studies Concentration (WGST)

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>WMST 200</td>
<td>Introduction to Women and Gender Studies (Mason Core)</td>
<td>(p. 135)</td>
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<tr>
<td>WMST 330</td>
<td>Theoretical Perspectives in Women and Gender Studies</td>
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<tr>
<td>WMST 410</td>
<td>Feminist Approaches to Social Research</td>
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<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>WMST 308</td>
<td>Introduction to Lesbian, Gay, Bisexual, Transgender, Transsexual, and Queer Studies</td>
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<tr>
<td>WMST 402</td>
<td>Queer Theory</td>
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<tr>
<td>WMST 300</td>
<td>Current Issues in Women and Gender Studies 1</td>
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Total Credits 51

Intersectionality

Select one course from the following:

<table>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRIM 307</td>
<td>Social Inequality, Crime, and Justice</td>
<td></td>
</tr>
<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
<td></td>
</tr>
<tr>
<td>INTS 338</td>
<td>Animal Rights and Humane Education</td>
<td></td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
<td></td>
</tr>
<tr>
<td>INTS 416</td>
<td>Refugee and Internal Displacement</td>
<td></td>
</tr>
<tr>
<td>PHIL 344</td>
<td>Ethical Issues in Global Health</td>
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</tr>
<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>WMST 405</td>
<td>Social Dynamics of Family Violence</td>
<td></td>
</tr>
</tbody>
</table>

Activism and Advocacy

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
<td></td>
</tr>
<tr>
<td>INTS 337</td>
<td>Social Justice Consciousness and Personal Transformation</td>
<td></td>
</tr>
<tr>
<td>INTS 346</td>
<td>Art as Social Action</td>
<td></td>
</tr>
<tr>
<td>INTS 417</td>
<td>Human Trafficking and the International Community</td>
<td></td>
</tr>
<tr>
<td>INTS 436</td>
<td>Social Justice Education</td>
<td></td>
</tr>
<tr>
<td>PSYC 427</td>
<td>Community Engagement for Social Change (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
<td></td>
</tr>
<tr>
<td>WMST 309</td>
<td>Black Social Movements: Gendering of Violence and Activism</td>
<td></td>
</tr>
<tr>
<td>WMST 312</td>
<td>Gender, Trauma, and Recovery</td>
<td></td>
</tr>
</tbody>
</table>

History and Culture

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 488</td>
<td>Gender, Sexuality, and Culture</td>
<td></td>
</tr>
<tr>
<td>HIST 337</td>
<td>Race and Gender in American Sports</td>
<td></td>
</tr>
<tr>
<td>HIST 350</td>
<td>U.S. Women's History</td>
<td></td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>INTS 310</td>
<td>Violence and Gender</td>
<td></td>
</tr>
<tr>
<td>INTS 400</td>
<td>Temptress: Constructs of Sex and Power</td>
<td></td>
</tr>
<tr>
<td>PHIL 338</td>
<td>Philosophy, Sex, and Gender</td>
<td></td>
</tr>
<tr>
<td>RELI 407</td>
<td>Women in the World’s Religions</td>
<td></td>
</tr>
<tr>
<td>WMST 307</td>
<td>Women and Work</td>
<td></td>
</tr>
<tr>
<td>WMST 315</td>
<td>Women During the Enslavement Era</td>
<td></td>
</tr>
<tr>
<td>WMST 316</td>
<td>Gendered Pan-Africanism</td>
<td></td>
</tr>
</tbody>
</table>

Identity

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFAM 390</td>
<td>Special Topics in African and African American Studies</td>
<td></td>
</tr>
<tr>
<td>COMM 365</td>
<td>Gender, Race, and Class in the Media</td>
<td></td>
</tr>
<tr>
<td>GOVT 414</td>
<td>Politics of Race and Gender</td>
<td></td>
</tr>
<tr>
<td>HIST 337</td>
<td>Race and Gender in American Sports</td>
<td></td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>INTS 320</td>
<td>Construction of Differences: Race, Class, and Gender</td>
<td></td>
</tr>
</tbody>
</table>
INTS 347  Gender Representation in Popular Culture
SOCI 308  Race and Ethnicity in a Changing World
WMST 406  Gender and Violence in Social Institutions

Special topics courses with advisor approval

Electives
Select three courses from the following: 9-11

CHIN 328  Asian American Women Writers (Mason Core) (p. 135)
COMM 465  Topics in Communication and Gender
  or WMST 306  Topics in Communication and Gender
ENGL 310  Topics: Women and Literature
ENGL 418  Cultural Constructions of Sexualities
HEAL 327  Women's Health
INTS 312  Images and Experiences of Childhood: Social Construct, Literature, and Film
INTS 317  Issues in Family Relationships
INTS 319  Contemporary Youth Studies
INTS 321  Parent-Child Relations
INTS 405  Women and Leadership
PHIL 243  Global Environmental Ethics (Mason Core) (p. 135)
PHIL 343  Topics in Environmental Philosophy (Mason Core) (p. 135)
PSYC 362  Psychology of Gender
SOCI 315  Contemporary Gender Relations
THRT 424  Contemporary Women Playwrights
TOUR 311  Women and Tourism (Mason Core) (p. 135)
WMST 303  Psychology of Women
WMST 314  Stories of Gender and Human Rights
WMST 300  Current Issues in Women and Gender Studies
WMST 450  Current Topics in Women and Gender Studies

Courses in above areas not already taken

WMST 600  Special Topics 2
WMST 610  Feminist Approaches to Social Research 2
WMST 630  Feminist Theories across the Disciplines 2
WMST 640  Women and Global Issues 2

Total Credits 33-44

1 Various special topics courses with the approval of the undergraduate advisor.
2 Six credits of WMST 600 Special Topics, WMST 610 Feminist Approaches to Social Research, WMST 630 Feminist Theories across the Disciplines, or WMST 640 Women and Global Issues may apply to elective requirement for students accepted into the accelerated master’s degree in interdisciplinary studies (MAIS) with a concentration in women and gender studies.

Individualized Concentration (IND)
With approval of the executive director, students may construct an individualized concentration.

Total Credits 30

Additional Electives
Any remaining credits may be completed with electives to bring the degree total to 120.

Accelerated Master's
The accelerated master's programs in the list below specify the BA in integrative studies as a feeder degree for their programs. It is important to note, however, that many accelerated master’s programs are available for any bachelor’s degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Integrative Studies, BA (Social Science for Education Concentration)/Curriculum and Instruction, Accelerated MEd (Secondary Education History and Social Science Concentration)

Overview
Highly-qualified Mason undergraduates may be admitted to the bachelor’s/accelerated master’s option and obtain both a BA in Integrative Studies (p. 574) (concentration in social science for education) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education history and social science) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the School of Integrative Studies (p. 564) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EDCI 567</td>
<td>3</td>
<td>EDCI 667</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

While undergraduate students, accelerated master's students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing
for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview
Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6

Integrative Studies, BS

Banner Code: LA-BS-INTS

Academic Advising
402 Enterprise Hall
Fairfax Campus
Email: sisinfo@gmu.edu
Website: integrative.gmu.edu/programs/la-bs-ints

The BS in Integrative Studies brings together research, theory and practice across numerous disciplines. Integrative studies majors select a multidisciplinary concentration or work with student services staff to develop their own concentration, uniquely suited to their academic and career goals. Integrative studies majors explore new topics and experiences while gaining the knowledge and skills needed to enter the workforce. Required coursework is offered in small classes with ample room for discussion, collaborative learning, and experiential learning, including in-community projects, volunteer opportunities, field work, internships and work with faculty on research that directly engages current social and global challenges.

The BS in Integrative Studies with a concentration in Applied Global Conservation is a Green Leaf Program (p. 102).

Admissions & Policies

Policies
Students must fulfill all Requirements for Bachelor’s Degrees (p. 84) including the Mason Core (p. 135). Integrative studies students may fulfill lower level Mason Core requirements through approved integrative studies (INTS) coursework. Students pursuing a BS in integrative studies must complete a minimum of 30 credits of (INTS) coursework, with at least 18 credits at the 300 and 400 levels. These 30 INTS credits fulfill the writing intensive and synthesis Mason Core requirements. In addition, students must complete ENGH 302 Advanced Composition (Mason Core) (p. 135). Students must have a minimum GPA of 2.00 in courses applied to the major. Before registering, students should see an advisor to help plan their degree program to meet Mason
requirements. The advisor also can help students choose electives or a minor.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 581) tab.

Before registering, students should see an advisor to help plan their degree program to meet Mason requirements. The advisor also can help students choose electives or a minor.

Concentrations in the Major

A concentration is the equivalent of a major in a traditional degree program. Students choose from an established multidisciplinary concentration below or create with faculty an individualized program of study to fit their interests and needs. Concentration coursework combines integrative studies (INTS) classes with coursework from other Mason units (departments, schools, and colleges). While fulfilling the concentration requirements, students are also responsible for completing a minimum of 30 credits of INTS coursework. Any INTS courses required for the concentration will apply. Students must present a minimum GPA of 2.00 in courses applied to the concentration.

Applied Global Conservation (AGCN)

Total credits: 41-45

Core Courses in Global Conservation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 210</td>
<td>Sustainable World</td>
<td>4</td>
</tr>
<tr>
<td>INTS 401</td>
<td>Conservation Biology</td>
<td>6</td>
</tr>
<tr>
<td>INTS 402</td>
<td>Plants and People - Sustenance,</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Ceremony, and Sustainability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or INTS 403</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conservation Behavior</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 16

Additional Global Environmental Course

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 370</td>
<td>Environment and Culture</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 400</td>
<td>Engaging the World: Anthropological Perspectives (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
<td></td>
</tr>
<tr>
<td>EVPP 436</td>
<td>The Human Dimensions of Global Climate Change</td>
<td></td>
</tr>
<tr>
<td>GGS 302</td>
<td>Global Environmental Hazards</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>SOCI 320</td>
<td>Social Structure and Globalization (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>or BIOL 312</td>
<td>Biostatistics for Bioinformatics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3-4

Additional Learning Community

In addition to the courses below, INTS 375 Special Topics, INTS 395 Field-Based Work, and INTS 398 Field-Based Work may be applied to the concentration when the topic is relevant to conservation studies.

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
<td>3-6</td>
</tr>
<tr>
<td>INTS 311</td>
<td>The Mysteries of Migration:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consequences for Conservation</td>
<td></td>
</tr>
<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
</tbody>
</table>

Natural Science and Policy

Students may complete this requirement through regular coursework or through either option of the Smithsonian-Mason Semester Program.

Regular Coursework

Three credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 390</td>
<td>International Internship</td>
<td>3</td>
</tr>
<tr>
<td>or INTS 395</td>
<td>Field-Based Work</td>
<td></td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Biodiversity</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 330</td>
<td>Biodiversity Lab and Recitation</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 377</td>
<td>Applied Ecology</td>
<td>3</td>
</tr>
<tr>
<td>or EVPP 361</td>
<td>Introduction to Environmental Policy</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 16

Smithsonian-Mason Semester Program

Students complete one of the options offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute. In this integrated series of courses, taken together in one semester, students live on site at the institute in Front Royal, VA. Students who apply this coursework to the concentration cannot also apply it to the minor in Conservation Studies.

Conservation, Biodiversity and Society Option (16 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 320</td>
<td>Conservation in Practice</td>
<td>3</td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td>4</td>
</tr>
<tr>
<td>CONS 410</td>
<td>Human Dimensions in Conservation</td>
<td>3</td>
</tr>
<tr>
<td>(Mason Core) (p. 135)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 16

Wildlife Ecology and Conservation Option (15 credits)

Offered only in Fall semesters, students complete four required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td>4</td>
</tr>
<tr>
<td>CONS 405</td>
<td>Landscape and Macrosystems Ecology</td>
<td></td>
</tr>
</tbody>
</table>
**Conservation Option (15 credits)**
Offered only in Spring semesters, students complete four required courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 406</td>
<td>Small Population Management</td>
<td>4</td>
</tr>
<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning</td>
<td>4</td>
</tr>
<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

**Life Sciences (LIFS)**
Students must complete one of the following emphases.

**Preoccupational Therapy Emphasis**

- One SOCI course: 3
- BIOL 124 Human Anatomy and Physiology: 4
- BIOL 125 Human Anatomy and Physiology: 4
- PHIL 151 Introduction to Ethics or PHIL 309 Bioethics (Mason Core): 3
- PSYC 100 Basic Concepts in Psychology (Mason Core): 3
- PSYC 211 Developmental Psychology (Mason Core): 3
- PSYC 325 Abnormal Psychology: 3
- STAT 250 Introductory Statistics I (Mason Core): 3

Select at least 6 credits of relevant upper division INTS coursework chosen with an advisor.

**Total Credits**: 32

**Premedical Emphasis**

- BIOL 213 Cell Structure and Function (Mason Core): 4
- BIOL 311 General Genetics: 4
- BIOL 483 General Biochemistry: 4
- CHEM 211 General Chemistry I (Mason Core): 4
- & CHEM 213 General Chemistry Laboratory I (Mason Core): 4
- CHEM 212 General Chemistry II (Mason Core): 4
- & CHEM 214 General Chemistry Laboratory II (Mason Core): 4
- CHEM 313 Organic Chemistry I: 3
- & CHEM 315 Organic Chemistry I Lab: 2
- CHEM 318 Organic Chemistry II: 2
- & CHEM 318 Organic Chemistry II Lab: 2
- CHEM 463 General Biochemistry I: 4
- CHEM 465 Biochemistry Lab: 2
- PHYS 103 Physics and Everyday Phenomena I (Mason Core): 4
- or PHYS 243 & PHYS 244 College Physics (Mason Core) and College Physics Lab (Mason Core): 4
- PHYS 104 Physics and Everyday Phenomena II (Mason Core): 4
- or PHYS 245 & PHYS 246 College Physics (Mason Core) and College Physics Lab (Mason Core): 4
- PHIL 151 Introduction to Ethics or PHIL 309 Bioethics (Mason Core): 3

**Total Credits**: 43

**Prepharmacy Emphasis**

- BIOL 103 Introductory Biology I (Mason Core): 4
- BIOL 213 Cell Structure and Function (Mason Core): 4
- CHEM 211 General Chemistry I (Mason Core): 4
- & CHEM 213 General Chemistry Laboratory I (Mason Core): 4
- CHEM 313 Organic Chemistry I: 3
- & CHEM 315 Organic Chemistry I Lab: 2
- CHEM 318 Organic Chemistry II: 2
- & CHEM 318 Organic Chemistry II Lab: 2
- MATH 110 Introductory Probability (Mason Core): 3-4
- or MATH 113 Analytic Geometry and Calculus I (Mason Core): 3-4
- MATH 111 Linear Mathematical Modeling (Mason Core): 3-4
- or MATH 114 Analytic Geometry and Calculus II: 3-4
- PHYS 243 College Physics (Mason Core): 4
- & PHYS 244 College Physics Lab (Mason Core): 4
- PHYS 245 College Physics (Mason Core): 4
- & PHYS 246 College Physics Lab (Mason Core): 4
- PHIL 151 Introduction to Ethics or PHIL 309 Bioethics (Mason Core): 3
- PSYC 100 Basic Concepts in Psychology (Mason Core): 3

**Total Credits**: 50-52
CHEM 318 Organic Chemistry Lab II 2
MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) 4
MATH 114 Analytic Geometry and Calculus II 4
PHIL 151 Introduction to Ethics 3
or PHIL 309 Bioethics (Mason Core) (p. 135)
PHYS 103 Physics and Everyday Phenomena I (Mason Core) (p. 135) 4
or PHYS 243 & PHYS 244 College Physics (Mason Core) (p. 135) and College Physics Lab (Mason Core) (p. 135)
PHYS 104 Physics and Everyday Phenomena II (Mason Core) (p. 135) 4
or PHYS 245 & PHYS 246 College Physics (Mason Core) (p. 135) and College Physics Lab (Mason Core) (p. 135)
STAT 250 Introductory Statistics I (Mason Core) (p. 135) 3
Total Credits 48

Prephysical Therapy Emphasis
BIOL 103 Introductory Biology I (Mason Core) (p. 135) 4
BIOL 124 Human Anatomy and Physiology 4
BIOL 125 Human Anatomy and Physiology 4
PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135) 3
STAT 250 Introductory Statistics I (Mason Core) (p. 135) 3
Total Credits 40

Individualized Concentration (IND)
With approval of the executive director, students may construct an individualized concentration. 30
Total Credits 30

Additional Electives
Any remaining credits may be completed with electives to bring the degree total to 120

Accelerated Master's
The accelerated master's program listed below specifies the BS in integrative studies as a feeder degree for its program. It is important to note, however, that many accelerated master's programs are available for any bachelor's degree at Mason, including this one. See the full list of master's degrees (http://catalog.gmu.edu/programs/#filter=filter_27&filter_24) with accelerated programs at George Mason.

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview
Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master's in interdisciplinary studies with a concentration in social justice and human...
rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

### Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

**Leadership Minor**

**Banner Code:** LSHP

**Academic Advising**

402 Enterprise Hall
Fairfax Campus

Website: integrative.gmu.edu/programs/la-minor-nc-lshp

This minor prepares students for transformative leadership in campus, local, national, and global contexts. Interdisciplinary and integrative classes examine leadership from multiple perspectives and disciplines, offering an understanding of socially-responsible leadership with an emphasis on community action. Through the required coursework and experiential learning, students critically examine diverse theories, research, and perspectives on leadership and are encouraged to explore topics such as social change and globalization, creative conflict resolution, the nature of power, oppression and influence, innovation, and systemic leadership. Civic engagement and multicultural competence are viewed as necessary requirements for leadership.

This minor is open to students in all academic programs, schools, and majors.

**Faculty**

Holder, Lennon, Lucas, Owen (director), Wagner

### Admissions & Policies

#### Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Requirements

#### Minor Requirements

Total credits: minimum of 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 585) tab.

#### Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 204</td>
<td>Leadership Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>INTS 404</td>
<td>Ethics and Leadership</td>
<td>3-6</td>
</tr>
<tr>
<td>or MLSC 400 &amp; MLSC 402</td>
<td>Leadership and Management and Leadership and Ethics</td>
<td>4</td>
</tr>
<tr>
<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>11-13</td>
</tr>
</tbody>
</table>

#### Electives

Select at least one course from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 309</td>
<td>Art as Social Action</td>
</tr>
<tr>
<td>AVT 370</td>
<td>Entrepreneurship in the Arts</td>
</tr>
<tr>
<td>CONF 300</td>
<td>Conflict Resolution Techniques and Practice</td>
</tr>
<tr>
<td>EDUC 303</td>
<td>Politics of American Education</td>
</tr>
<tr>
<td>EVPP 361</td>
<td>Introduction to Environmental Policy</td>
</tr>
<tr>
<td>FNAN 401</td>
<td>Advanced Financial Management</td>
</tr>
<tr>
<td>GOVT 430</td>
<td>Comparative Political Leadership</td>
</tr>
</tbody>
</table>
Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. This minor is not available to students majoring in AVT with a concentration in digital arts.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18-20

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 586) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 104</td>
<td>Two-Dimensional Design and Color (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>COMM 157</td>
<td>Digital Media Workshop</td>
<td>1</td>
</tr>
<tr>
<td>or INTS 195</td>
<td>Field-Based Work</td>
<td></td>
</tr>
<tr>
<td>AVT 180</td>
<td>New Media in the Creative Arts (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>or INTS 249</td>
<td>Digital Literacy</td>
<td></td>
</tr>
</tbody>
</table>

Electives

Select 9-11 credits from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 280</td>
<td>Introduction to New Media Arts</td>
</tr>
<tr>
<td>AVT 382</td>
<td>2D Experimental Animation</td>
</tr>
<tr>
<td>COMM 360</td>
<td>Digital Postproduction</td>
</tr>
<tr>
<td>COMM 435</td>
<td>Digital Communication</td>
</tr>
<tr>
<td>INTS 345</td>
<td>Introduction to Multimedia</td>
</tr>
<tr>
<td>ENGH 376</td>
<td>Rhetoric and New Media</td>
</tr>
<tr>
<td>ENGH 377</td>
<td>Digital Creative Writing</td>
</tr>
<tr>
<td>ENGH 497</td>
<td>Topics in Creative Writing</td>
</tr>
<tr>
<td>INTS 348</td>
<td>Digital Futures</td>
</tr>
<tr>
<td>INTS 445</td>
<td>Multimedia Design</td>
</tr>
</tbody>
</table>

Total Credits 9-11

1 No more than six credits can be taken in any one college or department.

Nonprofit Studies Minor

Banner Code: NPS

Academic Advising

402 Enterprise Hall
Fairfax Campus

Email: sisinfo@gmu.edu
Website: integrative.gmu.edu/programs/la-minor-ncc-nps

Faculty

Chung, Higgins, Lont, Martin, K. Scott, L. Smith (director), Weinberger, White

Multimedia Minor

Banner Code: MM

Academic Advising

402 Enterprise Hall
Fairfax Campus

Email: sisinfo@gmu.edu
Website: integrative.gmu.edu/programs/la-minor-nc-mm

In this minor, students learn how to create original work and communicate with others through the fusion of images, text, sound, and video. Students analyze and incorporate into their productions contemporary design principles and current software applications. As part of this process, students are encouraged to focus on how multimedia technologies, which offer new tools for investigating and disseminating ideas, can enhance undergraduate research and writing. These skills, now important in most academic disciplines, are also increasingly valuable not only in the specialized information technology industries, but also in business, education, and politics.

Faculty

Chung, Higgins, Lont, Martin, K. Scott, L. Smith (director), Weinberger, White

1 Other courses may be applied to this requirement with prior written approval of the director.
Nonprofit organizations significantly contribute to the provision of human services, access to the arts, education, recreation and health care, and protection of the environment. Effective nonprofit organizations provide direct services, influence public policy and build a civil society. The minor is designed to introduce students to the theoretical foundations and practical skills needed to be successful in this sector. Through heavy emphasis on experiential learning with the many excellent nonprofit organizations in our region, students learn to apply theory within the context of today's complex and rapidly changing environment.

Faculty
Andere, Johnson, Unruh

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 587) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td>4</td>
</tr>
<tr>
<td>INTS 431</td>
<td>Principles of Fund Raising</td>
<td>4</td>
</tr>
</tbody>
</table>

Select one course (3-4 credits) from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 389</td>
<td>Public Relations for Associations and Nonprofits</td>
<td>3-4</td>
</tr>
<tr>
<td>GOVT 358</td>
<td>Nonprofit Financial Planning</td>
<td>3-4</td>
</tr>
<tr>
<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Total Credits 11-12

Electives

Select 3-4 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 370</td>
<td>Entrepreneurship in the Arts</td>
<td>3-4</td>
</tr>
<tr>
<td>COMM 335</td>
<td>Organizational Communication</td>
<td>3-4</td>
</tr>
<tr>
<td>COMM 389</td>
<td>Public Relations for Associations and Nonprofits (if not taken as required course)</td>
<td>3-4</td>
</tr>
<tr>
<td>CONF 101</td>
<td>Conflict and Our World (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>CONF 300</td>
<td>Conflict Resolution Techniques and Practice</td>
<td>3-4</td>
</tr>
<tr>
<td>ECON 309</td>
<td>Economic Problems and Public Policies (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>GOVT 358</td>
<td>Nonprofit Financial Planning</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Total Credits 3-4

1 These courses are approved by the School of Integrative Studies to earn experiential learning credits.

Social Justice Minor

Banner Code: SOCJ

Academic Advising
402 Enterprise Hall
Fairfax Campus
Email: sisinfo@gmu.edu
Website: integrative.gmu.edu/programs/la-minor-ncc-socj

The minor engages students in both a critical examination of various forms of injustice (such as poverty, racism, and speciesism, and environmental degradation) and an exploration of strategies for creating and sustaining an equitable and just world. The minor is interdisciplinary in nature, drawing on disciplines as distinct as critical race studies, critical animal studies, and environmental science. It is designed particularly to help students consider the intersectional nature of all types of exploitation and their related movements for liberation.
## Admissions & Policies

### Policies

Eight credits of coursework must be unique to the minor and students must complete all coursework with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

## Requirements

### Minor Requirements

Total credits: 15 (minimum)

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 588) tab.

### Core Courses

**Social Justice**

Select two courses from the following: 6-7

- INTS 337 Social Justice Consciousness and Personal Transformation
- INTS 362 Social Justice and Human Rights
- INTS 436 Social Justice Education

**Environmental or Ecological Justice**

Select one course from the following: 3-6

- INTS 334 Environmental Justice
- INTS 338 Animal Rights and Humane Education
- INTS 402 Plants and People - Sustenance, Ceremony, and Sustainability

**Activism and Advocacy**

Select one course from the following: 3-4

- INTS 304 Social Movements and Community Activism
- INTS 336 Poverty, Wealth and Inequality in the US
- INTS 416 Art as Social Action
- INTS 416 Refugee and Internal Displacement

Total Credits 12-17

### Electives

Select one course from the following that is not being applied to the core requirement: 3-6

- CONF 394 Human Rights and Inequality
- EDUC 301 Educationally Diverse Populations: Handicapped, Gifted, Multicultural
- GOVT 445 Human Rights
- HIST 337 Race and Gender in American Sports
- INTS 101 Narratives of Identity
- INTS 210 Sustainable World
- INTS 300 Law and Justice
- INTS 304 Social Movements and Community Activism
- INTS 310 Violence and Gender
- INTS 336 Poverty, Wealth and Inequality in the US
- INTS 346 Art as Social Action

### Well-Being Minor

**Banner Code: WELB**

**Academic Advising**

402 Enterprise Hall
Fairfax Campus

Email: sisinfo@gmu.edu
Website: integrative.gmu.edu/programs/la-minor-nc-cntr

The minor provides students with a well-grounded understanding of the nature of human consciousness, including both the historical foundations and modern research findings. Through the required coursework, students develop an ability to implement personal practices that foster deeper self-awareness, the regulation of stress factors in his or her life, and an emerging sense of meaning for his or her life. Students will learn to creatively and effectively apply principles from the exploration of consciousness and transformation to his or her own field of study.

**Faculty**

Fuertes, Guenther, Thurston
Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor and students must earn a minimum grade of 2.00 in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 589) tab.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 355</td>
<td>Mindfullness, Meaning Well-Being</td>
<td>3</td>
</tr>
<tr>
<td>GCH 325</td>
<td>Stress and Well-Being (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Electives

Select two to three courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 304</td>
<td>Foundations of Health Communication</td>
</tr>
<tr>
<td>COMM 305</td>
<td>Foundations of Intercultural Communication (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>COMM 334</td>
<td>Family and Health Communication</td>
</tr>
<tr>
<td>GCH 310</td>
<td>Health Behavior Theories</td>
</tr>
<tr>
<td>GCH 332</td>
<td>Health and Disease</td>
</tr>
<tr>
<td>GCH 350</td>
<td>Health Promotion and Education</td>
</tr>
<tr>
<td>GCH 360</td>
<td>Health and Environment</td>
</tr>
<tr>
<td>GCH 445</td>
<td>Social Determinants of Health or SOCW 445 Social Determinants of Health</td>
</tr>
<tr>
<td>HEAL 351</td>
<td>Relationship Health</td>
</tr>
<tr>
<td>HEAL 372</td>
<td>Health Communication</td>
</tr>
<tr>
<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
</tr>
<tr>
<td>INTS 314</td>
<td>Conflict, Trauma and Healing</td>
</tr>
<tr>
<td>INTS 315</td>
<td>Spirituality and Conflict Transformation</td>
</tr>
<tr>
<td>INTS 337</td>
<td>Social Justice Consciousness and Personal Transformation</td>
</tr>
<tr>
<td>INTS 455</td>
<td>Consciousness and Transformation in Action</td>
</tr>
<tr>
<td>MUSI 455</td>
<td>Music as a Healing Art</td>
</tr>
<tr>
<td>MUSI 477</td>
<td>Music and Consciousness</td>
</tr>
<tr>
<td>PHIL 251</td>
<td>Happiness and the Good Life</td>
</tr>
<tr>
<td>PRLS 300</td>
<td>People with Nature</td>
</tr>
<tr>
<td>PSYC 408</td>
<td>Psychological Fitness</td>
</tr>
<tr>
<td>PSYC 417</td>
<td>Science of Well Being</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
</tr>
<tr>
<td>RELI 341</td>
<td>Global Perspectives on Spirituality and Healing (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 9

Smithsonian-Mason School of Conservation

Smithsonian Conservation Biology Institute

1500 Remount Road
Front Royal, VA 22630

Phone: 540-635-0115 (direct)
Website: smconservation.gmu.edu

The Smithsonian Institution and George Mason University partnered to establish the Smithsonian-Mason School of Conservation (SMSC) to provide innovative education for current and future generations of global conservation professionals, leaders, and practitioners. Already the SMSC has established itself as a benchmark for innovative education, as instruction focuses on analytical and practical skill building to address the changing threats to and opportunities for conserving biodiversity. The SMSC engages undergraduates, graduate students and professionals from around the world in a range of compelling programs in conservation biology focused on developing the knowledge and implementing the practices required to address some of the greatest threats to biodiversity facing society today.

SMSC’s programs, co-developed and co-taught by SCBI researchers and Mason faculty, are delivered at SCBI’s 3200-acre facility along the Blue Ridge in Front Royal, Virginia, one of the premier conservation research facilities in the world, housing innovative research on some of the rarest species on earth. Students live and learn with prominent research scientists, educators, and conservation practitioners. The undergraduate program provides an innovative semester immersion approach to conservation studies in a learning community framework taking advantage of proximity to SCBI’s scientists, laboratories, and charismatic fauna. Graduate programs are based on a one - two week intensive residential course format for geared to working professionals with the opportunity to gain a graduate certificate from multiple courses and a path to graduate degrees.

Undergraduate Program

The Smithsonian-Mason Semester offers undergraduate programs in which students can earn a Conservation Studies Minor (CHSS), or apply credits to certain Mason degrees. There are currently three programs: “Conservation, Biodiversity and Society” (16 credits), and “Wildlife Ecology and Conservation” (15 credits), and “Endangered Species Conservation” (15 credits). See the Programs of Study section of this catalog for details on the minor and the Courses section for details on the courses (select the course prefix CONS). Grounded in natural science, this interdisciplinary semester brings public policy, sociology, conflict resolution, and global awareness to the learning environment. Students majoring in the Integrative Studies, BS, Biology, BS, Environmental Science, BS, Environmental and Sustainability Studies, BA (CHSS), Applied Science, BAS, and Global Affairs, BA can fulfill major requirements and/or Mason Core requirements with Smithsonian-Mason Semester (CONS) credits subject to college approval.
Graduate Program
Smithsonian-Mason School of Conservation graduate courses offer in-depth explorations of advanced and highly specialized topics in applied conservation studies. Courses cover a diverse selection of topics focusing on biodiversity conservation, ranging from adaptive management to statistics in ecology and conservation, to non-invasive genetic techniques. All current courses take place as intensive one or two-week sessions and participants are in residence on the SMSC grounds in Front Royal, VA.

Although the Smithsonian-Mason School of Conservation does not presently offer a graduate degree, coursework may be applied to George Mason University’s Environmental Science and Policy, MS concentration in Conservation Science and Policy. In many cases, graduate students will have the unique opportunity to learn alongside conservation professionals currently working in the field. The unparalleled resources at the facilities draw researchers and practitioners from around the world, and this offers a rare opportunity for students and professionals to interact to mutual benefit in a hands-on situation and to receive informal mentoring from experienced practitioners.

Faculty

Administration
Cody Edwards, Associate Provost, Graduate Education and Executive Director
Anastasia Triplett, Business Manager
Lisa Des Jardins, Academic Program Advisor, Smithsonian-Mason Semester
Carol Hoskins, Program Assistant
Erin Brandt, Accommodations/Community Director

Faculty
Professors
Jones, Lovejoy

Associate Professors
Aguirre, Balint, Birchard, Gabel, Jonas, Parsons, Wingfield, Wood

Term Associate Professors
Sklarew

Term Assistant Professor
DeLuycker, Freeman, Lessard-Pilon, Luther, McNeil

Affiliate Faculty
Akre, Alonso, Brown, Buff, Christen, Dallmeier, Kolowski, Leimgruber, McShea, Monfort, Pukazhentheli

Programs
• Applied Conservation Science Graduate Certificate

Applied Conservation Science Graduate Certificate
Banner Code: LA-CERG-ACNS

Academic Advising
1500 Remount Road
Front Royal, VA 22630
Email: scbitraining@si.edu
Website: smconservation.gmu.edu

The graduate certificate in applied conservation science provides students with hands-on education in conservation science. The courses in this program are all residential, full-day, one- or two-week intensive courses held at the Smithsonian Mason School of Conservation in Front Royal, Virginia. This certificate is designed for early to mid-career conservation professionals working in government, non-governmental organizations, and research institutions worldwide.

Students acquire essential skills in conservation research and practice while developing a crucial understanding of the principles and philosophies underlying effective conservation and biodiversity programs. They learn how to apply analysis techniques and tools to address those questions and evaluate conservation outcomes.

Upon completion of the certificate, students will have developed practical and analytical skills applicable to a wide range of programs in applied conservation science research, policy, and practice – from single-species protection and landscape-level restoration and management to community conservation initiatives and human-wildlife conflict mitigation.

The graduate certificate in applied conservation science may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in applied conservation science, see Application Requirements and Deadlines (http://chss.gmu.edu/programs/LA-CERG-ACNS/application).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates.

Requirements

Certificate Requirements
Total credits: 15
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Core Courses
CONS 620 Spatial Ecology, Geospatial Analysis
Remote Sensing for Conservation 3
CONS 625  Statistics for Ecology and Conservation Biology  3

Total Credits  6

Human Dimensions
Select one course from the following:  3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 640</td>
<td>Adaptive Management for Conservation Success</td>
</tr>
<tr>
<td>CONS 660</td>
<td>Effective Conservation Leadership</td>
</tr>
<tr>
<td>CONS 665</td>
<td>Conservation Conflict Resolution</td>
</tr>
<tr>
<td>CONS 697</td>
<td>Special Topics in Conservation</td>
</tr>
</tbody>
</table>

Total Credits  3

Electives
Select 6 credits from the following:  6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 630</td>
<td>Species Monitoring Conservation</td>
</tr>
<tr>
<td>CONS 635</td>
<td>Non-Invasive Genetic Techniques in Wildlife Conservation</td>
</tr>
<tr>
<td>CONS 640</td>
<td>Adaptive Management for Conservation Success</td>
</tr>
<tr>
<td>CONS 660</td>
<td>Effective Conservation Leadership</td>
</tr>
<tr>
<td>CONS 665</td>
<td>Conservation Conflict Resolution</td>
</tr>
<tr>
<td>CONS 697</td>
<td>Special Topics in Conservation</td>
</tr>
</tbody>
</table>

Total Credits  6

1 May be repeated for credit when topics are different.
2 If not used to fulfill human dimensions requirement

Women and Gender Studies Program
Phone: 703-993-2896
Website: wmst.gmu.edu

By choosing to pursue work in women and gender studies, students at all levels engage in an interdisciplinary exploration of gender in social, political, cultural, and economic life; gender in history; women and the media; feminist theory; the relationship between sex and gender; the impact of sex, race, class, disability, and sexual orientation on people’s lives; and the ways in which gender stereotypes influence the self in relationship to others. Students in many courses have the opportunity to investigate these issues in a cross-cultural and global perspective.

Undergraduate Programs
The Women and Gender Studies Program offers an interdisciplinary minor open to students from any major. Students have the opportunity to earn credit toward the minor while doing an internship that helps prepare them for the work place, a service learning course that combines work in a specific course with a service project, or research on gender issues on Mason’s campus. Students pursuing this minor can take advantage of the many activities and resources provided by the Women and Gender Studies Center.

The program also sponsors the concentration in women and gender studies in the BA in integrative studies (p. 574).

Graduate Programs
The program sponsors the concentration in women and gender studies in the master’s degree in interdisciplinary studies (p. 534) (MAIS).

This concentration promotes advanced scholarship that transcends traditional boundaries. Students combine required coursework in women and gender studies with courses in a discipline of interest such as history, literature, sociology, anthropology, health, education, philosophy, social work, conflict analysis and resolution, or the arts.

The program also offers a graduate certificate in women and gender studies (p. 591). Students may take this as a stand-alone certificate or pursue it concurrently with any graduate degree program. A portion of the certificate coursework may be applied to the degree with the approval of the director of the graduate degree and dean. Students must apply and be accepted to a graduate certificate program.

Women and Gender Studies Center
The academic program in women and gender studies is integrated with the Women and Gender Studies Center. The center organizes a wide variety of lectures, conferences, workshops, and other public events throughout the year. The center houses a library and functions as a community space for students and faculty.

Faculty

Program Faculty
Amireh, Baily, Baker, Beach, Bergoffen, Best, Burt, Carbonneau, Cattaneo, Censer, Cheldelin, Chen, Cherubin, Chollar, Christensen, Constantine, Copelman, Davidson, Dakake, Davis, Deshmukh, Dunne, Eby, Eckenwiler, Feerick, Garner, Gilbert, Gorski, Hammadi, Hanrahan, Harvey, Hattery, Hirsch, Hodges, Hughes, Jadallah, Jenkins, Johnsen-Neshati, Jordan, Jones, Kaplan, Karametou, King, Kirsch, Koch, Kravitz, Letiecq, Lewis, Lindley, Lockwood, Masters, McNeely, Michals, Mink, Misencik, Muir, Pascarell, Peters, Regan, Ricouart, Rosenblum, Rosenberger, Sandell, Sandoles-Staroste, Schwartzstein, Scott-Constantine, Seligmam, Stearns, Tichy, Travis, Vivancos Perez, Wagner

Programs
- Women and Gender Studies Graduate Certificate
- Women and Gender Studies Minor

Women and Gender Studies Graduate Certificate
Banner Code: LA-CERG-WGST

Academic Advising
240K Johnson Center
Fairfax Campus
Email: wmst@gmu.edu
Website: wmst.gmu.edu/programs/la-cerg-wgst/

The graduate certificate may be taken alone or in conjunction with another graduate program. Courses applied to the certificate may be applied to a degree program, subject to approval of the director of the respective program.

The graduate certificate may be pursued on a part-time or full-time basis.
**Admissions**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the graduate certificate in women and gender studies, see Application Requirements and Deadlines (http://wmst.gmu.edu/programs/LA-CERG-WGST/application).

**Policies**

In accordance with university policy, students may transfer up to 3 graduate credits earned at another accredited institution to the certificate program with the approval of the director of the program and the dean. They may transfer up to 9 graduate credits earned at Mason in nondegree status toward the certificate, subject to approval of the director and the dean in accordance with university policy.

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

**Certificate Requirements**

Total credits: 15

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 592) tab.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td>3</td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

**Electives**

Select three electives ¹

<table>
<thead>
<tr>
<th>Elective</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

¹ Students choose from relevant courses subject to the approval of the director. These courses may be from departments across the university that address the study of women and gender, courses in the Women and Gender Studies Program, and appropriate directed readings or independent study courses.

**Capstone Portfolio**

Students synthesize their work in the certificate program by reflecting on how issues, ideas, and theories raised in the core courses inform their understanding of gender issues within their area of interest. The portfolio includes three to five items produced in previous course work and a 7-10 page essay discussing them. The portfolio may include course papers, performance videos, photos of exhibits, music, or other items as agreed on by the student and advisor. The portfolio must be approved by the graduate advisor and submitted to the Women and Gender Studies Program, where it will be presented, displayed, and archived.

**Requirements**

**Minor Requirements**

Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 592) tab.

**Core Courses**

**Introductory Course**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 200</td>
<td>Introduction to Women and Gender Studies (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or WMST 308</td>
<td>Introduction to Lesbian, Gay, Bisexual, Transgender, Transsexual, and Queer Studies</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

**Theory Course**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 330</td>
<td>Theoretical Perspectives in Women and Gender Studies</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

**Electives**

Select one WMST course (p. 2027) ³

Select 9 credits of additional elective courses from the following ¹

<table>
<thead>
<tr>
<th>Elective</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any WMST course (p. 2027)</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>CHIN 328</td>
<td>Asian American Women Writers (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>HEAL 325</td>
<td>Health Aspects of Human Sexuality</td>
</tr>
<tr>
<td>HEAL 327</td>
<td>Women's Health</td>
</tr>
<tr>
<td>HIST 350</td>
<td>U.S. Women's History</td>
</tr>
<tr>
<td>PSYC 362</td>
<td>Psychology of Gender</td>
</tr>
<tr>
<td>PSYC 466</td>
<td>Psychology of Intimate Relationships</td>
</tr>
<tr>
<td>INTS 310</td>
<td>Violence and Gender</td>
</tr>
<tr>
<td>INTS 312</td>
<td>Images and Experiences of Childhood: Social Construct, Literature, and Film</td>
</tr>
<tr>
<td>INTS 317</td>
<td>Issues in Family Relationships</td>
</tr>
<tr>
<td>INTS 320</td>
<td>Construction of Differences: Race, Class, and Gender</td>
</tr>
<tr>
<td>INTS 346</td>
<td>Art as Social Action</td>
</tr>
<tr>
<td>INTS 347</td>
<td>Gender Representation in Popular Culture</td>
</tr>
<tr>
<td>INTS 400</td>
<td>Temptress: Constructs of Sex and Power</td>
</tr>
<tr>
<td>INTS 405</td>
<td>Women and Leadership</td>
</tr>
<tr>
<td>INTS 446</td>
<td>Art, Beauty, and Culture</td>
</tr>
<tr>
<td>SOCI 309</td>
<td>Marriage, Families, and Intimate Life</td>
</tr>
<tr>
<td>SOCI 315</td>
<td>Contemporary Gender Relations</td>
</tr>
<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits: 12

1 Note: for students who choose a focus on LGBTQ, two of the four electives must be approved for that focus by the undergraduate advisor.

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## College of Science

Exploratory Hall, Room 3200  
Fairfax Campus  
MSN: 5C3

Undergraduate: ugradCOS@gmu.edu  
Graduate: COSgrad@gmu.edu

Phone: 703-993-3622  
Fax: 703-993-1993

Website: cos.gmu.edu

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## Administration

- Peggy Agouris, Dean
- Ali Andalibi, Associate Dean for Research
- Donna M. Fox, Associate Dean for Student Affairs and Special Programs
- Martha Wescoat-Andes, Associate Dean for Administration

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## College Code: SC

The College of Science (COS) serves as the nexus for research and education in the natural, mathematical, and computational sciences at George Mason University. The central mission of COS is to create and disseminate scientific knowledge, provide outstanding scholarship in concert with excellent teaching, and develop the human and technical resources required to address the current and future needs of society. Through its innovative and multifaceted educational and research mission, COS offers exciting opportunities to undergraduate and graduate students, scientists, educators, and other professionals in Northern Virginia and the national capital region.

In addition to the wide variety of undergraduate degree programs offered by its departments, COS also offers many innovative graduate degrees and interdisciplinary minors. The research strength of COS provides an essential resource to graduate and undergraduate students whose involvement in research is strongly encouraged. Many undergraduates go on to graduate school and to pursue careers in public service, nonprofit organizations, and the private sector. Graduate students engage in more specialized study at the master's and doctoral levels, preparing them for first or second careers or job advancement and providing personal enrichment.

Faculty members are committed to teaching grounded in scholarship and research. They strive to make students rigorous thinkers and clear communicators while encouraging experimentation with new approaches and ideas. Students are thus prepared for their role as informed citizens in a complex, global society and are able to adapt to an ever-changing world.

### Requirements & Policies

#### College Policies

Students in COS are governed by the policies and procedures of the university. Areas where the college provides additional guidance will be found in the Undergraduate Education and Graduate Education sections below.

#### Accommodations for Disabled Students

Students with documented disabilities should contact the Office of Disability Services (http://ods.gmu.edu) (703-993-2474) to learn more about accommodations that may be available to them.

#### Undergraduate Education

The college offers numerous Bachelor of Arts and Bachelor of Science degrees. These undergraduate degrees consist of coursework in the Mason Core (p. 135), in a major area of study, and in elective courses. To earn a bachelor’s degree, students must at a minimum:

- Complete 120 credits, of which at least 45 must be in upper-level courses (numbered 300 and above).
- Complete at least one course designated as "writing intensive" (at the 300 or 400-level).
- All entering students who have not yet satisfied the Mason Core (p. 135) requirement in ‘Quantitative Reasoning’ are required to take the Math Placement Test (http://math.gmu.edu/placement_test.php) prior to enrollment.
- Students should also consult AP.5 Undergraduate Policies (p. 84) for information concerning university-wide requirements for undergraduate degrees.

All students are responsible for meeting with their academic advisor and reviewing their transcripts and degree audits regularly to ensure that they are correct and meet all requirements. Transfer students are encouraged to meet with their academic advisor prior to registering for classes in order to review their transcripts and course equivalencies. In some cases, students may need to earn more than 120 credits to complete all of the requirements.
More information regarding the undergraduate programs administered by COS is available on the college's website (http://cos.gmu.edu).

**College-level Degree Requirements**

The baccalaureate degree is designed to provide a broad knowledge of the world, develop in students the ability to think conceptually and critically, acquaint them with many different methods of inquiry, and provide skills to continue intellectual growth throughout life.

**Bachelor of Arts**

The Bachelor of Arts (BA) degree provides students with a breadth of knowledge as well as the necessary skills to make in-depth study of a major truly meaningful. In addition to the Requirements for Bachelor's Degrees (p. 85) and the Mason Core (p. 135), students pursuing a BA degree must also complete the College Requirements for the BA Degree, and the degree program's requirements, both listed in the specific degree program's page.

**Bachelor of Science**

The Bachelor of Science (BS) degree provides students with a more intensive approach to the technical core knowledge and concepts in their major field of study. Therefore, this curriculum has a reduced number of courses in humanities and social sciences in comparison with the BA degree in order to allow students to achieve greater depth in their majors. Students pursuing a BS degree must complete the Requirements for Bachelor's Degrees (p. 85), including the Mason Core (p. 135), and the requirements for their major. Requirements for each BS major are listed on the specific degree program's page.

**Minors**

Students may elect to take a minor in addition to their major field of study. For policies governing all minors, see AP.5.3.4 Minors (p. 86). Students interested in earning a minor should complete the Minor Declaration form (http://registrar.gmu.edu/forms).

**Teacher Licensure**

Degree programs that help to prepare students for teaching careers are available in the following COS programs:

- Biology, BA (p. 619)
- Biology, BS (p. 624)
- Chemistry, BA (p. 638)
- Chemistry, BS (p. 643)
- Earth Science, BS (p. 604)
- Mathematics, BA (p. 711)
- Mathematics, BS (p. 716)
- Physics, BS (p. 731)

Students who wish to become teachers and who plan to seek teacher licensure should also consult the College of Education and Human Development (p. 154) and attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education's website (http://gse.gmu.edu).

**Undergraduate Policies**

Students should become familiar with the university's general academic policies in addition to those specific to each department. Please see AP.5 Undergraduate Policies (p. 84).

Students with questions regarding exceptions to undergraduate academic policies and college-level requirements should contact the college's Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us) (email: ugradCOS@gmu.edu). Additional information and forms are available online from the college’s Undergraduate Student Affairs (http://cosundergrad.gmu.edu) webpage.

**Registration**

Students are personally responsible for correctly registering for courses and paying all tuition and fees by the official university registration and payment deadlines. Instructors do not have the authority to add students to courses. All students should verify the accuracy of their enrollment before the end of the official add period. Calendars are available on the Office of the University Registrar's website (http://registrar.gmu.edu/calendars).

**Academic Load**

Students should review the university policies regarding academic load in AP.1.2 Academic Load (p. 74).

In order to be considered for an overload, students must fulfill all of the following criteria:

- Be in good academic standing,
- Have completed the prior semester with a GPA of 2.75 or higher,
- Have a cumulative GPA of 2.75 or higher,
- No grades of 'C-' or lower in the previous semester,
- Have demonstrated in prior semesters at George Mason the ability to handle an increased and demanding course load while maintaining high performance, and
- Have no remaining incompletes (IN) from a previous semester

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at Mason.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition and fees by the official university deadlines. Calendars are available on the Office of the University Registrar's website (http://registrar.gmu.edu/calendars).

**Excluded Courses**

COS students are limited to 2 credits of coursework in Physical Education (PHED) (p. 1825); Parks, Recreation, and Leisure Studies (PRLS) (p. 1811); and Recreation (RECR) (p. 1893) activity courses toward a COS degree.

Military Science courses MLSC 400 Leadership and Management and MLSC 402 Leadership and Ethics can be used for credit towards a COS degree, but credit from other MLSC courses may not be applied toward COS degrees.

Once matriculated at Mason, students may not take CLEP exams and apply credits from those exams toward COS degrees. Students may apply credits from CLEP exams to COS degrees only if those credits were awarded and reported prior to admission.

**University Consortium Registration**

Students should review the university policies in AP.1.4 Special Registration Procedures (p. 74), including the University Consortium listing.

In addition, students who have failed a course at Mason are not permitted to take the equivalent course through the consortium under any
Withdrawals require the approval of the college’s associate dean for student affairs, who makes the final determination. The decision of the associate dean is not subject to review or further appeal.

In order to make this request, students should:

• Submit their request within 12 months of the first day of the re-enrollment term,
• Provide a detailed explanation for why they were unsuccessful in those courses and how they have made changes to ensure their academic progress upon their return,
• Enroll in at least 6 hours during their first 12 months back at Mason and
• Earn a minimum GPA of 2.50 each semester back prior to making the clemency request, with no grade below 2.00.

If these minimum academic requirements are not met during the first semester of return, then clemency will not be allowed under any circumstances.

Apologies Process
Students may appeal departmental decisions concerning academic actions to COS Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). They may further appeal the decisions of COS Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us) to the Dean’s Council, a committee composed of college deans and faculty members. These levels of appeal are subject to the limits below concerning the final level of appeal for each type of academic action. Students who feel that the college appeal process was conducted unfairly may appeal to the Office of the Provost as specified in Student Rights and Responsibilities (p. 96).

Grade appeals should first be made to the department or program, following the process specified in AP.3.9 Grade Appeals (p. 82). If they are resolved within the department or program, that is the final level of appeal. The departmental decision may be appealed to the college’s associate dean for student affairs only on the basis of procedural irregularity. Such appeals should be made through the COS Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). If the grade appeal is not resolved within the department or program, the chair makes a recommendation to the college’s associate dean for student affairs, who makes the final determination. The decision of the associate dean is not subject to review or further appeal.
Departments set the requirements for the majors and minors that they administer. Substitutions and waivers of requirements require the approval of COS Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). When a department denies a substitution or waiver of a requirement, this decision may be appealed to the COS Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us) on the basis of procedural irregularity only, and is the final level of approval.

The Dean’s Council is the final level of appeal for course overloads, consortium registration, study elsewhere, and withdrawals after the drop deadline within the semester.

The college’s associate dean for student affairs is the final level of appeal for COS college-level requirements, retroactive adds, withdrawals, graduation, and return from suspension and dismissal.

There is no waiver or appeal of satisfactory performance standards (minimum grades or grade point average, GPA) that have been set by the department or program faculty for the courses in their major or minor.

Students should file all appeals in a timely manner, usually within the semester in which the original decision is rendered, but no later than the final day of classes in the following semester.

Grievances
Grievances should be directed in writing to the college’s associate dean for student affairs. The COS Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us) may also provide guidance to students on how to resolve their concerns.

Transfer Students
Admitted and enrolled transfer students who have completed an AA, AS, or AA&S degree from the Virginia Community College System (VCCS) and have been offered admission to Mason by the Office of Admissions (https://www2.gmu.edu/admissions-aid) may be eligible for a waiver of all of Mason’s lower level Mason Core (p. 135) requirements in accordance with the Guaranteed Admission Agreement. Students eligible for this waiver are still required by the university to complete ENGH 302 Advanced Composition (Mason Core) (p. 135) and a synthesis course. Transfer students who have been offered admission under the terms of the Guaranteed Admission Agreement and are pursuing a degree in the college are considered to have met all college requirements except for proficiency in a foreign language (required of BA students).

Students with a bachelor’s degree from an accredited institution who are pursuing a BA degree in COS are also considered to have met all college requirements except for proficiency in a foreign language.

Graduate Education
COS offers numerous graduate certificates, master’s programs, and doctoral programs; the requirements for each can be found in the program’s description in this catalog. More information regarding the college’s graduate programs is available on the college’s website (https://cos.gmu.edu/academics/graduate-academics).

Graduate Admission
Admissions decisions are made by the faculty committee in the respective graduate program. Denial of admission is not subject to appeal. Further information can be found in Graduate Admission Policies (p. 66).

Provisional Admission
Provisionally admitted students are not eligible to participate in any consortium coursework, studying at another institution, or study abroad programs until the conditions of the provisional contract have been met. Transfer of credit requests for coursework taken in non-degree status at Mason or another institution will not be considered until the provisional contact has been fulfilled. Further information on provisional admission can be found in Graduate Admissions Policies (p. 66).

Non-degree Enrollment
COS gladly admits qualified students for non-degree studies. Some of the factors that are considered by COS while making non-degree admissions decisions include: previous academic performance, professional experience, and academic fit. To apply, applicants are to complete the non-degree George Mason University Graduate Application (https://www2.gmu.edu/admissions-aid) and provide official transcripts from all institutions attended. Further information can be found in Non-degree Enrollment (p. 71) and on the Office of Admissions’ website (http://admissions.gmu.edu/nonDegree).

Upon admission to graduate non-degree studies, students are considered graduate students and are charged tuition accordingly (regardless of the course’s level). COS permits up to 12 credits of relevant graduate coursework earned in non-degree status to be considered for transfer into many of its graduate programs.

Reduction of Credits
Students accepted into a master’s or doctoral program who have earned a degree in a relevant field from a regionally accredited institution may be eligible for a credit reduction. Students must request a reduction of credit from the graduate program director of their graduate program; reductions must be approved by both the graduate program director and the college’s associate dean for student affairs. Further details and related restrictions can be found in AP.6.5.2 Reduction of Credits (p. 88).

Transfer of Credit
Graduate credit earned prior to admission may be eligible to apply towards a graduate certificate or degree program. Details and related restrictions can be found in AP.6.5.3 Transfer of Credit (p. 88). Additionally, courses with grades of ‘P’ or ‘S’ are not accepted for transfer unless the official transcript indicates that the grade is equivalent to a 3.00 (‘B’) or better. Some programs have more stringent standards regarding a transfer of credit; students should contact their graduate program for specific information.

Credit from Other Institutions (Permission to Study Elsewhere)
Students enrolled in a degree program may take graduate courses at another regionally accredited institution and apply these credits to a master’s or doctoral degree with prior approval. Details and related restrictions can be found in AP.6.5.4 Permission to Study Elsewhere (p. 89). Students enrolling in courses at other institutions with different drop/add timetables must still abide by Mason’s drop/add deadlines in terms of acquiring necessary approvals.

Academic Load
Graduate students can enroll in up to 12 credits each semester; non-degree graduate students can enroll in up to 10 credits each semester. Students should review the university’s policies in AP.1.2 Academic Load (p. 74).
University Consortium

Students should review university policies regarding the University Consortium under AP 1.4.9 University Consortium (p. 77).

In addition, in order to register for a consortium course, students must have an overall GPA of at least 3.00 and be in good academic standing. Students with grades of ‘IN’ on their record or who earned grades of ‘C’ or ‘F’ in the most recent semester are not eligible to register for a consortium course. Students who have received a grade less than 3.00 in a consortium course are not permitted to enroll in additional consortium courses. Newly admitted graduate students are not permitted to enroll in consortium courses during their first semester of graduate study. Students who wish to enroll in consortium courses during their second semester of study must wait until the grades for the previous semester have been posted.

Dissertation Committee

The college follows university policies regarding dissertation committees. Please see AP 6.10.5 Dissertation Committee (p. 93). Please note that some programs within COS may have a more stringent policy.

Dissertation (998/999) Registration

Most programs within the college follow university policies regarding dissertation registration. Please see AP 6.10.6 Dissertation Registration (998, 999) (p. 93). Some departments may require additional requirements.

Time Limit for Doctoral Students

The college follows university policies regarding doctoral time limits. Please see AP 6.10.1 Time Limit (p. 93). If your catalog term was before this current catalog, please visit the archived catalogs page (http://catalog.gmu.edu/archives) and find your catalog term’s policy on time limits.

Requests for extension of time limits must be submitted in writing to the college’s associate dean for student affairs. The request should explain the extenuating circumstances that prevented timely completion of the degree, corrective action that has been taken to address those circumstances, and a time line for completing the work within the limits of the extension. The request should include a letter from the student’s graduate program director indicating the program’s support for the extension and confirmation that the work can be completed within the limits of the extension.

Graduate Appeals of Termination

All graduate students should be familiar with the university’s polices on termination; please see AP 6.6.2 Academic Termination (p. 89). Students who meet the criteria for academic termination may submit a written appeal to the college’s associate dean for student affairs. Appeals should include all relevant information on the basis for appeal, as well as any appropriate documentation and a letter of support from the graduate program.

Appeals of termination are reviewed by the college’s associate dean for student affairs with input from appropriate faculty within the student’s department. The ruling represents the college’s final decision.

Advanced Biomedical Sciences Graduate Certificate

Banner Code: SC-CERG-ABS

Academic Advising

Bull Run Hall, Room 308
Science and Technology Campus
Phone: 703-993-7136
Website: cos.gmu.edu/georgesquared/

The graduate certificate is a program offered jointly by George Mason University and Georgetown University Medical Center (GUMC) (http://gumc.georgetown.edu). This program is aimed at students who have all of their core coursework and extracurricular prerequisites for medical, dental or other health-related fields, but otherwise may have a comparatively limited science background (non-science majors with only the pre-health curricular core, for example), modest grades in the sciences as undergraduates, and/or may also need to improve their Medical College Admission Test, Dental Admission Test, or other pre-professional scores. This is a 9-month full-time program that begins each fall semester. Most classes are held at George Mason University’s Science and Technology Campus in Manassas Virginia with cadaveric anatomy labs held at GUMC.

The graduate certificate may be pursued on a full-time basis. The program is premium-priced with no tuition distinction between the in-state or out-of-state residency status.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page. (https://ir2.gmu.edu/gedt/Advanced_Biomedical_Sciences/Gedt.html)
Admissions & Policies

Admissions
University-wide admissions policies can be found in Graduate Admissions Policies (p. 66).

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants are expected to have a bachelor’s degree from a regionally accredited university, the desire to pursue a career in medicine, dentistry, or other health-related career, completion of all of the prerequisite courses for medical or dental school (one year each of biology, chemistry, organic chemistry, physics and math), and overall credentials suitable for acceptance to graduate programs in the College of Science at George Mason University and the Georgetown University Graduate School of Arts and Sciences.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Requirements

Certificate Requirements
Total credits: 20

Students should refer to the Admissions & Policies (p. 598) tab for specific policies related to this certificate.

Coursework

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMED 601</td>
<td>4</td>
<td>BMED 604</td>
<td>5</td>
</tr>
<tr>
<td>BMED 602</td>
<td>3</td>
<td>BMED 605</td>
<td>3</td>
</tr>
<tr>
<td>BMED 603</td>
<td>3</td>
<td>BMED 651</td>
<td>1</td>
</tr>
<tr>
<td>BMED 652</td>
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</tr>
<tr>
<td></td>
<td>11</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Total Credits 20

Pre-Medical Undergraduate Certificate

Banner Code: SC-CERB-PMCL

Academic Advising
Phone: 703-993-9532

The Pre-Medical Undergraduate Certificate is a premium program offered to enlisted members of the U.S. military who are chosen specifically from a federal program referred to as EMDP2 (Enlisted to Medical Degree Preparatory Program). This is a post-baccalaureate program aimed at active duty military enlisted members who have earned a bachelor’s degree from a regionally accredited institution with a minimum cumulative GPA of 3.0, who have experience working in a health-related position in the military, and who meet all other requirements specified by the Uniformed Services University of the Health Sciences (USU) (https://www.usuhs.mil), and who are interested in matriculating at the Uniformed Services University (military medical school) or another medical school. Only those individuals who are supported by EMDP2 are eligible to enroll in the Pre-Medical Undergraduate Certificate.

The Pre-Medical Undergraduate Certificate will provide a one-year undergraduate program that will allow qualified individuals to complete undergraduate pre-medical admissions requirements as currently specified by the American Association of Medical Colleges (https://www.aamc.org) (AAMC). This is a full-time program offered during the day, located at the Science and Technology Campus of George Mason University. Students are selected by the US military and are admitted as a cohort in the fall semester only.

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

Applicants must be active duty military and selected by the EMDP2. Students are expected to have a bachelor’s degree from a regionally accredited university and the desire to pursue a career in military medicine.

Applicants who do not meet the admissions requirements for this certificate may be interested in learning about the Career Changer’s Biological Sciences Undergraduate Certificate (p. 630).

Policies
For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Certificate Requirements
Total credits: minimum 38

Students should refer to the Admissions & Policies (p. 598) tab for specific policies related to this certificate.

Coursework

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
<th>Summer Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>4</td>
<td>BIOL 311</td>
<td>4</td>
<td>CHEM 313</td>
<td>3</td>
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<tr>
<td>CHEM 211 &amp; CHEM 211</td>
<td>4</td>
<td>CHEM 212 &amp; CHEM 211</td>
<td>4</td>
<td>CHEM 314</td>
<td>3</td>
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<tr>
<td>MATH 105 &amp; MATH 105</td>
<td>4</td>
<td>MATH 113</td>
<td>4</td>
<td>CHEM 315</td>
<td>2</td>
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<tr>
<td>PHYS 243</td>
<td>3</td>
<td>PHYS 245</td>
<td>3</td>
<td>CHEM 318</td>
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<td>PHYS 244</td>
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<td>PHYS 246</td>
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<td></td>
<td>12-16</td>
<td>16</td>
<td></td>
<td>10</td>
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</tbody>
</table>

Total Credits 38-42
Scientists and students in the Department of Atmospheric, Oceanic, and Earth Sciences (AOES) are working to better understand our planet in myriad ways, from improving numerical model predictions of next year’s atmospheric temperature to explaining geological strata laid down in previous eras, from monitoring water transport through the atmosphere to modeling water movement at the bottom of the ocean.

AOES is home to active research programs and to a doctoral program in Climate Dynamics (p. 602), a master’s degree in Earth Systems Science (p. 609), undergraduate degrees in Atmospheric Science (p. 600), Earth Science (p. 604), and Geology (p. 611), and undergraduate minors in Atmospheric Science (p. 599), Earth Science (p. 603), Ocean and Estuarine Science (p. 616), and Paleontology (p. 616). The department has close ties to the Center for Ocean-Land-Atmosphere Studies (COLA) (http://cola.gmu.edu).

Faculty

Department Faculty

Professors
DelSole, Dirmeyer, Hazen (Robinson Professor), Hinnov, Huang, Kinter, Schneider (chair), J. Shukla, Straus

Associate Professors
Boybeyi, Chiu, Klinger, McBride, Stan, Uhen (associate chair)

Assistant Professors
Burls, Pegion

Term Professors
Nord, Verardo

Term Associate Professors
Anders

Term Assistant Professors
Hutsky, Kysar-Mattietti

Research Faculty
Adams, Altschuler, Bombardi, Borah, Buckley, Cash, Chen, Doty, Erfani, Fennessy, Guo, Hao, Jenkins, Krishnamurthy, Manganello, Marx, Paolino, Selman, Shin, R. Shukla, Swenson, Trenary

Affiliate Faculty
Houser, Light, Lukes, Summers

Emeriti
Diecchio, Schopf

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 17

Students should refer to the Admissions & Policies (p. 599) tab for specific policies related to this program.

Programs

• Atmospheric Science Minor
• Atmospheric Sciences, BS
• Climate Dynamics, PhD
• Earth Science Minor
• Earth Science, BS
• Earth Systems Science, MS (AOES)
• Geology Minor
• Geology, BA
• Ocean and Estuarine Science Minor
• Paleontology Minor
Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 101</td>
<td>Global Warming: Weather, Climate, and Society (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 111</td>
<td>Introduction to the Fundamentals of Atmospheric Science (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 112</td>
<td>Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CLIM 301</td>
<td>Weather Analysis and Prediction</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 11

Electives

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 314</td>
<td>Severe and Extreme Weather</td>
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</tr>
<tr>
<td>or GGS 314</td>
<td>Severe and Extreme Weather</td>
<td></td>
</tr>
<tr>
<td>CLIM 408</td>
<td>Senior Research</td>
<td></td>
</tr>
<tr>
<td>CLIM 412</td>
<td>Physical Oceanography</td>
<td></td>
</tr>
<tr>
<td>CLIM 438</td>
<td>Atmospheric Chemistry</td>
<td></td>
</tr>
<tr>
<td>or CHEM 438</td>
<td>Atmospheric Chemistry</td>
<td></td>
</tr>
<tr>
<td>PHYS 475</td>
<td>Atmospheric Physics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

Atmospheric Sciences, BS

Banner Code: SC-BS-AOES

Dr. Cristiana Stan, Undergraduate Coordinator and Associate Professor

Research Hall, Room 109
Fairfax Campus
Phone: 703-993-5391
Email: cstan@gmu.edu
Website: cos.gmu.edu/aoes/academics/atmos-sci/

The undergraduate program in atmospheric sciences gives students a strong quantitative undergraduate education in atmospheric, climate, and related sciences to understand the basic principles behind current and emerging issues in weather, climate variability, and climate change. Students completing the atmospheric sciences degree will be prepared for a full range of career paths including forecast and analysis, operations and research support in meteorology, atmospheric sciences, and climate. The curriculum meets the American Meteorological Society's (https://www.ametsoc.org/ams) recommendations for a bachelor's degree in atmospheric sciences.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

The university’s writing intensive requirement for the major will be met upon successful completion of CLIM 408 Senior Research.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 600) tab for specific policies related to this program.

A GPA of at least 2.00 is required for all core courses, with an overall GPA of at least 2.50.

Atmospheric Sciences Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 102</td>
<td>Introduction to Global Climate Change Science (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CLIM 111</td>
<td>Introduction to the Fundamentals of Atmospheric Science (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 112</td>
<td>Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CLIM 301</td>
<td>Weather Analysis and Prediction</td>
<td>4</td>
</tr>
<tr>
<td>CLIM 408</td>
<td>Senior Research</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 411</td>
<td>Atmospheric Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 429</td>
<td>Atmospheric Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 475</td>
<td>Atmospheric Physics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 24

1 Fulfills the writing intensive requirement.

Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 4

Computer Science

Select one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 130</td>
<td>Computing for Scientists (Mason Core)</td>
<td>3-4</td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 3-4
Students selecting CS 112 Introduction to Computer Programming (Mason Core) (p. 135) must take an additional information technology ethics course in order to completely fulfill the Mason Core Information Technology (p. 136) requirement. Recommended courses include either CDS 151 Data Ethics in an Information Society (Mason Core) (p. 135) or CS 105 Computer Ethics and Society (Mason Core) (p. 135).

Mathematics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>11</strong></td>
</tr>
</tbody>
</table>

Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Physics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

Options

Students in the atmospheric sciences major will select one of the following options in addition to the required courses above. These options reflect faculty expertise and provide two areas of research emphasis. The options will help in creating educated professionals who have the requisite training to support future weather and climate research, enabling the graduate's potential for providing substantial societal benefits.

Meteorology Option

This option is designed for students who are primarily interested in weather and weather forecasting. The required classes in this option emphasize atmospheric phenomena, especially those that have the greatest impact on society.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 312</td>
<td>Physical Climatology</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 312</td>
<td>Physical Climatology</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 314</td>
<td>Severe and Extreme Weather</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 314</td>
<td>Severe and Extreme Weather</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 319</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 319</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Computational Atmospheric Sciences Option

The computational atmospheric sciences option gives students preparation in computational science, mathematics, and elements of numerical modeling in order to undertake quantitative research or operational work in a professional or graduate setting.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 440</td>
<td>Climate Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>or CLIM 470</td>
<td>Numerical Weather Prediction</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CDS 251</td>
<td>Introduction to Scientific Programming</td>
<td>3</td>
</tr>
<tr>
<td>CDS 301</td>
<td>Scientific Information and Data Visualization</td>
<td>3</td>
</tr>
<tr>
<td>CDS 302</td>
<td>Scientific Data and Databases</td>
<td>3</td>
</tr>
<tr>
<td>CDS 303</td>
<td>Scientific Data Mining</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
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<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Required Electives

The required electives must be chosen from this list and be independent of courses taken in the selected option (meteorology or computational atmospheric sciences):

Select 9 credits from the following: 9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 312</td>
<td>Physical Climatology</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 312</td>
<td>Physical Climatology</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 314</td>
<td>Severe and Extreme Weather</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 314</td>
<td>Severe and Extreme Weather</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 319</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 319</td>
<td>Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 412</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 429</td>
<td>Atmospheric Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 438</td>
<td>Atmospheric Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 440</td>
<td>Climate Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 470</td>
<td>Numerical Weather Prediction</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 420</td>
<td>Earth Science and Policy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CDS 251</td>
<td>Introduction to Scientific Programming</td>
<td>3</td>
</tr>
<tr>
<td>CDS 301</td>
<td>Scientific Information and Data Visualization</td>
<td>3</td>
</tr>
<tr>
<td>GGS 354</td>
<td>Data Analysis and Global Change Detection Techniques</td>
<td>3</td>
</tr>
<tr>
<td>GGS 455</td>
<td>Environmental Impact Assessment</td>
<td>3</td>
</tr>
<tr>
<td>GGS 456</td>
<td>Introduction to Atmospheric Radiation</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Mason Core and Elective Credits

In order to meet a minimum of 120 credits, this degree requires an additional 48-49 credits (dependent upon the course chosen for the Computer Science requirement), which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor's Degrees (p. 86), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged...
to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Foundation Requirements</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Written Communication (p. 135)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
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<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning (p. 136)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Information Technology (p. 136)</td>
<td></td>
<td>3-7</td>
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<tr>
<td><strong>Core Requirements</strong></td>
<td></td>
<td></td>
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<tr>
<td>Arts (p. 137)</td>
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<td>3</td>
</tr>
<tr>
<td>Global Understanding (p. 139)</td>
<td></td>
<td>3</td>
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<tr>
<td>Literature (p. 140)</td>
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<td>3</td>
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<td>Natural Science (p. 141)</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization/World History (p. 143)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Synthesis/Capstone Requirement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synthesis/Capstone (p. 143)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

**Climate Dynamics, PhD**

**Banner Code:** SC-PHD-CLIM

**Dr. Barry Klinger, Graduate Coordinator**

Research Hall, Room 109
Fairfax Campus

Phone: 703-993-9227
Email: bklinger@gmu.edu
Website: cos.gmu.edu/aoes/academics/climate-dynamics-graduate-program/

The mission of this program is to train the next generation of scientists in climate dynamics and related fields. Through a comprehensive grounding in classwork, our students learn about how the atmosphere, ocean, and land surface work together to determine the climate. In collaboration with internationally-known scientists, students conduct independent work to further our understanding of climate, how it varies, and how much of it we can predict. Tools in the program include cutting-edge climate models, superb computing facilities, sophisticated statistical techniques, and comprehensive data sets. Our graduates have gone on to work at top laboratories and universities.

Understanding climate variability and predictability poses difficult mathematical, computational, and observational questions that have generated increasing intellectual excitement in recent years. Climate variability has important ramifications for society, from planning for next year’s electrical demand and forecasting agricultural production to answering complex questions involving long-term change in global climate, sea level, and biodiversity. While it is impossible to predict day-to-day weather more than a few weeks in advance, progress in predicting El Niño supports the idea that seasonal averages of temperature, rainfall, and other factors may be at least partly predictable months or even years in advance. Likewise, there is a strong scientific basis for predicting long-term changes in global climate due to changing greenhouse gas concentrations.

Climate dynamics faculty members have a blend of expertise in dynamics, statistics, and computational methods. They are heavily involved with national and international collaborations. Faculty members and students work closely with scientists at the Center for Ocean-Land-Atmosphere Studies (COLA) (http://cola.gmu.edu/cola.html), a national leader in climate modeling.

Faculty research focuses on the areas of climate prediction and predictability, climate variability, coupled ocean-atmosphere-land dynamics, and dynamical systems and retrospective analysis. Recent research topics include predictability of weather and climate; modeling of the complex climate system; El Niño dynamics; monsoons; atmosphere-ocean interaction; land-climate interaction; decadal climate variability; ocean circulation theory; and climate change.

This has been designated a Green Leaf program (p. 102).

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants should have demonstrated a high aptitude for quantitative reasoning, applied mathematics, and physical science. Applicants should have an undergraduate degree from a regionally accredited institution with a GPA of at least 3.00 in undergraduate work, and a GRE verbal plus quantitative score of 301 (1,100 on the old scale). To apply, prospective students should submit a completed George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), a current résumé, three letters of recommendation, an expanded goals statement, and two copies of official transcripts from each college and graduate institution attended. An official report of scores obtained on the GRE-GEN should also be officially reported by ETS (https://www.ets.org). The GRE requirement for admission to the doctoral programs can be waived if the student holds a master’s degree from a regionally accredited U.S. institution. TOEFL scores are required of all international applicants who have not completed a master’s degree in the United States.

**Policies**

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Reduction of Credit**

For students entering the doctoral program with a master’s degree in a related field from a regionally accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of the program faculty and the college’s associate dean for student affairs. See AP.6.5.2 Reduction of Credits (p. 88) for more information.
Requirements

Degree Requirements

Total credits: 72

Students should refer to the Admissions & Policies (p. 602) tab for specific policies related to this program.

Fundamental Climate Science Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 710</td>
<td>Introduction to Physical Climate System</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 711</td>
<td>Introduction to Atmospheric Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 712</td>
<td>Physical and Dynamical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 714</td>
<td>Land-Climate Interactions</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 751</td>
<td>Predictability and Prediction of Weather and Climate</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15

Core Computational Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 690</td>
<td>Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 715</td>
<td>Numerical Methods for Climate Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 762</td>
<td>Statistical Methods in Climate Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Climate Seminar

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 991</td>
<td>Climate Dynamics Seminar (taken three times)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

Electives

Select 21 credits of electives, including CLIM courses and other relevant courses as approved by the graduate coordinator. ^1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM courses (p. 1279)</td>
<td></td>
<td>21</td>
</tr>
</tbody>
</table>

Total Credits: 21

^1 Including up to 3 credits of CLIM 796 or CLIM 996.

Qualifying Exams

After completing the fundamental climate science courses, students take a two-part qualifying exam that includes core and specialty components. The core component is administered by an examination committee. After successfully completing the core component exam, students take the exam for the specialty component, which is administered by the dissertation committee that students typically form by the spring semester of their second year.

Advancement to Candidacy

Following successful completion of both parts of the qualifying exam, students present a written dissertation proposal to the committee. Students may enroll in CLIM 998 Doctoral Dissertation Proposal to complete this effort. After approval of the dissertation proposal and completion of all non-dissertation program requirements, students are formally advanced to doctoral candidacy.

Dissertation Research and Defense

After approval of the dissertation proposal, students are formally advanced to doctoral candidacy and produce the dissertation while taking CLIM 999 Doctoral Dissertation. The degree's requirements will be fulfilled upon completion of the required coursework and approval of a dissertation that makes an original and significant contribution to the field.

No more than 24 combined credits from CLIM 998 Doctoral Dissertation Proposal and CLIM 999 Doctoral Dissertation may be applied toward satisfying doctoral degree requirements, with no more than 21 credits of CLIM 998 Doctoral Dissertation Proposal.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 998</td>
<td>Doctoral Dissertation Proposal</td>
<td>24</td>
</tr>
<tr>
<td>CLIM 999</td>
<td>Doctoral Dissertation (minimum 3 credits)</td>
<td>24</td>
</tr>
</tbody>
</table>

Total Credits: 24

Earth Science Minor

Banner Code: ESCI

Dr. Stacey Verardo, Undergraduate Coordinator and Term Professor

Research Hall, Room 109
Fairfax Campus

Phone: 703-993-1045
Email: sverardo@gmu.edu
Website: cos.gmu.edu/aoes/academics/undergraduate-programs/

Students taking this minor complete coursework in the solid Earth, oceanography and the atmosphere.

This has been designated a Green Leaf program (p. 102).

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Students may not receive both the Geology Minor (p. 610) and the Earth Science Minor.

Requirements

Minor Requirements

Total credits: 18-19

Students should refer to the Admissions & Policies (p. 603) tab for specific policies related to this program.

Students must successfully complete the required 18-19 credits with a minimum GPA of 2.00.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>(p. 135)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Earth Science, BS

Banner Code: SC-BS-ESCI

Dr. Stacey Verardo, Undergraduate Coordinator and Term Professor
Research Hall, Room 109
Phone: 703-993-1045
Email: sverardo@gmu.edu
Website: cos.gmu.edu/aoes/academics/undergraduate-programs/

This degree is intended for students interested in studying the Earth and its processes. Students receive a broad background in the Earth sciences and select one of five specialty concentrations. The concentrations in Earth surface processes, environmental geoscience, geology, and paleontology are solely offered by the Department of Atmospheric, Oceanic and Earth Sciences (p. 599). The concentration in oceanography and estuarine science is offered jointly with the Department of Environmental Science and Policy (p. 660), where specific advising is also available.

This is a Green Leaf program (p. 102).

Teacher Licensure

Students who wish to become teachers and plan to seek teacher licensure should consider the following options:

- Secondary Education – Earth Science (6-12) Undergraduate Certificate (p. 204)
- Earth Science, BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Earth Science concentration) (p. 607)

Interested students should attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education’s website (http://gse.gmu.edu).

Electives

Select 8 credits of GEOL electives (p. 1568)

Total Credits 8

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Writing Intensive Requirement

GEOL 317 Geomorphology fulfills the writing intensive requirement for this major, with the exception of:

- The Environmental Geoscience Concentration, whereby GEOL 305 Environmental Geology fulfills the writing intensive requirement.
- The Paleontology Concentration, whereby GEOL 334 Vertebrate Paleontology fulfills the writing intensive requirement.

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 604) tab for specific policies related to this program.

Students must complete the all coursework with a minimum GPA of 2.00.

Core Science and Mathematics

GEOL 101 Introductory Geology I (Mason Core) (p. 135)
GEOL 309 or BIOL 309 Introduction to Oceanography 3
GEOL 406 Seminar in Earth and Environmental Science 3
or GEOL 420 Earth Science and Policy (Mason Core) (p. 135)
CHEM 211 & CHEM 213 General Chemistry I (Mason Core) (p. 135)
and General Chemistry Laboratory I (Mason Core) (p. 135)
CHEM 212 & CHEM 214 General Chemistry II (Mason Core) (p. 135)
and General Chemistry Laboratory II (Mason Core) (p. 135)
MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135)
MATH 114 Analytic Geometry and Calculus II (p. 135)
STAT 250 Introductory Statistics I (Mason Core) (p. 135)

Select one of the following options: 3-4
Option A:

CLIM 111  Introduction to the Fundamentals of Atmospheric Science (Mason Core) (p. 135)

CLIM 112  Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core) (p. 135)

Option B:

PHYS 111  Introduction to the Fundamentals of Atmospheric Science (Mason Core) (p. 135)

PHYS 112  Introduction to the Fundamentals of Atmospheric Science Lab (Mason Core) (p. 135)

Option C:

GGS 309  Meteorology and Climate

Total Credits 32-33

Physics

Select one 8-credit sequence from the following:

PHYS 160  University Physics I (Mason Core) (p. 135)
& PHYS 161  and University Physics I Laboratory (Mason Core) (p. 135)
& PHYS 260  and University Physics II (Mason Core) (p. 135)
& PHYS 261  and University Physics II Laboratory (Mason Core) (p. 135)

PHYS 243  College Physics (Mason Core) (p. 135)
& PHYS 244  and College Physics Lab (Mason Core) (p. 135)
& PHYS 245  and College Physics (Mason Core) (p. 135)
& PHYS 246  and College Physics Lab (Mason Core) (p. 135)

Total Credits 8

Concentration in Earth Surface Processes (EP)

This concentration focuses on an broad understanding of the physical processes and natural materials found at or near the Earth’s surface that have produced the primary landforms and landscapes observed today. Fundamental concepts, methods and techniques of landscape analysis are also examined. Students choosing this concentration must complete the following coursework:

GEOL 102  Introductory Geology II (Mason Core) (p. 135)
or EVPP 110  The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135)

GEOL 302  Mineralogy 4

GEOL 303  Field Mapping Techniques 3

GEOL 306  Soil Science 3

GEOL 317  Geomorphology 4

GGS 311  Introduction to Geographic Information Systems 3

Select 10-15 credits from the following: 10-15

GEOL 304  Sedimentary Geology 2

GEOL 305  Environmental Geology

Total Credits 31-36

Concentration in Environmental Geoscience (EVGS)

This concentration provides the tools for applying geologic information (on soils, rocks, water, weather, and landscapes) to contemporary environmental problems (including: pollution, waste management, resource extraction, natural hazards, land-use, habitat restoration, species preservation, and human health). Environmental geoscience studies the physical environment in which biological interactions take place, whereby aiding the understanding of ecology. Students choosing this concentration must complete the following coursework:

GEOL 102  Introductory Geology II (Mason Core) (p. 135)

GEOL 302  Mineralogy 4

GEOL 305  Environmental Geology 1

GEOL 306  Soil Science 3

GEOL 313  Hydrogeology 3

GEOL 320  Geology of Earth Resources 3

GEOL 321  Geology of Energy Resources 3

GEOL 403  Geochemistry 3

or CHEM 427  Aquatic Environmental Chemistry 3

EVPP 336  Human Dimensions of the Environment 3
or EVPP 361  Introduction to Environmental Policy 3

Select 6-12 credits from the following: 6-12

CLIM 101  Global Warming: Weather, Climate, and Society (Mason Core) (p. 135)

CLIM 412  Physical Oceanography

GEOL 304  Sedimentary Geology

EVPP 201  Environment and You: Issues for the Twenty-First Century (Mason Core) (p. 135)

EVPP 336  Human Dimensions of the Environment

EVPP 361  Introduction to Environmental Policy

EVPP 362  Energy Policy

EVPP 436  The Human Dimensions of Global Climate Change

GGS 302  Global Environmental Hazards

GGS 311  Introduction to Geographic Information Systems

GGS 322  Issues in Global Change

PHYS 331  Fundamentals of Renewable Energy

CONF 101  Conflict and Our World (Mason Core) (p. 135)

INTS 211  Introduction to Conservation Studies

PRLS 300  People with Nature
Concentration in Geology (GEOL)
This concentration is fashioned after traditional geology bachelor’s degrees. It allows graduates to be employed as geologists in the field or to pursue graduate studies in geology. Students choosing this concentration must complete the following coursework:

GEOL 102 Introductory Geology II (Mason Core) 4
(p. 135)
GEOL 302 Mineralogy 4
GEOL 304 Sedimentary Geology 4
GEOL 308 Igneous and Metamorphic Petrology 4
GEOL 312 Invertebrate Paleontology 4
GEOL 317 Geomorphology 4
GEOL 401 Structural Geology 4
Six credits of
GEOL 404 Geological Field Techniques 6
Total Credits 34

1 Prerequisite requires a grade of ‘C’ or better in GEOL 302 Mineralogy
2 Fulfills writing intensive requirement.
3 A 6-credit geology field camp may be substituted for this requirement, see advisor for details.

Concentration in Oceanography and Estuarine Science (OEST)
This concentration provides students with a comprehensive knowledge of oceanography. Additional coursework in physical and chemical oceanography give insight into the aquatic environment and its link to both ecosystems and climate. Within the concentration, students can choose an open ocean or coastal ocean option. The curriculum will emphasize local and regional case studies, in particular the Chesapeake Bay. The program will provide students with the basic training required to allow them to obtain entry level positions in oceanographic and estuarine career tracks or an appropriate graduate degree program. Students choosing this concentration must complete the following coursework:

CLIM 412 Physical Oceanography 3
or GEOL 412 Physical Oceanography 3
GEOL 102 Introductory Geology II (Mason Core) 4
(p. 135)
GEOL 458 Chemical Oceanography 3
or CHEM 458 Chemical Oceanography 3
Select one of the following 8-credit sequences: 8
BIOL 103 & BIOL 104 Introductory Biology I (Mason Core) 4
(p. 135)
and Introductory Biology II (Mason Core) 4
(p. 135)
BIOL 213 & BIOL 303 Cell Structure and Function (Mason Core) 4
(p. 135)
and Animal Biology 4

Select one of the following options: 15-16
Open Ocean Option:
GEOL 364 Marine Geology
BIOL 449 Marine Ecology
Three additional courses from the electives list below
(minimum of 9 credits)
Coastal Ocean Option:
GEOL 363 Coastal Morphology and Processes
EVPP 581 Estuarine and Coastal Ecology
Three additional courses from the electives list below
(minimum of 9 credits)
Total Credits 33-34

Electives
GEOL 302 Mineralogy 4
GEOL 304 Sedimentary Geology 4
GEOL 308 Igneous and Metamorphic Petrology 4
GEOL 312 Invertebrate Paleontology 4
GEOL 363 Coastal Morphology and Processes 4
GEOL 364 Marine Geology 3
GEOL 565 Paleooceanography 3
BIOL 440 Field Biology 4
BIOL 449 Marine Ecology 3
EVPP 350 Freshwater Ecosystems 4
EVPP 377 Applied Ecology 3
EVPP 419 Marine Mammal Biology and Conservation 3
EVPP 581 Estuarine and Coastal Ecology 3
EVPP 582 Estuarine and Coastal Ecology Laboratory 1
INTS 395 Field-Based Work 1-18
Additional recommended course:
RECR 161 Scuba Diving: Basic 2

1 When topic is Coral Reef Ecology
2 When topic is Exploring Underwater Ecology.

Concentration in Paleontology (PLEO)
This concentration focuses on a broad understanding of Earth’s history and the evolution of life on Earth as revealed through the fossil record. Fundamental concepts, methods and techniques of historical geology and paleontological data and analysis are also examined. This concentration may not be taken in conjunction with the paleontology minor. Be aware that some of the courses below may have additional prerequisites. Students choosing this concentration must complete the following coursework:

GEOL 102 Introductory Geology II (Mason Core) 4
(p. 135)
GEOL 302 Mineralogy 4
GEOL 304 Sedimentary Geology 4
GEOL 312 Invertebrate Paleontology 4
GEOL 334 Vertebrate Paleontology 4
BIOL 103 Introductory Biology I (Mason Core) 4 (p. 135)
or BIOL 213 Cell Structure and Function (Mason Core) (p. 135)
Select 9-10 credits from the following additional Geology courses: 9-10
  GEOL 306 Soil Science
  GEOL 317 Geomorphology
  GEOL 332 Paleoclimatology
  GEOL 364 Marine Geology
  GEOL 403 Geochemistry
  GEOL 412 Physical Oceanography
  GEOL 458 Chemical Oceanography
  GEOL 565 Paleoceanography
Select 3-5 credits from the following additional Biology course: 3-5
  BIOL 310 Biodiversity
  & BIOL 330 and Biodiversity Lab and Recitation
  BIOL 320 Comparative Chordate Anatomy
  BIOL 331 Invertebrate Zoology
  BIOL 374 Biogeography: Space, Time, and Life
  or GGS 321 Biogeography
  BIOL 468 Vertebrate Natural History
  or EVPP 468 Vertebrate Natural History
  BIOL 470 Dinosaur Biology
  BIOL 471 Evolution

Total Credits 36-39

1 Fulfills writing intensive requirement for this concentration only.

**Mason Core and Elective Credits**

In order to meet a minimum of 120 credits, this degree requires additional credits (specific credit counts by concentration are shown below), which may be applied toward any remaining Mason Core (p. 135) requirements, Requirements for Bachelor’s Degrees (p. 86), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

- ESE concentration without Teacher Licensure: 50-51 credits
- ESE concentration with Teacher Licensure: 29-30 credits
- EP concentration: 43-49 credits
- EVGS concentration: 38-45 credits
- GEOL concentration: 45-46 credits
- PLEO concentration: 40-44 credits
- OEST concentration: 42-47 credits

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 410</td>
<td>Research Proposal Preparation</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 411</td>
<td>Geological Research</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 420</td>
<td>Earth Science and Policy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Set of Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 408</td>
<td>Senior Research</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 420</td>
<td>Earth Science and Policy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Honors in the Major**

Earth science and geology majors who have completed 16 credits of math and science, including GEOL 302 Mineralogy with a GPA of 3.00 or higher are eligible to enter the departmental honors program. Transfer students who have an incoming GPA of 3.10 or higher in math and science and a grade of ‘B’ or better in GEOL 302 Mineralogy are also eligible. To graduate with honors in Earth Science, students are required to maintain a minimum GPA of 3.00 in math and science courses and complete one of the two following sets of courses with an average GPA of 3.50 or better.

<table>
<thead>
<tr>
<th>Course List</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

**Accelerated Master’s**

**Bachelor’s Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS**

**Overview**

This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.
For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master’s program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>3.00</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>3.00</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Option 2:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
<td>3.00</td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
<td>3.00</td>
</tr>
<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
<td>3.00</td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
<td>3.00</td>
</tr>
<tr>
<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
<td>3.00</td>
</tr>
</tbody>
</table>

Option 3:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td>3.00</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td>3.00</td>
</tr>
<tr>
<td>6 credits of BIOL or CONS electives</td>
<td>6.00</td>
<td></td>
</tr>
</tbody>
</table>

Option 4:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
<td>3.00</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td>3.00</td>
</tr>
<tr>
<td>BIOL or CONS electives</td>
<td>6.00</td>
<td></td>
</tr>
</tbody>
</table>

By the beginning of the undergraduate’s senior year, they should first submit a Graduate Application for Accelerated Master’s Program form (obtained from the Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us)). Secondly, in their senior year accelerated master’s students must complete the two graduate courses indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. They must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. Upon completion and conferral of the undergraduate degree in a Green Leaf-designated (p. 102) program, in the semester indicated in the application, they must additionally submit the Bachelor’s/Accelerated Master’s Transition form (found on the Office of the University Registrar website (http://registrar.gmu.edu/forms)) and will subsequently be admitted into graduate status.

By at least the beginning of their senior year, they should seek out a faculty member in the Department of Environmental Science and Policy (p. 661) who is willing to serve as their advisor (unless the student is planning to enroll in the MS concentration in Environmental Management). This advisor will aid the student in choosing the appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master’s concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason (called “program faculty”) can serve as master’s advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.

Application Requirements

Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog, excluding the GRE exam requirement (which is not required for those enrolled in the accelerated program). This includes three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate’s proposed MS research), and a letter from their advisor stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate’s research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department’s website (http://esp.gmu.edu/academic-programs/graduate/admissions).

Reserve Graduate Credits

Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master’s program and must then complete an additional 27-31 credits to receive the master’s degree.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master’s degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor’s credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.

Earth Science, BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Earth Science concentration)

Overview

Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s option and obtain both a BS in Earth Science (p. 604) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education earth science) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7
Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Atmospheric, Oceanic and Earth Sciences (p. 599) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements

Requirements

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td>3</td>
<td>EDCI 673</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

While undergraduate students, accelerated master's students are able to apply two of the courses listed above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MED. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor's/Accelerated Master's Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Earth Systems Science, MS (AOES)

Banner Code: SC-MS-ESSC

Dr. Randolph McBride, Associate Professor

Research Hall, Room 109
Fairfax Campus

Phone: 703-993-1642
Email: rmcbride@gmu.edu
Website: cos.gmu.edu/aoes/academics/earth-science-graduate-program/

This is a shared program between the Department of Atmospheric, Oceanic, and Earth Sciences (p. 599) and the Department of Geography and Geoinformation Science (p. 687).

The program addresses the growing demand for trained professionals in the Earth sciences. The degree emphasizes a research-oriented, global systems approach to studying the Earth and its systems- the atmosphere, the hydrosphere, and the lithosphere, including their interrelationships and interactions with the biosphere. Emphasis is on the observation, measurement, and analysis of Earth's systems.

Most student research projects and theses will relate to geologic and geographic topics, however studies of related topics in Earth science are welcome. Students completing the program are qualified to pursue careers that require knowledge of the basics of Earth systems science and the requisite tools, specifically pertaining to the area of Earth science that they choose to investigate. Students are encouraged to undertake a master's thesis but may choose a research project. In the latter case, students must pass a comprehensive exam.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Applicants should have earned a BS degree in atmospheric, Earth, environmental, geological, geographical, ocean, or physical science. Previous coursework should include two semesters each of calculus, chemistry, and physics, and one semester of statistics. Applicants should have a minimum GPA of 3.00 in their undergraduate degree.

Application Requirements

Official transcripts from each college and graduate institution attended, a current résumé, and a goals statement are required. Applicants also need three letters of recommendation and an official report of scores obtained on the GRE-GEN. The GRE requirement for admission may be waived if the student holds a master's degree from a regionally accredited U.S. institution. TOEFL scores are required of all international applicants.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements

Total credits: 30

Students should refer to the Admissions & Policies tab for specific policies related to this program.

Candidates must complete 10 credits of GGS courses and 10 credits of GEOL/CLIM courses towards their requirements. (“Culminating Experience” credits do not count towards this requirement).

Earth Science Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select one course from each of the following groups:</td>
<td>9</td>
</tr>
</tbody>
</table>

Atmosphere:
Geology Minor

**CLIM 710** Introduction to Physical Climate System

**CLIM 714** Land-Climate Interactions

**GEOL 532** Paleoclimatology

**GGS 670** Introduction to Atmosphere and Weather

**PHYS 575** Atmospheric Physics I

**Hydrosphere:**

**CLIM 512** Physical Oceanography

**CLIM 712** Physical and Dynamical Oceanography

**GEOL 513** Hydrogeology

**GGS 656** The Hydrosphere

**Lithosphere:**

**GEOL 506** Soil Science

**GGS 657** The Lithosphere

or **GEOL 601** The Lithosphere

Total Credits: 9

**Techniques**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select two courses from the following:</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>GGS 553</strong> Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GGS 560</strong> Quantitative Methods</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GGS 579</strong> Remote Sensing</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GGS 680</strong> Earth Image Processing</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GGS 754</strong> Earth Science Data and Advanced Data Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Courses can be substituted with advisor approval

Total Credits: 6

**Colloquium**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>GGS 900</strong> Geography and Geoinformation Science Colloquium</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one from the following:

**GEOL 536** Paleontology Seminar

**GEOL 792** Seminar in Earth Systems Science, Geology, Earth Science

**CLIM 991** Climate Dynamics Seminar

Total Credits: 2

**Electives**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 10 credits of courses at the 500 to 900-level (excluding 700, 798, and 799 courses)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>CLIM Courses (p. 1279)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GEOL Courses (p. 1568)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GGS Courses (p. 1554)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>EVPP Courses (p. 1501)</strong></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 10

**Culminating Experience**

Choose the culminating experience of either a thesis or a project (either must total 3 credits):

**Thesis**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits from the following:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>GGS 799</strong> Thesis</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GEOL 799</strong> Master’s Thesis in Earth Systems Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>CLIM 799</strong> Master’s Thesis in Climate</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3

**Project**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select one from the following:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>GGS 700</strong> Comprehensive Exam</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GEOL 700</strong> Comprehensive Exam</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>CLIM 700</strong> Climate Comprehensive Exam</td>
<td></td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>GGS 798</strong> Research Project in Earth Systems Science</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>GEOL 798</strong> Master’s Research Project in Earth Systems Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>CLIM 798</strong> Master’s Climate Research Project</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3

**Geology Minor**

**Banner Code:** GEOL

Dr. Stacey Verardo, Undergraduate Coordinator and Term Associate Professor

Research Hall, Room 109
Fairfax Campus

Phone: 703-993-1045
Email: sverardo@gmu.edu
Website: cos.gmu.edu/aoes/academics/undergraduate-programs/

Students take coursework in physical geology, historical geology and mineralogy as the fundamental courses in this minor.

This is a Green Leaf program (p. 102).

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Students may not receive both the Geology Minor and the Earth Science Minor (p. 603).

**Requirements**

**Minor Requirements**

Total credits: 20

Students should refer to the Admissions & Policies (p. 610) tab for specific policies related to this program.
Students must successfully complete 20 credits with a minimum GPA of 2.00.

**Geology Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 102</td>
<td>Introductory Geology II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 302</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 12

**Additional Geology Courses**

Select 8 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 304</td>
<td>Sedimentary Geology</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 308</td>
<td>Igneous and Metamorphic Petrology</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 312</td>
<td>Invertebrate Paleontology</td>
<td></td>
</tr>
<tr>
<td>GEOL 317</td>
<td>Geomorphology</td>
<td></td>
</tr>
<tr>
<td>GEOL 401</td>
<td>Structural Geology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 8

1. Students must achieve a grade of 2.00 or better in GEOL 302 Mineralogy before taking GEOL 304 Sedimentary Geology or GEOL 308 Igneous and Metamorphic Petrology.

**Geology, BA**

Banner Code: SC-BA-GEOL

Dr. Stacey Verardo, Undergraduate Coordinator and Term Professor

Research Hall, Room 109
Fairfax Campus

Phone: 703-993-1045
Email: sverardo@gmu.edu
Website: cos.gmu.edu/aoes/academics/undergraduate-programs/

The Geology, BA program aims to provide students with both high-quality conceptual knowledge and hands-on training in geology in preparation for careers within the earth-science field or for graduate school in geology.

This is a Green Leaf program (p. 102).

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Policies**

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86) including the Mason Core (p. 135).

GEOL 317 Geomorphology fulfills the writing intensive requirement for this major.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

**Requirements**

**Degree Requirements**

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 611) tab for specific policies related to this program.

Candidates for a degree in geology must complete all courses with a minimum GPA of 2.50.

**Geology Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 102</td>
<td>Introductory Geology II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 302</td>
<td>Mineralogy</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 304</td>
<td>Sedimentary Geology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 308</td>
<td>Igneous and Metamorphic Petrology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 312</td>
<td>Invertebrate Paleontology</td>
<td></td>
</tr>
<tr>
<td>GEOL 317</td>
<td>Geomorphology</td>
<td></td>
</tr>
<tr>
<td>GEOL 401</td>
<td>Structural Geology</td>
<td></td>
</tr>
</tbody>
</table>

Six credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 404</td>
<td>Geological Field Techniques</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 38

1. Students must achieve a grade of ‘C’ or better in GEOL 302 Mineralogy before taking GEOL 304 Sedimentary Geology or GEOL 308 Igneous and Metamorphic Petrology.

2. Fulfills writing-intensive requirement.

3. A 6-credit geology field camp may be substituted for this requirement; see advisor for details.

**Chemistry**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 4

**Physics**

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 244</td>
<td>College Physics Lab (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 4

**Mathematics**

Select one from the following: 3-4
MATH 110  Introductory Probability (Mason Core) (p. 135)
MATH 111  Linear Mathematical Modeling (Mason Core) (p. 135)
MATH 113  Analytic Geometry and Calculus I (Mason Core) (p. 135)

Total Credits 3-4

Computer Science
GGS 311  Introduction to Geographic Information Systems

Total Credits 3

Program Courses
Students must take 9 credits of degree-related coursework in a coherent program designed in coordination with advisor and approved by department chair

Total Credits 9

Mason Core and Elective Credits
In order to meet a minimum of 120 credits, this degree requires an additional 58-59 credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor's Degrees (p. 86), College Requirements for the BA Degree (outlined below), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundation Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Synthesis/Capstone Requirement 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 40

1 minimum 3 credits

College Requirements for the BA Degree
In addition to the program requirements and the Mason Core (p. 135) requirements, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill this college-level requirement may also be used simultaneously to satisfy other requirements such as Mason Core (p. 135) requirements, other college-level requirements, or requirements for the major. In some cases, the requirements listed below may be superseded by requirements of the degree program and the Mason Core (p. 135).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Philosophy or Religious Studies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 3 credits from the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHIL (p. 1818) 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RELI (p. 1904)</td>
<td></td>
</tr>
</tbody>
</table>

1 PHIL 323 Classical Western Political Theory and PHIL 324 Modern Western Political Theory may not be used to fulfill this requirement.

Social and Behavioral Sciences
Choose one approved Mason Core: Social and Behavioral Sciences (p. 142) course in addition to the Mason Core (p. 135)-required course for a total of 6 credits. The two courses used to fulfill the combined college-level and university requirements must be from different disciplines.

This requirement may be fulfilled by completing any course in ANTH (p. 1119), CRIM (p. 1372), ECON (p. 1413), GOVT (p. 1588), HIST (p. 1628) 1, LING (p. 1694), PSYC (p. 1844), or SOCI (p. 1923), and the following GGS (p. 1554) courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select any course from the disciplines above or select from the following GGS courses:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GGS 101 Major World Regions (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 103 Human Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 110 Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 301 Political Geography</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 304 Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 305 Economic Geography</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 306 Urban Geography</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 315 Geography of the United States</td>
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</tr>
<tr>
<td></td>
<td>GGS 316 Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 320 Geography of Europe</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 325 Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 330 Geography of the Soviet Succession States</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 357 Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS 380 Geography of Virginia</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

1 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

Natural Science
Choose one credit in addition to the Mason Core: Natural Science (p. 141) requirement for a total of 8 credits. This combined college-level
and university requirement must be fulfilled by completing two of any approved Mason Core: Natural Science (p. 141) courses that include a laboratory experience.

### Code | Title | Credits
--- | --- | ---
BIOL 124 | Human Anatomy and Physiology and BIOL 125 Human Anatomy and Physiology may not be used to fulfill this requirement. |

**Foreign Language**
Intermediate-level proficiency in one foreign language is required.
This requirement may be fulfilled by completing a course in a foreign language numbered 202, 209, or 210 (or higher-level courses taught in the language).

### Code | Title | Credits
--- | --- | ---
Select a foreign language course numbered 202, 209, 210, or higher if a waiver isn’t applicable |

1 Students may be eligible for a waiver of this requirement if they are already proficient in a second language or if they have received a satisfactory score on an approved proficiency test. Additional information on waivers can be found via the college’s Office of Academic and Student Affairs (https://cos.gmu.edu/uaa).

**Non-Western Culture**
Choose one approved Non-Western Culture Requirement course in addition to the course used to fulfill the Mason Core: Global Understanding (p. 139) requirement. A course used to fulfill the Mason Core: Global Understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. However, a course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core (p. 135) requirements, college-level requirements, or requirements for the major).

### Code | Title | Credits
--- | --- | ---
Select 3 credits from approved Non-Western Culture courses if a waiver isn’t applicable: |

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
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<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
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<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
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<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
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<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
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<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
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<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
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<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
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<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
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<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
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<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
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<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
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<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
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<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
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<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
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<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
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<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
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<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
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<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
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<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
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<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
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<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
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<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
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<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
<td>3</td>
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<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td>3</td>
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<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
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<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
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<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
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<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
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<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
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<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td>3</td>
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<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
<td>3</td>
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<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
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GOVT 332  Government and Politics of the Middle East and North Africa  3
GOVT 333  Government and Politics of Asia  3
GOVT 340  Central Asian Politics  3
GOVT 341  Chinese Foreign Policy  3
GOVT 345  Islam and Politics  3
GOVT 432  Political Change and Social Development in Sub-Saharan Africa  3
GOVT 333  Government and Politics of Asia  3
GOVT 340  Central Asian Politics  3
GOVT 341  Chinese Foreign Policy  3
GOVT 345  Islam and Politics  3
GOVT 432  Political Change and Social Development in Sub-Saharan Africa  3
GOVT 333  Government and Politics of Asia  3
GOVT 340  Central Asian Politics  3
GOVT 341  Chinese Foreign Policy  3
GOVT 345  Islam and Politics  3
GOVT 432  Political Change and Social Development in Sub-Saharan Africa  3
GOVT 333  Government and Politics of Asia  3
GOVT 340  Central Asian Politics  3
GOVT 341  Chinese Foreign Policy  3
GOVT 345  Islam and Politics  3
GOVT 432  Political Change and Social Development in Sub-Saharan Africa  3
GOVT 333  Government and Politics of Asia  3
GOVT 340  Central Asian Politics  3
GOVT 341  Chinese Foreign Policy  3
GOVT 345  Islam and Politics  3
GOVT 432  Political Change and Social Development in Sub-Saharan Africa  3
GOVT 333  Government and Politics of Asia  3
GOVT 340  Central Asian Politics  3
GOVT 341  Chinese Foreign Policy  3
GOVT 345  Islam and Politics  3
GOVT 432  Political Change and Social Development in Sub-Saharan Africa  3

HIST 251  Survey of East Asian History (Mason Core) (p. 135)  3
HIST 252  Survey of East Asian History (Mason Core) (p. 135)  3
HIST 261  Survey of African History (Mason Core) (p. 135)  3
HIST 262  Survey of African History (Mason Core) (p. 135)  3
HIST 271  Survey of Latin American History (Mason Core) (p. 135)  3
HIST 272  Survey of Latin American History (Mason Core) (p. 135)  3
HIST 281  Survey of Middle Eastern Civilization (Mason Core) (p. 135)  3
HIST 282  Survey of Middle Eastern Civilization (Mason Core) (p. 135)  3
HIST 326  Stalinism  3
HIST 327  The Soviet Union and Russia Since World War II  3
HIST 328  Rise of Russia (Mason Core) (p. 135)  3
HIST 329  Modern Russia and the Soviet Union (Mason Core) (p. 135)  3
HIST 353  History of Traditional China  3
HIST 354  Modern China  3
HIST 356  Modern Japan (Mason Core) (p. 135)  3
HIST 357  Postwar Japan (Mason Core) (p. 135)  3
HIST 358  Post-1949 China (Mason Core) (p. 135)  3
HIST 360  History of South Africa (Mason Core) (p. 135)  3
HIST 364  Revolution and Radical Politics in Latin America (Mason Core) (p. 135)  3
HIST 365  Conquest and Colonization in Latin America (Mason Core) (p. 135)  3
HIST 366  Comparative Slavery  3
HIST 367  History, Fiction, and Film in Latin America  3
HIST 387  Topics in Global History (Mason Core) (p. 135)  3-
HIST 426  The Russian Revolution  3
HIST 460  Modern Iran (Mason Core) (p. 135)  3
HIST 461  Arab-Israeli Conflict  3
HIST 462  Women in Islamic Society (Mason Core) (p. 135)  3
HIST 465  The Middle East in the 20th Century  3
JAPA 310  Japanese Culture in a Global World (Mason Core) (p. 135)  3
JAPA 340  Topics in Japanese Literature (Mason Core) (p. 135)  3
KORE 320  Korean Popular Culture in a Global World  3
MUSI 103  Musics of the World (Mason Core) (p. 135)  3
RELI 211  Religions of the West (Mason Core) (p. 135)  3
RELI 212  Religions of Asia (Mason Core) (p. 135)  3
RELI 240  Death and the Afterlife in World Religions  3
RELI 272  Islam  3
RELI 313  Hinduism (Mason Core) (p. 135)  3
RELI 314  Chinese Philosophies and Religious Traditions  3
RELI 315  Buddhism (Mason Core) (p. 135)  3
RELI 337  Mysticism: East and West  3
RELI 365  Muhammad: Life and Legacy  3
RELI 374  Islamic Thought (Mason Core) (p. 135)  3
RELI 375  Qur'an and Hadith  3
RELI 379  Islamic Law, Society, and Ethics  3
RELI 387  Islam, Democracy, and Human Rights  3
RELI 490  Comparative Study of Religions (Mason Core) (p. 135)  3
RUSS 353  Russian Civilization (Mason Core) (p. 135)  3
RUSS 354  Contemporary Post-Soviet Life (Mason Core) (p. 135)  3

1 Students who can document attendance at a native school in a non-western country for at least four years may request a waiver from this requirement through the CHSS Undergraduate Academic Affairs Office (http://chssundergrad.gmu.edu).

Honors in the Major

Earth science and geology majors who have completed 16 credits of math and science, including GEOL 302 Mineralogy with a GPA of 3.00 or higher are eligible to enter the departmental honors program. Transfer students who have an incoming GPA of 3.10 or higher in math and science and a grade of ‘B’ or better in GEOL 302 Mineralogy are also eligible. To graduate with honors in Earth Science, students are required to maintain a minimum GPA of 3.00 in math and science courses and complete one of the two following sets of courses with an average GPA of 3.50 or better:

Course List

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Set of Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEO 410</td>
<td>Research Proposal Preparation</td>
<td>1</td>
</tr>
<tr>
<td>GEO 411</td>
<td>Geological Research</td>
<td>3</td>
</tr>
<tr>
<td>GEO 420</td>
<td>Earth Science and Policy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>Second Set of Courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLIM 408</td>
<td>Senior Research</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

Honors
Accelerated Master’s Bachelor's Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS

Overview
This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master’s program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 420</td>
<td>Earth Science and Policy (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following options: 13

**Option 1:**
- BIOL 213  Cell Structure and Function (Mason Core) (p. 135)
- BIOL 214  Biostatistics for Biology Majors
- BIOL 308  Foundations of Ecology and Evolution

**Option 2:**
- EVPP 210  Environmental Biology: Molecules and Cells
- EVPP 301  Environmental Science: Biological Diversity and Ecosystems
- EVPP 302  Environmental Science: Biomes and Human Dimensions
- EVPP 305  Environmental Microbiology Essentials
- EVPP 306  Environmental Microbiology Essentials Laboratory

**Option 3:**
- CONS 401  Conservation Theory
- CONS 402  Applied Conservation
- 6 credits of 6 credits of BIOL or CONS electives

**Option 4:**
- CONS 403  Ecology and Conservation Theory
- CONS 404  Biodiversity Monitoring
- BIOL or CONS electives

By the beginning of the undergraduate’s senior year, they should first submit a Graduate Application for Accelerated Master’s Program form (obtained from the Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us)). Secondly, in their senior year accelerated master’s students must complete the two graduate courses indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. They must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. Upon completion and conferral of the undergraduate degree in a Green Leaf-designated (p. 102) program, in the semester indicated in the application, they must additionally submit the Bachelor’s/Accelerated Master’s Transition form (found on the Office of the University Registrar website (http://registrar.gmu.edu/forms)) and will subsequently be admitted into graduate status.

By at least the beginning of their senior year, they should seek out a faculty member in the Department of Environmental Science and Policy (p. 661) who is willing to serve as their advisor (unless the student is planning to enroll in the MS concentration in Environmental Management). This advisor will aid the student in choosing the appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master’s concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason (called “program faculty”) can serve as master’s advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.

Application Requirements
Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog. excluding the GRE exam requirement (which is not required for those enrolled in the accelerated program). This includes three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate’s proposed MS research), and a letter from their advisor stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate’s research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department’s website (http://esp.gmu.edu/academic-programs/graduate/admissions).

Reserve Graduate Credits
Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master’s program and must then complete an additional 27-31 credits to receive the master’s degree.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master’s degree
credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor’s credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.

Ocean and Estuarine Science Minor

Banner Code: OES

Dr. Stacey Verardo, Undergraduate Coordinator and Term Professor
109 Research Hall
Fairfax Campus
Phone: 703-993-1045
Email: sverardo@gmu.edu
Website: cos.gmu.edu/aoes/academics/undergraduate-programs/

This minor is designed for students interested in oceans and coastlines. The fundamental courses include topics in oceanography, physical oceanography, coastal morphology and process, marine geology, chemical oceanography, and marine ecology.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor.
For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18-22

Students should refer to the Admissions & Policies (p. 616) tab for specific policies related to this program.

Students must successfully complete 18-22 credits with a minimum GPA of 2.00.

Core Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 309</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>Select two from the following:</td>
<td>6-7</td>
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<tr>
<td>CLIM 412</td>
<td>Physical Oceanography</td>
<td></td>
</tr>
<tr>
<td>GEOL 363</td>
<td>Coastal Morphology and Processes</td>
<td></td>
</tr>
<tr>
<td>or EVPP 363</td>
<td>Coastal Morphology and Processes</td>
<td></td>
</tr>
<tr>
<td>GEOL 364</td>
<td>Marine Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 458</td>
<td>Chemical Oceanography</td>
<td></td>
</tr>
<tr>
<td>or CHEM 458</td>
<td>Chemical Oceanography</td>
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<tr>
<td>BIOL 449</td>
<td>Marine Ecology</td>
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<tr>
<td>Total Credits</td>
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</table>

Additional Courses

Select 9-12 credits from the following: 1

<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CLIM 101</td>
<td>Global Warming: Weather, Climate, and Society (Mason Core) (p. 135)</td>
<td>9-12</td>
</tr>
</tbody>
</table>

1 Courses taken to satisfy the core requirements above cannot be repeated to count towards the additional courses requirement.
2 If chosen, students must take both lecture and lab for a total of 4 credits.

Notes
RECR 161 Scuba Diving: Basic is strongly recommended, but is not required.

Paleontology Minor

Banner Code: PLEO

Dr. Stacey Verardo, Undergraduate Coordinator and Term Professor
109 Research Hall
Fairfax Campus
Phone: 703-993-1045
Email: sverardo@gmu.edu
Website: cos.gmu.edu/aoes/academics/undergraduate-programs/
Students interested in the evolution of life on Earth can take this minor in association with degrees from any field of study across the university. Fundamental courses include historical geology, invertebrate paleontology and vertebrate paleontology.

This has been designated a Green Leaf program (p. 102).

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Students must successfully complete 18-21 credits with a minimum GPA of 2.00.

Requirements

Minor Requirements

Total credits: 18-21

Students should refer to the Admissions & Policies (p. 617) tab for specific policies related to this program.

Required Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEOL 102</td>
<td>Introductory Geology II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 312</td>
<td>Invertebrate Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 334</td>
<td>Vertebrate Paleontology</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL 334</td>
<td>Vertebrate Paleontology</td>
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<tr>
<td>Total Credits</td>
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<td>12</td>
</tr>
</tbody>
</table>

Electives

Many of the courses below have additional prerequisites beyond the required core courses above; please check the individual courses carefully.

Select two courses from the list below or choose Option One, Option Two, Option Three, or Option Four:

Option One

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 310</td>
<td>Biodiversity</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BIOL 330</td>
<td>Biodiversity Lab and Recitation</td>
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<tr>
<td>Select one from the following:</td>
<td>4</td>
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<tr>
<td>BIOL 320</td>
<td>Comparative Chordate Anatomy</td>
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</table>

Option Two

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 468</td>
<td>Vertebrate Natural History</td>
<td>4</td>
</tr>
<tr>
<td>or EVPP 468</td>
<td>Vertebrate Natural History</td>
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Option Three

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 309</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 309</td>
<td>Introduction to Oceanography</td>
<td></td>
</tr>
<tr>
<td>EVPP 419</td>
<td>Marine Mammal Biology and Conservation</td>
<td>3</td>
</tr>
</tbody>
</table>

Option Four

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 407</td>
<td>Microbial Diversity</td>
<td>4</td>
</tr>
</tbody>
</table>

Department of Biology

Larry Rockwood, Chair

Phone: 703-993-1050
Website: biology.gmu.edu

Administration

- Larry Rockwood, Chair
- Geraldine Grant, Assistant Chair
- Andrea Weeks, Assistant Chair
- Deborah Pelayes, Director of Undergraduate Studies
- Anne Verhoeven, Director of Medical Laboratory Sciences

The Department of Biology collaborates with scientists across many disciplines, such as the School of Systems Biology (p. 748) and the Department of Environmental Science and Policy (p. 660) to offer a broad spectrum of coursework in the biological sciences to biology majors as well as to students in other departments, schools, and colleges.

Undergraduate Programs

The bachelor’s degree programs in biology provide a sound liberal arts education with substantial experience in quantitative and analytical thought, along with preparation for a related profession. In addition to ensuring the strong background necessary for graduate study in the many fields of biological science, the broad range of courses available at Mason allow students to develop careers in many areas, including secondary school teaching, environmental management, microbiology, molecular biology, biotechnology, genetics, and natural history. Alternatively, students may prepare for postgraduate studies in medicine, dentistry, veterinary medicine, wildlife management, fisheries biology, or marine science.

The department also offers the Medical Laboratory Science, BS (p. 631).
Additional information can be found at the Department of Biology’s website (http://biology.gmu.edu) or by visiting the department in Exploratory Hall, Suite 1200.

Graduate Programs
The Biology, MS (p. 755) is offered by the School of Systems Biology (p. 748). The Department of Biology supports the concentration in Evolutionary Biology within the MS degree. Students interested in this concentration should consult the Department of Biology’s website (http://biology.gmu.edu) for a list of faculty and their research interests.

Student Clubs
A variety of biologically-oriented student clubs are available for students. Each club has its own website; for more information, visit the Department of Biology’s website (http://biology.gmu.edu).

Faculty

Department Faculty
Professors
Gillevet, Lawrey, Rockwood

Associate Professors
Birchard, Christensen, Edwards, Forkner, Grant, Weeks

Term Professors
Polayes, Kocache

Term Associate Professors
Laemmerzahl, Luther, Madden, Tondi, Verhoeven

Term Assistant Professors
Crerar, Davis, Fondufre, Masterson, Olmo, Scherer, Schwebach

Adjunct Faculty
Beck, Brown, Buckley-Beason, de Mauro, Diaz, Einhorn, Guo, Hermoso, Holbeck, Hunnell, Jones, Munse, Ravi, Shirazi, Skacel, Starolis, Tomson, Van der Ham, Veerareddy, Visseren, Warmer, Wood-Salvesen

Affiliate Faculty

Requirements & Policies

Requirements
Advising
All biology majors are strongly encouraged to see an academic advisor regularly to help in planning their schedule so that they can graduate on time. Biology majors should see an advisor for permission to register prior to their first semester, again after completing 60 credits, and lastly after completing 90 credits.

Medical Laboratory Science, BS (p. 631) majors must see the director of the medical laboratory science program to obtain permission to register each semester.

Students returning from suspension are required to meet with the director of undergraduate studies or designee prior to being allowed to register.

For more information on advising or to set up an appointment, visit the Department of Biology’s website (http://biology.gmu.edu).

Residency Requirement for Transfer Students
Students majoring in biology are required to complete 16 credits in the major at the 300 and 400 levels at Mason in addition to meeting the university residency requirement of at least 30 credits at Mason.

Policies

Policy on Using Biology Program Laboratories
Only authorized experiments and exercises may be carried out in any research or teaching laboratory and must be done under the supervision of a university faculty or staff member. No unauthorized work is allowed in any laboratory.

Policy on Using Organisms in Classes
Direct observations of actual organisms are considered an essential part of learning biology at all levels. Direct observations of organisms may involve the use of living or preserved specimens, dissections of organisms or parts of organisms, and microscopic examination of organisms or parts of organisms. All use of live animals conforms to National Institutes of Health guidelines for the use and care of laboratory animals. Activities specified above may be a required part of a course and thus serve as a basis for grading in the course. Any questions about the administration of this policy should be directed to the course coordinator or instructor.

Writing-Intensive Requirement
Mason requires all students to complete at least one course designated as “writing intensive” in their majors at the 300-level or above. Students majoring in biology fulfill this requirement by successfully completing BIOL 308 Foundations of Ecology and Evolution. Medical laboratory science majors fulfill the requirement by completing MLAB 300 Science Writing.

Minor in Biology
Information about this minor can be found on the Biology Minor (p. 619) page.

Premedical, Predental, Prepharmacy, and Preveterinary Students
Web: prehealth.gmu.edu (http://prehealth.gmu.edu)

Many students planning to enter medical, dental, pharmacy, veterinary, optometry, or other health professional schools choose to pursue a major in biology. These students should consult the health professions advising web site on required coursework and overall preparation.

Teacher Licensure
Students who wish to become teachers should pursue either the Biology, BA (p. 619) or the Biology, BS (p. 624) in addition to obtaining teaching certificates through the College of Education and Human
Biology for Non-majors

Students who are not majoring in science or mathematics and wish to fulfill their natural science requirement may enroll in the biology classes listed in the Mason Core Natural Science (p. 135) section. Chemistry, physics, and mathematics majors should consult their faculty advisor to determine which biology courses to take.

Programs

- Biology Minor
- Biology, BA
- Biology, BS
- Career Changer’s Biological Sciences Undergraduate Certificate
- Medical Laboratory Science, BS

Biology Minor

Banner Code: BIOL

Academic Advising

Exploratory Hall, Room 1200
Fairfax Campus
Website: biology.gmu.edu/academics/degree-programs/

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Candidates for the minor in biology must complete required coursework with a minimum GPA of 2.00 or better and must earn a grade of ‘C’ or better in BIOL 213 Cell Structure and Function (Mason Core) (p. 135).

Requirements

Minor Requirements

Total credits: 19-21

Students should refer to the Admissions & Policies (p. 619) tab for specific policies related to this program.

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>3-5</td>
</tr>
<tr>
<td>or BIOL 310</td>
<td>Biodiversity</td>
<td></td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
<tr>
<td>Elective courses in biology to achieve at least 19 credits (one of which may be lower-level)</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 19-21

Biology, BA

Banner Code: SC-BA-BIOL

Academic Advising

Exploratory Hall, Room 1200
Fairfax Campus
Website: biology.gmu.edu/academics/degree-programs/

The Biology, BA provides a sound liberal arts education with substantial experience in quantitative and analytical thought, along with preparation for related professions. The department provides the strong background necessary for not only for graduate study in the life sciences, but also enables students to develop careers in a wide variety of disciplines, including secondary school teaching, environmental management, microbiology, molecular biology, biotechnology, genetics, wildlife management, fisheries biology, and marine science. Furthermore, our curriculum prepares students for careers in the health sciences including medicine, dentistry, veterinary science, and related allied health disciplines.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135). Students in this bachelor’s program must also complete the additional College Requirements for the BA Degree (see Requirements (p. 620)).

The writing intensive requirement is fulfilled by BIOL 308 Foundations of Ecology and Evolution.

Important information and departmental policies are listed with the Department of Biology (p. 617).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Important Program Requirements

Students must complete degree requirements with:

- A minimum GPA of 2.00 in the 32 credits of BIOL courses listed in degree program
- A minimum GPA of 2.00 in the supporting courses listed in degree program

Additionally:

- Students may apply no more than 4 credits of BIOL 103 Introductory Biology I (Mason Core) (p. 135) or BIOL 104 Introductory Biology II (Mason Core) (p. 135) toward elective credit (or equivalent transfer credit at the 100 to 200-level) if taken before the successful
completion of BIOL 213 Cell Structure and Function (Mason Core) (p. 135).

- Biology majors must earn a minimum grade of 'C' in all of the biology core courses. A grade of 'C' or better must be earned in BIOL 213 Cell Structure and Function (Mason Core) (p. 135) in order to advance to other core requirements.
- Students may repeat BIOL 213 Cell Structure and Function (Mason Core) (p. 135) once, but a second time only with permission of the Department of Biology (p. 617).
- Students may not count BIOL 124 Human Anatomy and Physiology and/or BIOL 125 Human Anatomy and Physiology toward any biology major requirement.
- Students who take BIOL 310 Biodiversity and BIOL 330 Biodiversity Lab and Recitation may not count BIOL 303 Animal Biology and/or BIOL 304 Plant Biology toward any biology major requirement.
- BIOL 308 Foundations of Ecology and Evolution meets the writing intensive requirement for this major.
- BIOL 493 Honors Research in Biology, BIOL 495 Directed Studies in Biology, and BIOL 497 Special Problems in Biology do not satisfy the requirements of the BA degree which state that students must complete at least one upper division course that includes a laboratory. The courses do, however, count as non-laboratory electives.

**Teacher Licensure**

Students majoring in biology who wish to pursue a career teaching secondary school may consider applying for the Secondary Education – Biology (6-12) Undergraduate Certificate (p. 203) offered by the College of Education and Human Development (p. 154) as an option in seeking an initial Virginia teaching license. The certificate includes current endorsement and licensure coursework embedded within your major. Students apply to add this as a secondary program during their sophomore year and complete required content and education coursework leading to initial licensure in the state of Virginia within 120 credits.

Other routes to licensure include the Biology, BA or BS/Curriculum and Instruction, Accelerated Med (p. 172) (Secondary Education Biology Concentration) or select traditional Master’s programs. Please contact the undergraduate advisor in the College of Education and Human Development (p. 154) for more information.

### Requirements

#### Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 619) tab for specific policies related to this program.

#### Biology Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 310 &amp; BIOL 330</td>
<td>Biodiversity and Biodiversity Lab and Recitation</td>
<td>5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

1. Fulfills the writing intensive requirement.

#### Biology Electives

Complete 10 credits of additional biology courses (p. 1211) 1

1. Of which, at least 6 credits must be upper division, and at least one of these upper division courses must include a laboratory.

#### Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>General Chemistry I (Mason Core) (Natural Science course)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 212 &amp; CHEM 214</td>
<td>General Chemistry II (Mason Core) (Natural Science course)</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Math

Select one from the following: 3-6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>or MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>MATH 123 &amp; MATH 124</td>
<td>Calculus with Algebra/Trigonometry, Part A and B (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

#### Computer Science

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 130</td>
<td>Computing for Scientists (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

Any course(s) that fulfills the Mason Core: Information Technology requirement (p. 136)

#### Natural Science

Select 6-8 credits from the following Mason Core: Natural Science courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 103</td>
<td>Astronomy (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>ASTR 111</td>
<td>Introductory Astronomy: The Solar System (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>ASTR 113</td>
<td>Introductory Astronomy: Stars, Galaxies, and the Universe (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>
GEOL 102 Introductory Geology II (Mason Core) (p. 135)
PHYS 160 University Physics I (Mason Core) (p. 135)
PHYS 243 College Physics (Mason Core) (p. 135)
PHYS 245 College Physics (Mason Core) (p. 135)
PHYS 260 University Physics II (Mason Core) (p. 135)

Total Credits 6-8

Note for Students Expecting to Enter Graduate or Professional School
Students expecting to enter graduate or professional school are strongly encouraged to complete:

MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) and Analytic Geometry and Calculus II 8
MATH 114

CHEM 313 Organic Chemistry I and Organic Chemistry Lab I 5
& CHEM 315
CHEM 314 Organic Chemistry II and Organic Chemistry Lab II 5
& CHEM 318
PHYS 243 College Physics (Mason Core) (p. 135) and College Physics Lab (Mason Core) (p. 135) 4

& PHYS 244
PHYS 245 College Physics (Mason Core) (p. 135) and College Physics Lab (Mason Core) (p. 135) 4

& PHYS 246

Mason Core and Elective Requirements
In order to meet a minimum of 120 credits, this degree requires an additional 63-68 credits, which may be applied toward any remaining Mason Core (http://catalog.gmu.edu/content.php?catoid=29&navoid=6253) requirements (outlined below), Requirements for Bachelor's Degrees (http://catalog.gmu.edu/content.php?catoid=29&navoid=6151/#undergradrequirements), College Requirements for the BA Degree (outlined below), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL (p. 1818)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RELI (p. 1904)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Synthesis/Capstone Requirement 1
Synthesis/Capstone (p. 143) 1
Total Credits 40
1 minimum 3 credits

College Requirements for the BA Degree
In addition to the program requirements and the Mason Core (p. 135) requirements, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill this college-level requirement may also be used simultaneously to satisfy other requirements such as Mason Core (p. 135) requirements, other college-level requirements, or requirements for the major. In some cases, the requirements listed below may be superseded by requirements of the degree program and the Mason Core (p. 135).

Philosophy or Religious Studies
Select 3 credits from the following:
- PHIL (p. 1818) | 1 |
- RELI (p. 1904) | 1 |

Social and Behavioral Sciences
Choose one approved Mason Core: Social and Behavioral Sciences (p. 142) course in addition to the Mason Core (p. 135)-required course for a total of 6 credits. The two courses used to fulfill the combined college-level and university requirements must be from different disciplines. This requirement may be fulfilled by completing any course in ANTH (p. 1119), CRIM (p. 1372), ECON (p. 1413), GOVT (p. 1588), HIST (p. 1628), LING (p. 1694), PSYC (p. 1844), or SOCI (p. 1923), and the following GGS (p. 1554) courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
</tr>
</tbody>
</table>

This requirement may be fulfilled by completing any course in ANTH (p. 1119), CRIM (p. 1372), ECON (p. 1413), GOVT (p. 1588), HIST (p. 1628), LING (p. 1694), PSYC (p. 1844), or SOCI (p. 1923), and the following GGS (p. 1554) courses:
GGS 357  Structures in Urban Governance and Planning
GGS 380  Geography of Virginia

Total Credits 3

1 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

Natural Science
Choose one credit in addition to the Mason Core: Natural Science (p. 141) requirement for a total of 8 credits. This combined college-level and university requirement must be fulfilled by completing two of any approved Mason Core: Natural Science (p. 141) courses that include a laboratory experience.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select an additional Mason Core Natural Science course</td>
<td>1</td>
</tr>
</tbody>
</table>

1 BIOL 124 Human Anatomy and Physiology and BIOL 125 Human Anatomy and Physiology may not be used to fulfill this requirement.

Foreign Language
Intermediate-level proficiency in one foreign language is required. This requirement may be fulfilled by completing a course in a foreign language numbered 202, 209, or 210 (or higher-level courses taught in the language).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select a foreign language course numbered 202, 209, 210, or higher if a waiver isn’t applicable</td>
<td>0-3</td>
</tr>
</tbody>
</table>

1 Students may be eligible for a waiver of this requirement if they are already proficient in a second language or if they have received a satisfactory score on an approved proficiency test. Additional information on waivers can be found via the college’s Office of Academic and Student Affairs (https://cos.gmu.edu/uaa).

Non-Western Culture
Choose one approved Non-Western Culture Requirement course in addition to the course used to fulfill the Mason Core: Global Understanding (p. 139) requirement. A course used to fulfill the Mason Core: Global Understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. However, a course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core (p. 135) requirements, college-level requirements, or requirements for the major).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits from approved Non-Western Culture courses if a waiver isn’t applicable:</td>
<td>0-3</td>
</tr>
</tbody>
</table>

ANTH 114  Introduction to Cultural Anthropology (Mason Core) (p. 135) 3
ANTH 300  Civilizations 3
ANTH 301  Native North Americans 3
ANTH 302  Peoples and Cultures of Latin America (Mason Core) (p. 135) 3
ANTH 303  Peoples and Cultures of the Andes 3
ANTH 306  Peoples and Cultures of Island Asia (Mason Core) (p. 135) 3

ANTH 307  Ancient Mesoamerica (Mason Core) (p. 135) 3
ANTH 308  Peoples and Cultures of the Middle East (Mason Core) (p. 135) 3
ANTH 309  Peoples and Cultures of India (Mason Core) (p. 135) 3
ANTH 313  Myth, Magic, and Mind (Mason Core) (p. 135) 3
ANTH 314  Zombies 3
ANTH 316  Peoples and Cultures of the Caribbean (Mason Core) (p. 135) 3
ANTH 323  Digging and Dealing in the Dead: Ethics in Archaeology 3
ANTH 330  Peoples and Cultures of Selected Regions: Non-Western 3
ANTH 332  Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135) 3
ANTH 381  Medical Anthropology 3
ANTH 383  Cities of the Global South 3
ANTH 396  Issues in Anthropology: Social Sciences (Mason Core) (p. 135) 3
ARAB 360  Topics in Arabic Cultural Production 3
ARAB 420  Survey of Arabic Literature 3
ARAB 440  Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135) 3
ARTH 203  Survey of Asian Art (Mason Core) (p. 135) 3
ARTH 204  Survey of Latin American Art (Mason Core) (p. 135) 3
ARTH 206  Survey of African Art (Mason Core) (p. 135) 3
ARTH 318  Art and Archaeology of Ancient Egypt 3
ARTH 319  Art and Archaeology of the Ancient Near East (Mason Core) (p. 135) 3
ARTH 320  Art of the Islamic World (Mason Core) (p. 135) 3
ARTH 382  Arts of India (Mason Core) (p. 135) 3
ARTH 383  Arts of Southeast Asia (Mason Core) (p. 135) 3
ARTH 384  Arts of China (Mason Core) (p. 135) 3
ARTH 385  Arts of Japan (Mason Core) (p. 135) 3
ARTH 386  The Silk Road (Mason Core) (p. 135) 3
ARTH 482  RS: Advanced Studies in Asian Art 3
CHIN 318  Introduction to Classical Chinese (Mason Core) (p. 135) 3
CHIN 320  Contemporary Chinese Film 3
CHIN 325  Major Chinese Writers (Mason Core) (p. 135) 3
DANC 118  World Dance (Mason Core) (p. 135) 3
ECON 361  Economic Development of Latin America (Mason Core) (p. 135) 3
ECON 362  African Economic Development (Mason Core) (p. 135) 3
FREN 451  Topics in Sub-Saharan Francophone Literature and Culture 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td>3</td>
</tr>
<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
<td>3</td>
</tr>
<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
</tr>
<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 360</td>
<td>History of South Africa (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core) (p. 135)</td>
<td>3-6</td>
</tr>
<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 310</td>
<td>Japanese Culture in a Global World</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 103</td>
<td>Musics of the World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
</tr>
<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur'an and Hadith</td>
<td>3</td>
</tr>
<tr>
<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Students who can document attendance at a native school in a non-western country for at least four years may request a waiver from this requirement through the CHSS Undergraduate Academic Affairs Office (http://chssundergrad.gmu.edu).

### Honors

#### Honors in the Major

**Admissions**

Minimum requirements for invitation:

- GPA in biology courses must be 3.33 or better
- GPA in supporting requirements (math and other science) must be 3.00 or better
- Grade of ‘B’ or better in BIOL 213 Cell Structure and Function (Mason Core) (p. 135)
Students should apply for admission to the Honors Program during their first or second year at the university. Contact the Department of Biology (p. 617) for information on applying.

Retention Requirements

Students in honors biology must maintain a biology GPA of 3.33 or better and a supporting GPA of 3.00 or better from the time they have accumulated 30 hours and thereafter. Students who fall below this standard will be given a one semester probationary period in which to bring their GPA back up to the minimum standard.

Requirements to Graduate with Biology Honors

Students are required to take 6 to 8 credits in honors courses in BIOL including three semesters of BIOL 494 Honors Seminar in Biology or two semesters of BIOL 494 Honors Seminar in Biology and one semester of BIOL 493 Honors Research in Biology. BIOL 498 Research Seminar may count towards one of the semester requirements of BIOL 494 Honors Seminar in Biology. The GPA requirements are as follows:

- Minimum 3.33 GPA in honors biology courses
- Minimum 3.33 GPA in biology requirements
- Minimum 3.00 GPA in supporting requirements
- Minimum 3.00 GPA overall

Accelerated Master's

Biology, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Biology concentration)

Overview

Highly-qualified undergraduates may be admitted to the bachelor's/accelerated master's program and obtain a BA (p. 619) or BS in Biology (p. 624) (degree without concentration) and an MEd in Curriculum and Instruction (concentration in secondary education biology) (p. 161) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Biology Undergraduate Program (p. 617) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements

Students must complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td>3</td>
<td>EDCI 673</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

While undergraduate students, accelerated master's students are able to apply two of the courses listed above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor's/Accelerated Master's Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Biology, BS

Banner Code: SC-BS-BIOL

Academic Advising

Exploratory Hall, Room 1200
Fairfax Campus

Website: biology.gmu.edu/academics/degree-programs/

The Biology, BS provides a sound liberal arts education with substantial experience in quantitative and analytical thought, along with preparation for related professions. The department provides the strong background necessary for not only for graduate study in the life sciences, but also enables students to develop careers in a wide variety of disciplines, including secondary school teaching, environmental management, microbiology, molecular biology, biotechnology, genetics, wildlife management, fisheries biology, and marine science. Furthermore, our curriculum prepares students for careers in the health sciences including medicine, dentistry, veterinary science, and related allied health disciplines.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

Important information and departmental policies are listed in the Department of Biology (p. 617) section of this catalog.
BIOL 308 Foundations of Ecology and Evolution meets the writing intensive requirement for this major.

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

**Important Program Requirements**

- Students may apply no more than 8 credits of BIOL 103 Introductory Biology I (Mason Core) (p. 135) or BIOL 104 Introductory Biology II (Mason Core) (p. 135) toward elective credit (or equivalent transfer credit at the 100 to 200-level) if taken before successful completion of BIOL 213 Cell Structure and Function (Mason Core) (p. 135).
- Biology majors must earn a minimum grade of 'C' in all biology core courses. A grade of 'C' or better must be earned in BIOL 213 Cell Structure and Function (Mason Core) (p. 135) in order to advance to other core requirements.
- Students may repeat BIOL 213 Cell Structure and Function and Function (Mason Core) (p. 135) once, but a second time only with permission from the Department of Biology.
- Students may not count BIOL 124 Human Anatomy and Physiology and/or BIOL 125 Human Anatomy and Physiology toward any biology major requirement.
- Students who take BIOL 310 Biodiversity may not count BIOL 303 Animal Biology and/or BIOL 304 Plant Biology toward any biology major requirement.
- 44 credits must be in biology coursework.
- BIOL 493 Honors Research in Biology, BIOL 495 Directed Studies in Biology, and BIOL 497 Special Problems in Biology do not satisfy the requirements of the BS degree which state that students must complete at least two upper division courses that include a laboratory. The courses do, however, count as non-laboratory electives.

Several optional concentrations are available; details on each can be found in the Requirements tab.

**Teacher Licensure**

Students majoring in biology who wish to pursue a career teaching secondary school may consider applying for the Secondary Education – Biology (6-12) Undergraduate Certificate (p. 203) offered by the College of Education and Human Development (p. 154) as an option in seeking an initial Virginia teaching license. The certificate includes current endorsement and licensure coursework embedded within your major. Students apply to add this as a secondary program during their sophomore year and complete required content and education coursework leading to initial licensure in the state of Virginia within 120 credits.

Other routes to licensure include the Biology, BA or BS/Curriculum and Instruction, Accelerated MEd (p. 172) (Secondary Education Biology Concentration) or select traditional Master’s programs. Please contact the Undergraduate Advisor in College of Education and Human Development (p. 154) for more information.

**Requirements**

**Degree Requirements**

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 624) tab for specific policies related to this program.

Students must complete their biology coursework and the supporting requirements which follow with a minimum GPA of 2.00.

All students must complete the biology core, chemistry, physics, mathematics, and computer science courses listed below. Students then elect to complete the BS degree either with a concentration or without a concentration.

**Biology Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Biodiversity</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 22

1 Fulfills writing intensive requirement.

**Chemistry**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>and General Chemistry Laboratory I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(Natural Science course)</td>
<td></td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>&amp; CHEM 214</td>
<td>and General Chemistry Laboratory II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(Natural Science course)</td>
<td></td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 13

**Physics**

Select from one from the following Mason Core: Natural Science sequences:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 243 &amp; PHYS 244</td>
<td>College Physics (Mason Core)</td>
<td>8</td>
</tr>
<tr>
<td>&amp; PHYS 245</td>
<td>and College Physics Lab (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 246</td>
<td>(Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td>8</td>
</tr>
<tr>
<td>&amp; PHYS 161</td>
<td>and University Physics I Laboratory</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 260</td>
<td>(Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 261</td>
<td>and University Physics II (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 8

**Mathematics**

Select one from the following: 3-6
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>or MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MATH 123</td>
<td>Calculus with Algebra/Trigonometry, Part A</td>
<td></td>
</tr>
<tr>
<td>&amp; MATH 124</td>
<td>and Calculus with Algebra/Trigonometry, Part B (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3-6

**Computer Science**

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 130</td>
<td>Computing for Scientists (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Any course(s) that fulfills the Mason Core: Information Technology requirement (p. 136)

Total Credits: 3

1 Recommended by the Department of Biology

**BS without Concentration**

Students who do not select an optional concentration must complete the biology core and shared courses shown above in addition to the curriculum requirements listed below.

**Biology Electives**

Complete 22 credits of additional biology courses (p. 1211) 1

Total Credits: 22

1 Of which, at least 14 credits must be upper division, and at least two of the upper division courses must include a laboratory.

**Additional Science Courses**

Students are encouraged to consult with a biology faculty advisor to determine which option (A, B, or C) best meets their career goals.

Select one from the following options: 3-8

**Option A:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>&amp; CHEM 318</td>
<td>and Organic Chemistry Lab II</td>
</tr>
</tbody>
</table>

**Option B:**

One 3 credit chemistry course at the 300 or 400-level (not CHEM 314) (p. 1244)

**Option C:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>&amp; GEOL 102</td>
<td>and Introductory Geology II (Mason Core) (p. 135) (Natural Science courses)</td>
</tr>
</tbody>
</table>

Total Credits: 3-8

**Note:**

Students expecting to enter a professional school are strongly encouraged to complete MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135).

**Concentration in Bioinformatics (BNF)**

The highly interdisciplinary field of bioinformatics has emerged as a powerful modern science. There is a great demand for undergraduate and graduate-level trained individuals with a background in bioinformatics in industry as well as in academia.

**Computer Science**

3

CDS 130 is recommended to fulfill the Computer Science requirement in the shared core above.

CDS 230  Modeling and Simulation I

**Bioinformatics**

6

BINF 401  Bioinformatics and Computational Biology I

BINF 402  Bioinformatics and Computational Biology II

**Biology**

14-16

BIOL 312  Biostatistics for Bioinformatics

BIOL 401  Phage Discovery

BIOL 412  Phage Genomics

**Biology Lab Elective**

Select one from the following:

BIOL 320  Comparative Chordate Anatomy

BIOL 322  Developmental Biology

& BIOL 323  and Lab for Developmental Biology

BIOL 331  Invertebrate Zoology

BIOL 332  Insect Biology

BIOL 334  Vertebrate Paleontology

BIOL 336  Invertebrate Paleontology

BIOL 344  Plant Diversity and Evolution

BIOL 345  Plant Ecology

BIOL 350  Freshwater Ecosystems

BIOL 355  Ecological Engineering and Ecosystem Restoration

BIOL 379  RS: Ecological Sustainability (Mason Core) (p. 135)

BIOL 385  Biotechnology and Genetic Engineering

& BIOL 486  and Molecular Biology and Biotechnology Laboratory

BIOL 405  Microbial Genetics

BIOL 406  Microbial Physiology and Metabolism

BIOL 407  Microbial Diversity

BIOL 430  Advanced Human Anatomy and Physiology I

BIOL 431  Advanced Human Anatomy and Physiology II

BIOL 452  Immunology

& BIOL 453  and Immunology Laboratory

BIOL 454  Marine Mammal Biology and

& BIOL 455  and Marine Mammal Biology and Conservation Field Course

BIOL 465  Histology

BIOL 468  Vertebrate Natural History

BIOL 472  Introductory Animal Behavior

& BIOL 473  and Introductory Laboratory in Animal Behavior

BIOL 484  Eukaryotic Cell Biology

& BIOL 485  and Eukaryotic Cell Biology Laboratory
### Concentration in Biopsychology (BP)

The biopsychology concentration consists of a selection of courses designed to address the needs and interest of students who wish to study biology in more depth while simultaneously exploring psychology and neurobiology. This concentration will help prepare students for the MCAT section related to psychology and provide veterinary students with a background in animal learning/behavior.

#### Biopsychology Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 430</td>
<td>Advanced Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 431</td>
<td>Advanced Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>PSYC 372</td>
<td>Physiological Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 373</td>
<td>Physiological Psychology Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Additional Psychology/Neuroscience Course

Select 3-4 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 304</td>
<td>Principles of Learning</td>
</tr>
<tr>
<td>PSYC 376</td>
<td>Brain and Behavior</td>
</tr>
<tr>
<td>PSYC 406</td>
<td>Psychology of Communication (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>NEUR 327</td>
<td>Cellular, Neurophysiological, and Pharmacological Neuroscience</td>
</tr>
<tr>
<td>NEUR 335</td>
<td>Molecular, Developmental, and Systems Neuroscience</td>
</tr>
</tbody>
</table>

#### Additional Biology Courses

Select 6-7 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 385</td>
<td>Biotechnology and Genetic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td>4</td>
</tr>
</tbody>
</table>

#### Additional Chemistry Courses

Select one from the following options:

- Option A:
  - CHEM 314 Organic Chemistry II
  - CHEM 318 Organic Chemistry Lab II

#### Concentration in Biotechnology and Molecular Biology (BTMB)

The biotechnology and molecular biology concentration consists of a selection of courses that provide essential skills to students who seek employment in the field or wish to include an applied component in their undergraduate training in biology.

#### Biotechnology Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
</tr>
<tr>
<td>BIOL 385</td>
<td>Biotechnology and Genetic Engineering</td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
</tr>
</tbody>
</table>

#### Additional Biology Courses

Select 11 credits from the following, at least one of the courses must include a laboratory:

**Laboratory Courses:**

- BIOL 402 Applied and Industrial Microbiology
- BIOL 403 Microbial Physiology and Metabolism
- BIOL 452 Immunology
- BIOL 453 & BIOL 453 Immunology Laboratory
- BIOL 486 Molecular Biology and Biotechnology Laboratory

**Non-laboratory Courses:**

- BIOL 314 Introduction to Research Design and Analysis
- BIOL 382 Introduction to Virology
- BIOL 411 Advanced General Genetics
- BIOL 417 Selected Topics in Molecular and Cellular Biology
- BIOL 418 Current Topics in Microbiology
- BIOL 420 Vaccines
- BIOL 421 Genetics of Human Diseases
- BIOL 422 Stem Cell Biology and Regenerative Medicine
- BIOL 482 Introduction to Molecular Genetics
- BIOL 484 Eukaryotic Cell Biology
- BIOL 497 Special Problems in Biology

#### Additional Chemistry Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Organic Chemistry Lab II</td>
</tr>
</tbody>
</table>

Total Credits: 23-25

1. Students are encouraged to consult with a biology faculty advisor to determine which option best meets their career goals.
2. CHEM 314 Organic Chemistry II alone does not fulfill this requirement.
Registration for BIOL 417 Selected Topics in Molecular and Cellular Biology, BIOL 418 Current Topics in Microbiology, or BIOL 497 Special Problems in Biology is subject to approval by the Director of Undergraduate Studies and the Chairman of the Department of Biology.

**Concentration in Environmental and Conservation Biology (ESCB)**

This concentration is offered to students seeking a biology degree that focuses on ecology and organismal biology and prepares them for graduate work or employment in environmental and conservation fields, such as natural resources management, fisheries, forestry, water quality management, aquatic and wetland ecology, and conservation biology. The concentration is staffed and supported by the Department of Environmental Science and Policy (p. 660).

**Environmental and Conservation Biology**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 318</td>
<td>Conservation Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 377</td>
<td>Applied Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Biology Electives**

Select 16 credits from the following: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 309</td>
<td>Introduction to Oceanography</td>
<td></td>
</tr>
<tr>
<td>BIOL 314</td>
<td>Introduction to Research Design and Analysis</td>
<td></td>
</tr>
<tr>
<td>BIOL 326</td>
<td>Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 331</td>
<td>Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>BIOL 332</td>
<td>Insect Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 344</td>
<td>Plant Diversity and Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 345</td>
<td>Plant Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 350</td>
<td>Freshwater Ecosystems</td>
<td></td>
</tr>
<tr>
<td>BIOL 355</td>
<td>Ecological Engineering and Ecosystem Restoration</td>
<td></td>
</tr>
<tr>
<td>BIOL 379</td>
<td>RS: Ecological Sustainability (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>BIOL 440</td>
<td>Field Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 446</td>
<td>Ecological and Evolutionary Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 449</td>
<td>Marine Ecology</td>
<td></td>
</tr>
<tr>
<td>BIOL 450</td>
<td>Marine Conservation</td>
<td></td>
</tr>
<tr>
<td>BIOL 454</td>
<td>Marine Mammal Biology and Conservation</td>
<td></td>
</tr>
<tr>
<td>BIOL 455</td>
<td>Marine Mammal Biology and Conservation Field Course</td>
<td></td>
</tr>
<tr>
<td>BIOL 457</td>
<td>Reproductive Strategies</td>
<td></td>
</tr>
<tr>
<td>BIOL 459</td>
<td>Fungi and Ecosystems</td>
<td></td>
</tr>
<tr>
<td>BIOL 468</td>
<td>Vertebrate Natural History</td>
<td></td>
</tr>
<tr>
<td>BIOL 472 &amp; BIOL 473</td>
<td>Introductory Animal Behavior and Introductory Laboratory in Animal Behavior</td>
<td></td>
</tr>
<tr>
<td>BIOL 480</td>
<td>The Diversity of Fishes</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Science Courses**

Select one from the following options: 2

<table>
<thead>
<tr>
<th>Option</th>
<th>Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>CHEM 314 Organic Chemistry II &amp; CHEM 318</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Organic Chemistry Lab II</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>One chemistry course at the 300 or 400-level (p. 1244)</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration in Microbiology (MIB)**

This concentration offers lecture and laboratory courses in microbiology to prepare students for employment or advanced study in microbial genetics, physiology, diversity, and related fields.

**Microbiology Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 405</td>
<td>Microbial Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 407</td>
<td>Microbial Diversity</td>
<td>4</td>
</tr>
</tbody>
</table>

**Biology Electives**

Select 10 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 314</td>
<td>Introduction to Research Design and Analysis</td>
<td></td>
</tr>
<tr>
<td>BIOL 382</td>
<td>Introduction to Virology</td>
<td></td>
</tr>
<tr>
<td>BIOL 385</td>
<td>Biotechnology and Genetic Engineering</td>
<td></td>
</tr>
<tr>
<td>BIOL 402</td>
<td>Applied and Industrial Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 403</td>
<td>Techniques in Applied and Industrial Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 404</td>
<td>Medical Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 418</td>
<td>Current Topics in Microbiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 420</td>
<td>Vaccines</td>
<td></td>
</tr>
<tr>
<td>BIOL 452</td>
<td>Immunology</td>
<td></td>
</tr>
<tr>
<td>BIOL 453</td>
<td>Immunology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 459</td>
<td>Fungi and Ecosystems</td>
<td></td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td></td>
</tr>
</tbody>
</table>

**Additional Chemistry Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Organic Chemistry Lab II</td>
<td>2</td>
</tr>
</tbody>
</table>

**Mason Core and Elective Credits**

In order to meet a minimum of 120 credits, this degree requires additional credits (specific credit counts by concentration are shown below), which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor’s Degrees, and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

- Without concentration: 38-46 credits
- BNF concentration: 43-48 credits
• BP concentration: 40-47 credits
• BTMB concentration: 41-44 credits
• ESCB concentration: 38-46 credits
• MIB concentration: 41-44 credits

Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundation Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone Requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

Honors

Honors in the Major
Admissions
Minimum requirements for invitation:

• GPA in biology courses must be 3.33 or better
• GPA in supporting requirements (math and other science) must be 3.00 or better
• Grade of ‘B’ or better in BIOL 213 Cell Structure and Function (Mason Core) (p. 135)

Students should apply for admission to the Honors Program during their first or second year at the university. Contact the Department of Biology (p. 617) for information on applying.

Retention Requirements
Students in honors biology must maintain a biology GPA of 3.33 or better and a supporting GPA of 3.00 or better from the time they have accumulated 30 hours and thereafter. Students who fall below this standard will be given a one semester probationary period in which to bring their GPA back up to the minimum standard.

Requirements to Graduate with Biology Honors
Students are required to take 6 to 8 credits in honors courses in BIOL including three semesters of BIOL 494 Honors Seminar in Biology or two semesters of BIOL 494 Honors Seminar in Biology and one semester of BIOL 493 Honors Research in Biology. BIOL 498 Research Seminar may count towards one of the semester requirements of BIOL 494 Honors Seminar in Biology. The GPA requirements are as follows:

• Minimum 3.33 GPA in honors biology courses
• Minimum 3.33 GPA in biology requirements
• Minimum 3.00 GPA in supporting requirements
• Minimum 3.00 GPA overall

Accelerated Master’s

Biology, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Biology concentration)

Overview
Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s program and obtain a BA (p. 619) or BS in Biology (p. 624) (degree without concentration) and an MEd in Curriculum and Instruction (concentration in secondary education biology) (p. 161) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Biology Undergraduate Program (p. 617) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Students must complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior</th>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td></td>
<td>3</td>
<td>EDCI 673</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 672</td>
<td></td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
</tr>
</tbody>
</table>

6 6

Total Credits 12

While undergraduate students, accelerated master's students are able to apply two of the courses listed above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office.
and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

**Biology, BS/Biology, Accelerated MS**

Overview

Qualified undergraduates may be admitted into an accelerated master’s program and to obtain both a Biology, BS (p. 624) and a Biology, MS (p. 755) within an accelerated time frame. Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of graduate work may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 in these classes, they are granted advanced standing in the master’s program and must then complete an additional 24 credits to receive the master’s degree. All other master’s degree requirements must be met, including a minimum of 18 credits taken for the master’s after the bachelor’s degree is complete.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog. Application information for this accelerated master’s program can be found on the School of Systems Biology’s website (http://ssb.gmu.edu/admissions).

Successful applicants will have an overall undergraduate GPA of at least 3.20. Additionally, they will have completed the following courses with a GPA of 3.00 or higher:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Biodiversity</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
</tbody>
</table>

Three letters of recommendation, including one from a prospective thesis or project advisor, are required.

**Accelerated Option Requirements**

At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (available from the Office of the University Registrar (http://registrar.gmu.edu)) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor’s degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework and should consult with their faculty advisor to coordinate their academic goals.

After completing 120 credits and all requirements for the bachelor’s degree and filing the Graduation Intent Form, students are awarded a bachelor’s degree. Accelerated master’s students must then submit scores on the GRE to have the provisional qualifier removed. Ordinarily, students should receive a minimum combined score of 303 on the verbal and quantitative portions of the general test.

**Reserve Graduate Credit**

While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree.

**Career Changer’s Biological Sciences Undergraduate Certificate**

Banner Code: SC-CERB-CCBS

**Academic Advising**

Exploratory Hall, Room 1200
Fairfax Campus

Website: biology.gmu.edu/academics/degree-programs/

Post-baccalaureate students are invited to enroll in this certificate. By completing this certificate, students will be qualified to apply for most graduate programs in the biological sciences including medical, dental, optometry, podiatry, pharmacy, and veterinary schools. However, graduate and professional school undergraduate coursework requirements can vary; it is prudent to check the coursework requirements for each individual school.

This certificate may be pursued on a part-time or full-time basis.

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Additionally, admission into this certificate requires:

- The desire to pursue a career in biological sciences or the health professions (research, medicine, dentistry, teaching, law etc.);
- A conferred bachelor’s degree from a regionally accredited institution with a GPA of 3.00 or higher;
- A completed George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now) along with a the appropriate application fee; and
- Two sets of official transcripts from each institution attended.

Standardized test scores are not required.

**Policies**

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).
Some courses can be waived if previously taken during undergraduate training. Substitutions will be recommended where appropriate.

Certificate Fees
In addition to tuition and the usual laboratory and College of Science fees (p. 593) a fee of $500 per semester will be assessed to defray the costs of the outside speakers and the additional administrative work associated with this certificate.

Notes
• Each student must see an advisor in the Department of Biology (p. 617) prior to registration each semester.
• The program will normally take four semesters to complete for a full-time student.
• It is recommended that students interested in healthcare professions do the following:
   • Register for the HEALTHPROFESSIONSADVISOR listserv (http://prehealth.gmu.edu/listserv);
   • Attend at least one group advising session conducted by the Health Professions Advisor (http://prehealth.gmu.edu); and
   • Consider participating in Health Professions Advising (http://prehealth.gmu.edu) activities designed for students in a relevant application cycle

Requirements

Certificate Requirements
Total credits: 63-64

Students should refer to the Admissions & Policies (p. 630) tab for specific policies related to this program.

To earn this certificate, a student must pass all of the courses listed below with a grade no lower than ‘B’ and achieve a GPA of at least 3.40.

Cell Biology, Biostatistics, and Genetics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Additional Upper-level Biology
Select three additional 300, 400, or 500-level BIOL courses (with the exception of BIOL 310) in consultation with an academic advisor (p. 1211)
Total Credits 12

General Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Organic Chemistry and Biochemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Organic Chemistry Lab II</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

Physics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 244</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 246</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

Psychology and Sociology
Select 6 credits of psychology and/or sociology courses in consultation with the biology advisor
Total Credits 6

Mathematics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>or MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>3-4</strong></td>
</tr>
</tbody>
</table>

1 Calculus is recommended, but not required.

Career Seminars
These seminars will be organized each semester and will feature outside speakers from a wide variety of biologically-oriented professions.

Medical Laboratory Science, BS

Banner Code: SC-BS-MLAB

Academic Advising
Exploratory Hall, Room 1200
Fairfax Campus
Website: biology.gmu.edu/academics/degree-programs/

The BS in Medical Laboratory Science prepares students for careers in hospitals and clinics as well as in biotechnology and industrial laboratories. Medical Laboratory Science (MLS) is a profession of highly knowledgeable and skilled individuals who perform clinical laboratory tests on blood, other body fluids, or tissue samples. This is a critical part of health care, as the results obtained by these laboratory tests are
vital tools for physicians in the diagnosis, treatment, and prevention of disease.

People trained as medical laboratory scientists may work in a variety of settings. Many work in clinical laboratories in large medical centers, hospitals, or clinics. Some do research in industrial, public health, or medical laboratories. Others teach in hospitals, colleges, or universities. An MLS may practice as a generalist, using knowledge in several of the scientific disciplines, or may specialize in one scientific area in larger hospitals. A successful MLS is an individual who enjoys studying the biological, chemical, and physical sciences. He or she may also find personal satisfaction and intellectual reward in applying scientific methods to the diagnosis and evaluation of disease.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 84) including the Mason Core (p. 135).

MLAB 300 Science Writing fulfills this major’s writing intensive requirement.

Important information and departmental policies are available with the Department of Biology (p. 618).

This program requires the equivalent of three years of full-time pre-professional study at the college level preceding a senior year of professional education in an affiliated school of medical laboratory science. All affiliated schools (see below) are accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) (http://www.naacls.org/Home.aspx).

Note: Because of the extensive pre-professional education requirements stipulated by NAACLS, students majoring in medical laboratory science are exempt from the Mason Core ‘Arts’ requirement.

Important Program Requirements

- Students must complete MLAB 200 Introduction to Medical Laboratory Science and present the following courses in their biology coursework and supporting requirements with a minimum GPA of 2.00.
- A grade of ‘C’ or better must be earned in BIOL 213 Cell Structure and Function (Mason Core) (p. 135) in order to advance to other major requirements. Students may repeat BIOL 213 Cell Structure and Function (Mason Core) (p. 135) once and a second time only with permission of the Department of Biology.
- Medical laboratory science majors must earn a minimum of ‘C’ in all biology core courses listed below.

Major in Medical Laboratory Science as a Second Bachelor’s Degree

While the standard program for medical laboratory sciences is three years on campus followed by a fourth year at a clinical affiliate (3+1), many students elect to complete a bachelor’s degree before entering the clinical program (4+1). Students who have completed the Biology, BS (p. 624) or Chemistry, BS (p. 643) at Mason and then undertake a fifth year at a clinical affiliate may be eligible for a second bachelor’s degree with a major in medical laboratory science. Students wishing to receive the second degree must apply before entering their fifth year. For further information, contact a laboratory sciences advisor.

Applying to Medical Laboratory Sciences Schools

Responsibility for applying to schools of medical laboratory sciences and gaining admission rests with the student; however, guidance is provided by the medical laboratory sciences program director. Admission to medical laboratory sciences schools is selective, so candidates should strive for strong academic standing. Students who fail to gain admission to a NAACLS-approved school are unable to complete the degree program. Such students may transfer to Biology, BA (p. 619) or the Biology, BS (p. 624) without loss of credits.

Application to medical laboratory sciences schools should be initiated about a year before the desired entrance date. This fact, coupled with the large number of required courses in the pre-professional curriculum, makes it imperative that students in the program consult regularly with their faculty advisor. All medical laboratory sciences majors and prospective majors are urged to enroll in MLAB 200 Introduction to Medical Laboratory Science as early as possible. This course provides information on the profession, as well as the educational demands placed on candidates.

Senior Year

Students should be aware that the senior year spent off campus requires the following special interpretation of university policies. Transfer students must present at least 16 credits of 300 to 400-level biology or chemistry coursework taken at Mason. Students may present no more than 6 credits of ‘D’ grades in biology and chemistry courses required in three years of pre-professional study. No unsatisfactory grades may be presented for courses in the senior year of professional study. Transfer students entering with more than 45 transfer credits are often unable to complete the pre-professional phase of their program in the usual three years of full-time study.

Senior students are registered at the university through special procedures. For details, consult the program director.

Affiliated NAACLS-Approved Schools

This program requires the equivalent of three years of full time professional study at the college level preceding a senior year of professional education in an affiliated school of medical laboratory sciences. All affiliated schools are accredited by the NAACLS:

- Augusta Health- School of Clinical Laboratory Science (https://www.augustahealth.com/cls)
- George Washington University- School of Medicine and Health Sciences: The Medical Laboratory Sciences Program (http://smhs.gwu.edu/medical-laboratory-sciences)
- INOVA Fairfax Hospital- Medical Laboratory Science Program (https://www.inova.org/education/medical-laboratory-science)
Requirements

Degree Requirements
Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 632) tab for specific policies related to this program.

Students must complete the requirements outlined below, choosing one Professional Study/Concentration option:

- Not choosing a concentration ("Professional Study: Generalist Option") will provide students generalist training. Upon graduation, the board certification test may be taken and would allow graduates to practice in any area of a hospital or laboratory.
- Choosing a concentration will allow students to complete their clinical rotations in that specific area. Upon graduation, the Molecular Biology or Microbiology (depending upon the concentration chosen) board certification test may be taken.

Biology Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 12

MLAB and BIOL Additional Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLAB 200</td>
<td>Introduction to Medical Laboratory Science</td>
<td>1</td>
</tr>
<tr>
<td>MLAB 300</td>
<td>Science Writing</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 430</td>
<td>Advanced Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 431</td>
<td>Advanced Human Anatomy and Physiology II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 452</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 453</td>
<td>Immunology Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 19

Mathematics

Select one from the following: 3-6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>or MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>MATH 123</td>
<td>Calculus with Algebra/Trigonometry, Part A</td>
<td></td>
</tr>
<tr>
<td>&amp; MATH 124</td>
<td>and Calculus with Algebra/Trigonometry, Part B (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3-6

Information Technology

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 130</td>
<td>Computing for Scientists (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

Any course(s) which fulfills the Mason Core: Information Technology requirement

Total Credits 3

1 Recommended course for this major

Professional Study: Generalist Option

Senior students are registered at the university through special procedures. For details, consult the medical laboratory science program director.

The senior year spent off campus requires the following special interpretation of university policies: transfer students must present at least 16 credits of 300 to 400-level biology or chemistry coursework taken at Mason; no unsatisfactory grades (less than 'C') may be presented for courses in the senior year of professional study. Transfer students entering with more than 45 transfer credits are often unable to complete the pre-professional phase of their program in the usual three years of full-time study.

Students may have up to 30 credits of professional study during the senior year awarded for clinical education at an affiliated school of medical technology. No more than 30 professional credits may be applied toward the degree.

The distribution of credits in these courses varies with the school of medical technology. In consultation with the advisor, select from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLAB 401</td>
<td>Orientation to the Problems and Practices of the Clinical Laboratory</td>
<td></td>
</tr>
<tr>
<td>MLAB 402</td>
<td>Clinical Hematology and Coagulation</td>
<td></td>
</tr>
<tr>
<td>MLAB 403</td>
<td>Clinical Microscopy</td>
<td></td>
</tr>
<tr>
<td>MLAB 404</td>
<td>Serology and Immunohematology</td>
<td></td>
</tr>
<tr>
<td>MLAB 405</td>
<td>Clinical Microbiology</td>
<td></td>
</tr>
<tr>
<td>MLAB 406</td>
<td>Clinical Chemistry</td>
<td></td>
</tr>
</tbody>
</table>

Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>General Chemistry I (Mason Core) (p. 135) and General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 212 &amp; CHEM 214</td>
<td>General Chemistry II (Mason Core) (p. 135) and General Chemistry Laboratory II (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
</tbody>
</table>

Select one from the following: 4-5

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 314 &amp; CHEM 318</td>
<td>Organic Chemistry II and Organic Chemistry Lab II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 17-18
Students are encouraged to elect additional basic science courses during their pre-professional years. Recommended courses are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 465</td>
<td>Histology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 484</td>
<td>Eukaryotic Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 485</td>
<td>Eukaryotic Cell Biology Laboratory</td>
<td>2-3</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 244</td>
<td>College Physics Lab (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 246</td>
<td>College Physics Lab (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Professional Study: Molecular Biology Concentration (MOB)**

Senior students are registered at the university through special procedures. For details, consult the medical laboratory science program director.

The senior year spent off campus requires the following special interpretation of university policies: transfer students must present at least 16 credits of 300 to 400-level biology or chemistry coursework taken at Mason; no unsatisfactory grades (less than 'C') may be presented for courses in the senior year of professional study. Transfer students entering with more than 45 transfer credits are often unable to complete the pre-professional phase of their program in the usual three years of full-time study.

Students may have up to 30 credits of professional study during the senior year awarded for clinical education at an affiliated school of medical technology. No more than 30 professional credits may be applied toward the degree.

This concentration is a pathway leading to eligibility for categorical certification as a Certified Technologist by the American Society for Clinical Pathology (ASCP) (https://www.ascp.org/content) Board of Certification (BOC) (https://www.ascp.org/content/board-of-certification). The course is one year long, consisting of about 20% classroom and 80% hands-on laboratory experience. Instructors include the expert clinical scientists and technologists of Quest Diagnostics (http://www.questdiagnostics.com/home.html), Chantilly, Virginia.

In addition to the courses required for all Medical Laboratory Science students, the following is required:

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MLAB 401</td>
<td>Orientation to the Problems and Practices of the Clinical Laboratory</td>
<td>30</td>
</tr>
<tr>
<td>MLAB 405</td>
<td>Clinical Microbiology</td>
<td>30</td>
</tr>
</tbody>
</table>

**Notes:**

Students are encouraged to elect additional basic science courses during their pre-professional years. Recommended courses are:

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Histology</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 484</td>
<td>Eukaryotic Cell Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 485</td>
<td>Eukaryotic Cell Biology Laboratory</td>
<td>2-3</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 244</td>
<td>College Physics Lab (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

This concentration is a pathway leading to eligibility for categorical certification as a Certified Technologist by the American Society for Clinical Pathology (ASCP) (https://www.ascp.org/content) Board of Certification (BOC) (https://www.ascp.org/content/board-of-certification). The course is one year long, consisting of about 20% classroom and 80% hands-on laboratory experience. Instructors include the expert clinical scientists and technologists of Quest Diagnostics (http://www.questdiagnostics.com/home.html), Chantilly, Virginia.

In addition to the courses required for all Medical Laboratory Science students, the following is required:

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</tr>
<tr>
<td>MLAB 405</td>
<td>Clinical Microbiology</td>
<td>30</td>
</tr>
</tbody>
</table>

**Notes:**

Students are encouraged to elect additional basic science courses during their pre-professional years. Recommended courses are:
Molecular Biology program.

In order to meet a minimum of 120 credits, this degree requires an additional 32-36 credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below). Requirements for Bachelor’s Degrees (p. 86), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Mason Core and Electives

In order to meet a minimum of 120 credits, this degree requires an additional 32-36 credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below). Requirements for Bachelor’s Degrees (p. 86), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 246</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
</tbody>
</table>

MLAB 401 Topics

The following topics will be covered under MLAB 401 Orientation to the Problems and Practices of the Clinical Laboratory:

1. Introduction to Clinical Microbiology
   This course is a brief introduction to the discipline of Clinical Microbiology, and laboratory diagnostic techniques. Topics include: Overview of Microbiology Theory, Methods and Applications, Instrumentation, Staining, and Media, Immunology, Serology, and Molecular Diagnostics.

2. Medical Virology
   This course is a survey of the characteristics, pathogenicity, and laboratory diagnosis of important human viruses. Topics include viral taxonomy and classical virology. Special emphasis is placed on the epidemiology and the laboratory’s role in influenza pandemics.

3. Medical Mycology
   This course is a comprehensive presentation of medically important fungi. Emphasis is placed on clinical presentation and laboratory identification of pathogenic species and opportunistic pathogens. Topics include general mycology methods, yeasts, susceptibility testing, molds (Hyaline, Mucor, Dematiaceous), Dermatophytes, Systemic infections, and Pneumocystis.

4. Medical Parasitology
   This course is a comprehensive presentation of human parasites. Emphasis is placed on clinical presentation and laboratory identification. Topics include Flagellates, Ciliates, Coccidians, Malaria and Babesia, Other Blood Born and Tissue Born parasites, Nematodes, Cestodes, Trematodes, and Arthropods.

5. Molecular Detection of Infectious Disease
   This course examines the advances in using molecular methods to detect human infectious disease. Careful attention is given to the comparison of molecular technologies with traditional microbiology methods. Topics include molecular methods and applications, including PCR, sequencing, TMA, and PEGE, specimens of choice, sample preparation, Quality Control, primer selection, Molecular methods in selecting antimicrobial agents, molecular epidemiology, and target organisms: fungi, bacteria, parasites, and viruses.

6. Medical Bacteriology
   This course is a comprehensive presentation of bacteria isolated in the clinical laboratory. Emphasis is placed on the laboratory identification of isolates from a variety of specimen sources, and pathogenic species. Topics include instrumentation and MALDI, Gram Positive Cocci, Gram Positive Baccilli, Enterics, non-fermenters, Moraxella, Neisseria, Pasteurella, Haemophilus and HACEK, Campylobacter, Helicobacter, Legionella, CDC Select Agents, Chlamydia, Mycoplasma, Ureaplasma, Spirochetes, Anaerobes, Antibiotics and Susceptibility testing, and Acid Fast Bacilli.

7. Microbiology Clinical Correlations
   Designed as the capstone for the Technologist in Microbiology program, this course takes a body system view of the pathogenicity of infectious disease. Attention is given to integrating clinical presentation and case history to laboratory investigation and diagnosis. Topics include UTI/Genital, Food Borne/GI, Cystic Fibrosis, Blood, CSF, Body Fluids, and Wounds.

MLAB 407 Topics

The following topics will be covered under MLAB 407 Clinical Molecular Biology:
1. Introduction to Clinical Molecular Biology
This course presents the fundamentals of nucleic acid testing in the clinical laboratory and the underlying human genetics. Topics include: Fundamentals of Nucleic Acid Biochemistry, Common Techniques in Molecular Biology (Extraction, Resolution and Detection of Nucleic Acids, Analysis and Characterization, Amplification, Chromosomal Structure and Mutations, Gene Mutations, and DNA Sequencing).

2. Advanced Methods in Clinical Molecular Biology
This course applies the fundamentals of nucleic acid testing to advanced methods commonly used in the contemporary clinical and research laboratory. Topics include: PCR, Transcription-Based Amplification, Probe Amplification, Branched DNA, Hybrid Capture, Amplification: Signal, Cleavage-Based, Cycling Probe, Sequencing: Direct, Next Gen, Pyrosequencing, Bisulfite, RNA Sequencing, Bioinformatics, Human Genome Project.

3. Molecular Detection of Infectious Disease
This course examines the advances in using molecular methods to detect human infectious disease. Careful attention is given to the comparison of molecular technologies with traditional microbiology methods. Topics include: Molecular methods and applications, including PCR, sequencing, TMA, and PEGE, specimens of choice, sample preparation, Quality Control, primer selection, Molecular methods in selecting antimicrobial agents, molecular epidemiology, and target organisms: fungi, bacteria, parasites, and viruses.

4. Human Molecular and Chromosomal Applications and Pathology
This course presents advanced methods in nucleic acid testing to human medico-legal, forensic, and pathology applications. Topics include: Polymorphisms, RFLP, Paternity Testing, Linkage, Single Nucleotide Polymorphisms, Bone Marrow Engraftment, Mitochondrial DNA Polymorphisms and Disorders, Chromosomal Abnormalities, Patterns of Inheritance, Single Gene Disorders, Lysosomal Storage Disorders, Cystic Fibrosis, Trinucleotide Repeats, Genomic Imprinting, Array CGH, Molecular Oncology, HLA and Transplantation.

Department of Chemistry and Biochemistry
Planetary Hall, Room 303
Fairfax Campus
Phone: 703-993-1070
Email: chemistry@gmu.edu
Website: chemistry.gmu.edu

Requirements & Policies
Requirements
Writing Intensive Requirement
Mason requires all students to complete at least one course designated as "writing intensive" in their majors at the 300 level or above. Students majoring in chemistry fulfill this requirement by successfully completing CHEM 336 Physical Chemistry Lab I or CHEM 465 Biochemistry Lab.

Faculty
Department Faculty
Professors
Foster, Hussam
Associate Professors
Bishop, Couch, Honeychuck, Schreifels, Slayden, Weatherspoon (chair)
Assistant Professors
Paige, You
Term Associate Professor
Cooper, Hatton, Jones
Term Assistant Professors
Erb (associate chair), Fayissa, Pant
Emeriti
Cozzens, Davies, Stalick

Pre-Medical, Pre-Dental, Pre-Pharmacy, and Pre-Veterinary Students
Web: prehealth.gmu.edu (http://prehealth.gmu.edu)
Many students planning medical, dental, pharmacy, veterinary, optometry, or other health professional careers choose to pursue a major in chemistry. These students should consult the health professions advising web site on required coursework and overall preparation.

Pre-Pharmacy Society
Mason students who are interested in pursuing careers in pharmacy are encouraged to participate in the Pre-Pharmacy Society. This student organization organizes supplemental programming focused toward pharmacy as a career.

Chemistry Club
The Chemistry Club provides a social and informational network for students. It serves the Department of Chemistry and Biochemistry by sponsoring informational programs and allowing students to work at university events.

Graduate Programs
The department offers a Chemistry, MS with a research project (thesis option) or an all coursework program (non thesis option). Within the MS, students may pursue a concentration in biochemistry. The PhD in all branches of chemistry is available through the Chemistry and Biochemistry, PhD. Students may also pursue Chemistry-related PhD research through the Environmental Science and Public Policy, PhD and the Biosciences, PhD. An area of emphasis in computational chemistry is available through the Computational Sciences and Informatics, PhD, offered in conjunction with the Department of Computational and Data Sciences.
Teacher Licensure
Students who wish to become teachers should consult the College of Education and Human Development (p. 154) and attend an information session early in their undergraduate career. For more information, visit gse.gmu.edu (http://gse.gmu.edu).

Programs
- Chemistry Minor
- Chemistry and Biochemistry, PhD
- Chemistry, BA
- Chemistry, BS
- Chemistry, MS

Chemistry Minor
Banner Code: CHEM

Academic Advising
Phone: 703-993-1071
Email: sslayden@gmu.edu
Website: cos.gmu.edu/chemistry/undergraduate-programs/

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor.

A minimum GPA of 2.00 is required for all coursework applied to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 16

Students should refer to the Admissions & Policies (p. 637) tab for specific policies related to this program.

Coursework
Select 16 credits of CHEM courses at the 300-level or above (p. 1244)

Total Credits: 16

Chemistry and Biochemistry, PhD
Banner Code: SC-PHD-CBCM

Academic Advising
Email: chemistry@gmu.edu
Website: cbgrad.gmu.edu/aboutthephd.pdf

The program is intended to prepare students for advanced work in the chemical sciences and related areas. Graduates with the PhD in this field can seek employment in research and development, process control, or higher education. In addition to these traditional science career paths, graduates are also positioned to pursue careers in non-traditional areas such as the intellectual property and regulatory fields. The program is designed to provide students with a firm foundation in advanced coursework, which is followed by an independent research project completed under the guidance of a faculty advisor. The culmination of the program is a dissertation representing original research that is publishable in a peer-reviewed scientific journal.

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

The program is intended for students who have completed an undergraduate program of study in chemistry, biochemistry, or a related field. Applicants are expected to have a BS degree with a minimum GPA of 3.00, and acceptable GRE and TOEFL scores (if applicable). Applicants with a BS degree in other fields of study who have at least three years of chemistry or biochemistry coursework may be accepted provisionally and may be required to successfully complete selected remedial courses, some of which may not be applicable towards the PhD requirements. Interested students should submit a completed application, three letters of reference, official reports of GRE and TOEFL exam scores, and a personal/goals statement outlining their general research interests and career plans.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Academic Advising

Upon acceptance into the Chemistry and Biochemistry, PhD, a student will be assigned an academic advisor. Prior to registering for classes, students are required to meet with their academic advisor who will provide guidance in selecting courses that are consistent with the student’s area of interest. Once a student has selected a research/dissertation advisor, that person then assumes the role of providing academic advisement to the student.

Reduction of Credits

For students entering the doctoral program with a master's degree in a related field from a regionally accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of the program faculty and the associate dean for student affairs. See AP.6.5.2 Reduction of Credits (p. 88) for more information.
Requirements

Degree Requirements

Total credits: 72

Students should refer to the Admissions & Policies (p. 637) tab for specific policies related to this program.

Doctoral Coursework

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 817</td>
<td>Organic Structural Spectroscopy</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 833</td>
<td>Physical Chemistry and Biochemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

Seminar

Three credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 790</td>
<td>Graduate Seminar</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Select 39 credits of approved elective courses in consultation with the student's advisor

Total Credits 48

Dissertation Committee and Supervisor

By the end of the first year, a student in the program is expected to have selected a dissertation/research supervisor and to have formed the dissertation committee. This committee will consist of at least four graduate faculty members (including the dissertation supervisor), with at least two members from the Department of Chemistry and Biochemistry. At least one member must be from outside the department. Qualified individuals who are not members of the graduate faculty, including faculty at other universities or government laboratories, may serve on the committee with the approval of the program director and the college's associate dean.

Candidacy Examinations

The student must successfully complete separate written and oral candidacy examinations prepared and administered by the dissertation committee.

Dissertation Proposal and Advancement to Candidacy

Prior to completing the sixth semester in the program, a student is expected to have advanced to candidacy. The student’s committee will determine whether a candidate is ready to begin preparation of the research proposal and approve enrollment in CHEM 998 Doctoral Dissertation Proposal based upon their familiarity with the student’s progress.

In order to advance to candidacy, a student is required to fulfill the following requirements:

- The student will prepare and submit a research proposal (based on the thesis research) for approval by the dissertation committee.
- The student must pass a written qualifying exam prepared by the dissertation committee. The exam can be based on the student's research and/or completed coursework, with the composition of the exam being determined by the student's dissertation committee.
- The final stage is an oral defense of the student's research proposal. Questions at the proposal defense may also be drawn from material covered in the written qualifying exam.

Dissertation Research

No more than 24 combined credits from CHEM 998 Doctoral Dissertation Proposal and CHEM 999 Doctoral Dissertation Research may be applied toward satisfying doctoral degree requirements, with no more than 12 credits of CHEM 998 Doctoral Dissertation Proposal.

Select 24 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 998</td>
<td>Doctoral Dissertation Proposal</td>
<td></td>
</tr>
<tr>
<td>CHEM 999</td>
<td>Doctoral Dissertation Research</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

Exit Seminar

Each PhD candidate presents his or her research in a seminar in the Department of Chemistry and Biochemistry (a departmental seminar), which takes place in the same semester as the final defense of dissertation (below). The student does not have to be registered for CHEM 790 Graduate Seminar during the semester the exit seminar is presented.

Dissertation Research and Defense

With the approval of the dissertation committee, the student will enroll in CHEM 998 Doctoral Dissertation Proposal and CHEM 999 Doctoral Dissertation Research. The dissertation research should represent a significant contribution to the appropriate scientific field(s), and it should be deemed to represent a body of work that is publishable in a refereed scientific journal. The dissertation must be presented and defended in a public forum consisting of the dissertation committee and other interested members of the George Mason University community.

Chemistry, BA

Banner Code: SC-BA-CHEM

Academic Advising

Phone: 703-993-1071
Email: sslayden@gmu.edu
Website: cos.gmu.edu/chemistry/undergraduate-programs/

This program, when coordinated with the necessary courses in education, meets requirements for teacher licensure. It also meets requirements for entrance to medical and other professional schools.

Teacher Licensure

Students who wish to become teachers and plan to seek teacher licensure should consider the following options:

- Secondary Education – Chemistry (6-12) Undergraduate Certificate (p. 204)
- Chemistry, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Chemistry concentration) (p. 643)

Interested students should attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education’s website (http://gse.gmu.edu).
Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135). As outlined in Requirements (p. 639), students in this bachelor’s program must also complete the additional College Requirements for the BA Degree.

CHEM 336 Physical Chemistry Lab I or CHEM 465 Biochemistry Lab will fulfill the writing intensive requirement.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 639) tab for specific policies related to this program.

Students must complete the chemistry program requirements with a minimum GPA of 2.30 and present no more than two courses with a grade of ‘D’ (1.00) in CHEM coursework at graduation.

BA without Concentration

Students who do not select the optional concentration complete the curriculum requirements listed below.

Chemistry Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Organic Chemistry Lab II</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 331</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 332</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 336</td>
<td>Physical Chemistry Lab I ¹</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 337</td>
<td>Physical Chemistry Lab II</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 37

¹ Fulfills the writing intensive requirement.

Mathematics Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 11

Physics Courses

Select one sequence of Mason Core: Natural Science courses: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>&amp; PHYS 244</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 245</td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 246</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>&amp; PHYS 247</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>&amp; PHYS 161</td>
<td>University Physics I Laboratory</td>
<td></td>
</tr>
<tr>
<td>&amp; PHYS 260</td>
<td>(Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>&amp; PHYS 261</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>&amp; PHYS 262</td>
<td>University Physics II Laboratory (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 8

Concentration in Biochemistry (BC)

The concentration in biochemistry is designed for students interested in studying chemistry at its interface with the biological sciences. Those interested in health science careers can obtain an excellent science background through this concentration.

Students majoring in chemistry with a concentration in biochemistry will complete the alternative requirements for the major plus the concentration, both listed below.

Chemistry Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Organic Chemistry Lab II</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 331</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 332</td>
<td>Physical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 336</td>
<td>Physical Chemistry Lab I ¹</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 446</td>
<td>Bioinorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 463</td>
<td>General Biochemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 464</td>
<td>General Biochemistry II</td>
<td>3</td>
</tr>
</tbody>
</table>
Chemistry, BA

CHEM 465  Biochemistry Lab\(^1\)  2

Total Credits  39

\(^{1}\) Fulfills the writing intensive requirement.

**Mathematics and Statistics Courses**

MATH 113  Analytic Geometry and Calculus I (Mason Core)  4
MATH 114  Analytic Geometry and Calculus II  4
STAT 250  Introductory Statistics I (Mason Core)  3

Total Credits  11

**Physics Courses**

Mason Core: Natural Science courses:

PHYS 243  College Physics (Mason Core)  3
PHYS 244  College Physics Lab (Mason Core)  1
PHYS 245  College Physics (Mason Core)  3
PHYS 246  College Physics Lab (Mason Core)  1

Total Credits  8

**Biology Courses**

BIOL 213  Cell Structure and Function (Mason Core)  4

Total Credits  4

**Mason Core and Elective Credits**

In order to meet a minimum of 120 credits, this degree requires additional credits (specific credit counts by concentration are shown below), which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor's Degrees (p. 86), College Requirements for the BA Degree (outlined below), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

- Without concentration: 64 credits
- BC concentration: 58 credits

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundation Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone Requirement (^1)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits  40

\(^{1}\) minimum 3 credits

**College Requirements for the BA Degree**

In addition to the program requirements and the Mason Core (p. 135) requirements, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill this college-level requirement may also be used simultaneously to satisfy other requirements such as Mason Core (p. 135) requirements, other college-level requirements, or requirements for the major. In some cases, the requirements listed below may be superseded by requirements of the degree program and the Mason Core (p. 135).

**Philosophy or Religious Studies**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits from the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHIL (p. 1818) (^1)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>RELI (p. 1904)</td>
<td>1</td>
</tr>
</tbody>
</table>

\(^1\) PHIL 323 Classical Western Political Theory and PHIL 324 Modern Western Political Theory may not be used to fulfill this requirement.

**Social and Behavioral Sciences**

Choose one approved Mason Core: Social and Behavioral Sciences (p. 142) course in addition to the Mason Core (p. 135)-required course for a total of 6 credits. The two courses used to fulfill the combined college-level and university requirements must be from different disciplines.

This requirement may be fulfilled by completing any course in ANTH (p. 1119), CRIM (p. 1372), ECON (p. 1413), GOVT (p. 1588), HIST (p. 1628)\(^1\), LING (p. 1694), PSYC (p. 1844), or SOCI (p. 1923), and the following GGS (p. 1554) courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select any course from the disciplines above or select from the following GGS courses:</td>
<td></td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
</tr>
</tbody>
</table>
Natural Science
Choose one credit in addition to the Mason Core: Natural Science (p. 141) requirement for a total of 8 credits. This combined college-level and university requirement must be fulfilled by completing two of any approved Mason Core: Natural Science (p. 141) courses that include a laboratory experience.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
</tr>
</tbody>
</table>

Foreign Language
Intermediate-level proficiency in one foreign language is required. This requirement may be fulfilled by completing a course in a foreign language numbered 202, 209, or 210 (or higher-level courses taught in the language).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a foreign language course numbered 202, 209, 210, or higher if a waiver isn’t applicable</td>
<td>0-3</td>
<td></td>
</tr>
</tbody>
</table>

Non-Western Culture
Choose one approved Non-Western Culture Requirement course in addition to the course used to fulfill the Mason Core: Global Understanding (p. 139) requirement. A course used to fulfill the Mason Core: Global Understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. However, a course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core (p. 135) requirements, college-level requirements, or requirements for the major).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 3 credits from approved Non-Western Culture courses if a waiver isn’t applicable:</td>
<td>0-3</td>
<td></td>
</tr>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

1. HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

2. BIOL 124 Human Anatomy and Physiology and BIOL 125 Human Anatomy and Physiology may not be used to fulfill this requirement.

3. Students may be eligible for a waiver of this requirement if they are already proficient in a second language or if they have received a satisfactory score on an approved proficiency test. Additional information on waivers can be found via the college’s Office of Academic and Student Affairs (https://cos.gmu.edu/uaa).
In order to apply for Chemistry Honors, please complete the application Chemistry with a minimum GPA of 3.50. Honors Research in Chemistry and CHEM 456 Honors Research in courses and successfully complete the two semesters of CHEM 455 required to maintain a minimum GPA of 3.00 in mathematics and science honors program. To graduate with honors in chemistry, a student is mathematics and science courses are eligible to enter the departmental honors program. Chemistry majors who have completed prerequisites for CHEM 455 Honors Research in Chemistry and CHEM 456 Honors Research in Chemistry and have maintained an overall GPA of at least 3.00 in mathematics and science courses are eligible to enter the departmental honors program. To graduate with honors in chemistry, a student is required to maintain a minimum GPA of 3.00 in mathematics and science courses and successfully complete the two semesters of CHEM 455 Honors Research in Chemistry and CHEM 456 Honors Research in Chemistry with a minimum GPA of 3.50.

In order to apply for Chemistry Honors, please complete the application (https://cos.gmu.edu/chemistry/wp-content/uploads/sites/7/2015/08/
form-honors-program-application-2016.pdf) and submit it to the undergraduate coordinator.

### Accelerated Master's

**Chemistry, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Chemistry concentration)**

**Overview**

Highly-qualified undergraduates may be admitted to the bachelor's/accelerated master's option and obtain a BA (p. 638) or BS in Chemistry (p. 643) (degree without concentration) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education chemistry) in an accelerated time frame after completion of 149 credits. See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Chemistry and Biochemistry (p. 636) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

**Accelerated Option Requirements**

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Senior Fall Semester</th>
<th>Credits</th>
<th>Senior Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td>3</td>
<td>EDCI 673</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
<td><strong>6</strong></td>
<td></td>
</tr>
</tbody>
</table>

While undergraduate students, accelerated master's students are able to apply two of the courses listed above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor's/Accelerated Master's Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

### Chemistry, BS

**Banner Code:** SC-BS-CHEM

This program is approved by the American Chemical Society (https://www.acs.org/content/acs/en.html). Upon completion, students who choose either the B.S. in Chemistry with no concentration or the Analytical and Environmental Chemistry concentration are certified to the society. Students planning professional careers in chemistry should choose this degree.

**Teacher Licensure**

Students who wish to become teachers and plan to seek teacher licensure should consider the following options:

- Secondary Education – Chemistry (6-12) Undergraduate Certificate (p. 204)
- Chemistry, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Chemistry concentration) (p. 647)

Interested students should attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education's website (http://gse.gmu.edu).

### Admissions & Policies

**Admissions**

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Policies**

Students must fulfill all Requirements for Bachelor's Degrees (p. 86), including the Mason Core (p. 135).

CHEM 336 Physical Chemistry Lab I or CHEM 465 Biochemistry Lab will fulfill the writing intensive requirement for students majoring in chemistry.

### Requirements

**Degree Requirements**

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 643) tab for specific policies related to this program.

Students majoring in chemistry must complete the chemistry program requirements with a minimum GPA of 2.30 and present no more than two courses with a grade of 'D' (1.00) in CHEM coursework at graduation.

**BS without Concentration**

Students who do not select an optional concentration complete the curriculum requirements listed below.
### Mathematics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 11

### In-Depth Electives

Select one from the following:

- CHEM 413: Synthetic and Mechanistic Organic Chemistry
- CHEM 427: Aquatic Environmental Chemistry
- CHEM 438: Atmospheric Chemistry
- CHEM 458: Chemical Oceanography
- CHEM 464: General Biochemistry II
- CHEM 467: The Chemistry of Enzyme-Catalyzed Reactions
- CHEM 468: Bioorganic Chemistry

Total Credits: 3

### Additional Chemistry Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core)</td>
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<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core)</td>
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<tr>
<td>CHEM 212</td>
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<td>3</td>
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<tr>
<td>CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
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<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
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<td>2</td>
</tr>
<tr>
<td>CHEM 422</td>
<td>Instrumental Methods of Chemical Analysis</td>
<td>3</td>
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<tr>
<td>CHEM 423</td>
<td>Instrumental Methods of Chemical Analysis Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 427</td>
<td>Aquatic Environmental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 438</td>
<td>Atmospheric Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 441</td>
<td>Properties and Bonding of Inorganic Compounds</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 445</td>
<td>Biochemistry Lab</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 446</td>
<td>Bioinorganic Chemistry</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 52

1. Fulfills the writing intensive requirement.

### Physics Courses

Mason Core: Natural Science courses:

- PHYS 160: University Physics I (Mason Core) (p. 135) 3
- PHYS 161: University Physics I Laboratory (Mason Core) (p. 135) 1
- PHYS 260: University Physics II (Mason Core) (p. 135) 3
### Mathematics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits:** 11

### Supporting Science Electives

Select one of the following options: 7-8

#### Option One:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>GEOL 309</td>
<td>Introduction to Oceanography</td>
<td></td>
</tr>
</tbody>
</table>

#### Option Two: (Mason Core: Natural Science courses)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 110</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>EVPP 111</td>
<td>The Ecosphere: An Introduction to Environmental Science II (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

#### Option Three:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 341</td>
<td>Fundamental Inorganic Chemistry</td>
<td></td>
</tr>
</tbody>
</table>

Select at least 4 additional credits of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 355</td>
<td>Undergraduate Research</td>
<td></td>
</tr>
<tr>
<td>CHEM 451</td>
<td>Special Projects in Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 452</td>
<td>Special Projects in Chemistry</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits:** 7-8

The discipline sequences may be interchanged only with approval by the program coordinator.

### Concentration in Biochemistry (BC)

Students planning professional careers in biochemistry, the pharmaceutical industry, medicine, biotechnology, or related fields with a chemistry emphasis should choose this program instead of the Chemistry, BS without a concentration. This concentration provides students with a focus on biochemistry while retaining a strong chemistry foundation. Students are allowed to tailor the concentration to their interests with 9 credits of science electives.

### Chemistry Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
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<tr>
<td>CHEM 315</td>
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<tr>
<td>CHEM 318</td>
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<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 331</td>
<td>Physical Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 336</td>
<td>Physical Chemistry Lab I</td>
<td>2</td>
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<tr>
<td>CHEM 446</td>
<td>Bioinorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 463</td>
<td>General Biochemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 464</td>
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</tr>
<tr>
<td>CHEM 465</td>
<td>Biochemistry Lab</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total Credits:** 39

1. Fulfills the writing intensive requirement.

### Mathematics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits:** 8

### Physics Courses

Select one Mason Core: Natural Science option: 8

#### Option One:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core) (p. 135)</td>
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<tr>
<td>PHYS 244</td>
<td>College Physics Lab (Mason Core)</td>
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<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core) (p. 135)</td>
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<tr>
<td>PHYS 246</td>
<td>College Physics Lab (Mason Core)</td>
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</table>

#### Option Two:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
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</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits:** 8

### Biology Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>Biology of Microorganisms Laboratory</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits:** 8

### Approved Science Electives

Select 9 credits of approved science electives chosen from CHEM or BIOL courses numbered 302-499 1

**Total Credits:** 9

1. Other science or math courses may be approved as electives, subject to prior approval of the coordinator.

### Concentration in Chemistry Education (CHME)

Those interested in teaching high school chemistry should choose this concentration. Degree completion with this concentration will lead to state licensure to teach in Virginia.

### Chemistry Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>CHEM 217</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 218</td>
<td>Organic Chemistry II</td>
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<tr>
<td>CHEM 219</td>
<td>Organic Chemistry Lab I</td>
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<td>CHEM 220</td>
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<td>CHEM 221</td>
<td>Quantitative Chemical Analysis</td>
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<td>CHEM 222</td>
<td>Physical Chemistry I</td>
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<td>CHEM 223</td>
<td>Physical Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 224</td>
<td>Bioinorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 225</td>
<td>General Biochemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 226</td>
<td>General Biochemistry II</td>
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</tr>
<tr>
<td>CHEM 227</td>
<td>Biochemistry Lab</td>
<td>2</td>
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</table>

**Total Credits:** 39

1. Fulfills the writing intensive requirement.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core) (p. 135)</td>
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<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
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<td>CHEM 314</td>
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<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
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<td>CHEM 331</td>
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<tr>
<td>CHEM 446</td>
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<tr>
<td>CHEM 463</td>
<td>General Biochemistry I</td>
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</tr>
<tr>
<td>CHEM 336</td>
<td>Physical Chemistry Lab I 1</td>
<td>2</td>
</tr>
<tr>
<td>or CHEM 465</td>
<td>Biochemistry Lab</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 470</td>
<td>Laboratory Instructional Methods for Chemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one 3 credit upper-level chemistry elective (p. 1244) 3

Total Credits 38

1 CHEM 336 and CHEM 465 both fulfill the writing intensive requirement.

**Mathematics Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 11

**Physics Courses**

Select one Mason Core: Natural Science option: 8

**Option One:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 244</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 246</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

**Option Two:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 8

**General Science Courses**

Mason Core: Natural Science courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 103</td>
<td>Introductory Biology I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
</tbody>
</table>

or BIOL 213 | Cell Structure and Function (Mason Core) (p. 135) | 3       |

Total Credits 8

**Teacher Licensure Requirement**

A grade of 'C' or better is required for all licensure coursework.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 473</td>
<td>Teaching Science in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 483</td>
<td>Advanced Methods of Teaching Science in Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core) (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

**Note:**

During their second year, students should contact the Graduate School of Education in order to attend an information session and to prepare for taking the Praxis Core Academic Skills for Educators Test (https://www.ets.org/praxis/about/core).

**Mason Core and Elective Credits**

In order to meet a minimum of 120 credits, this degree requires additional credits (specific credit counts by concentration are shown below), which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor’s Degrees (p. 86), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

- Without concentration: 49 credits
- AEC concentration: 41-42 credits
- BC concentration: 48 credits
- CHME concentration: 34 credits

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

**Code** | **Title** | **Credits**
--- | --- | ---
**Foundation Requirements**
Written Communication (p. 135) | 6
Oral Communication (p. 136) | 3
Quantitative Reasoning (p. 136) | 3
Information Technology (p. 136) | 3-7
**Core Requirements**
Arts (p. 137) | 3
Global Understanding (p. 139) | 3
Literature (p. 140) | 3
Natural Science (p. 141) | 7
Social and Behavioral Sciences (p. 142) | 3
Western Civilization/World History (p. 143) | 3
**Synthesis/Capstone Requirement** 1
Honors in the Major
Chemistry majors who have completed prerequisites for CHEM 455 Honors Research in Chemistry and CHEM 456 Honors Research in Chemistry and have maintained an overall GPA of at least 3.00 in mathematics and science courses are eligible to enter the departmental honors program. To graduate with honors in chemistry, a student is required to maintain a minimum GPA of 3.00 in mathematics and science courses and successfully complete the two semesters of CHEM 455 Honors Research in Chemistry and CHEM 456 Honors Research in Chemistry with a minimum GPA of 3.50.

In order to apply for Chemistry Honors, please complete the application (https://cos.gmu.edu/chemistry/wp-content/uploads/sites/7/2015/08/form-honors-program-application-2016.pdf) and submit it to the undergraduate coordinator.

Accelerated Master's
Chemistry, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Chemistry concentration)
Overview
Highly-qualified undergraduates may be admitted to the bachelor's/accelerated master's option and obtain a BA (p. 638) or BS in Chemistry (p. 643) (degree without concentration) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education chemistry) in an accelerated time frame after completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Chemistry and Biochemistry (p. 636) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master's program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

Accelerated Option Requirements
Students complete the following courses in their senior year:

### Honors

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 573</td>
<td>3</td>
<td>EDCI 672</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 619</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Chemistry, BS/Chemistry, Accelerated MS
Overview
This bachelor's/accelerated master's degree program allows academically strong undergraduates with a commitment to research to obtain both the Chemistry, BS (p. 643) and the Chemistry, MS (p. 648) degrees within an accelerated timeframe. Upon completion of this 144 credit program, students will be exceptionally well prepared for entry into a professional school or a PhD program in chemistry or a related discipline. Students are eligible to enter this program and enroll in graduate courses after successfully completing 90 undergraduate credits, inclusive of prerequisites, toward the Chemistry, BS (p. 643) degree. This flexibility makes it possible for students to complete graduate coursework during their final year.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66) section of this catalog. Application information for this accelerated master's program can be found here (https://www2.gmu.edu/admissions-aid/how-apply/accelerated-masters).

Successful applicants will have an overall undergraduate GPA of at least 3.00. Additionally, they will have completed 36 credits of CHEM courses with a GPA of at least 3.00.

Accelerated Option Requirements
At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (available from the Office of the University Registrar (http://registrar.gmu.edu)) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor’s degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework and should consult with their faculty advisor to coordinate
their academic goals within the chemistry and biochemistry concentrations.

**Reserve Graduate Credit**
While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree.

**Chemistry, MS**
Banner Code: SC-MS-CHEM

**Academic Advising**
Email: chemistry@gmu.edu
Website: cbgrad.gmu.edu/aboutthems.pdf

This master’s degree provides advanced training for recent college graduates, professionals in teaching, and technical workers in research organizations who have an interest in chemistry or biochemistry.

**Admissions & Policies**

**Admissions**
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

To be considered for admission to degree status, students must have a bachelor’s degree in chemistry, biochemistry, or a related field from a regionally accredited institution and must meet general admission requirements for graduate study as specified in Graduate Admission Policies (p. 66). Admission is based on a departmental evaluation of the applicant’s background as evidenced by transcripts, résumés, and letters of recommendation.

**Policies**
CHEM 500 Selected Topics in Modern Chemistry may not be applied toward the MS degree.

CHEM courses numbered 502 through 510 may be applied toward the degree only with prior written approval of the department.

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Requirements**

**Degree Requirements**
Total credits: 30

Students should refer to the Admissions & Policies (p. 648) tab for specific policies related to this program.

**Core Courses**
Select three of the following core courses. Courses must be selected from three different core areas shown below: 1

<table>
<thead>
<tr>
<th>Core Area</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical:</td>
<td>CHEM 624</td>
<td>Principles of Chemical Separation</td>
</tr>
<tr>
<td>Biochemistry:</td>
<td>CHEM 660</td>
<td>Protein Biochemistry</td>
</tr>
<tr>
<td></td>
<td>CHEM 662</td>
<td>Modern Methods of Drug Discovery</td>
</tr>
<tr>
<td>Environmental:</td>
<td>CHEM 651</td>
<td>Environmental Chemistry of Organic Substances</td>
</tr>
<tr>
<td>Inorganic:</td>
<td>CHEM 641</td>
<td>Solid State Chemistry</td>
</tr>
<tr>
<td></td>
<td>CHEM 646</td>
<td>Bioinorganic Chemistry</td>
</tr>
<tr>
<td>Organic:</td>
<td>CHEM 613</td>
<td>Modern Polymer Chemistry</td>
</tr>
<tr>
<td></td>
<td>CHEM 614</td>
<td>Physical Organic Chemistry</td>
</tr>
</tbody>
</table>

Total Credits 9

1 Core courses may also be taken as electives beyond the stated credit requirement for each option.

**MS without Concentration**
General chemistry students who do not wish to pursue a concentration complete the following requirements and choose either the Thesis Option or the Non Thesis Option:

**One Additional Core Course**
CHEM 633 Chemical Thermodynamics and Kinetics

**Chemistry Electives**
Select 3 credits of CHEM designated courses (p. 1244) Select 6 credits of courses in chemistry or related fields, approved by the graduate committee prior to registration

**Seminar**
CHEM 790 Graduate Seminar

**Thesis or Non Thesis**
Select the Thesis Option or the Non Thesis Option

Total Credits 21

**Thesis Option**
The Thesis Option is designed for students planning to pursue a doctoral degree or a career involving research in the chemical, biochemical, environmental, or pharmaceutical industries.

Students must choose a research laboratory advisor during their first semester in the program and begin working on their thesis project no later than the second semester. The thesis is based on research that must be preapproved by the thesis or advisory committee, which is appointed prior to the first semester of registration in CHEM 799 Master’s Thesis. Students must complete CHEM 799 Master’s Thesis and present a seminar, followed by an oral defense.

**Thesis Option**
CHEM 799 Master’s Thesis

Total Credits 6
Non Thesis Option

The Non Thesis Option is designed for those seeking to go on to professional school, teach chemistry in secondary schools, or pursue other careers in which advanced work in chemistry is necessary or advantageous.

Students selecting this option are not required to complete a laboratory-based thesis. Instead, they must complete a research project or gain teaching experience in undergraduate chemistry labs, as described below.

Any combination of CHEM 670 Teaching Practicum and CHEM 796 Directed Reading and Research may be used to fulfill this requirement. However, CHEM 796 Directed Reading and Research may be used to fulfill this requirement only with prior written approval of the department and must be used to complete a laboratory or library-based research project, or must otherwise enhance the student's teaching skills.

Non Thesis Option

Select 3 credits of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 670</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 796</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Chemistry Electives

Select 3 credits of CHEM designated courses (p. 1244)

Total Credits 6

MS with Concentration in Biochemistry (BC)

Students who wish to pursue an optional concentration in biochemistry complete the following requirements and choose either Thesis Option or the Non Thesis Option:

One Additional Core Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 633</td>
<td>3</td>
</tr>
</tbody>
</table>

Chemistry Electives

Select 3 credits of CHEM designated courses (p. 1244)

Seminar

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 790</td>
<td>3</td>
</tr>
</tbody>
</table>

Thesis or Non Thesis

Select the Thesis Option or the Non Thesis Option

Total Credits 12

Thesis Option

The Thesis Option is designed for students planning to pursue a doctoral degree or a career involving research in the chemical, biochemical, environmental, or pharmaceutical industries.

Students must choose a research laboratory advisor during their first semester in the program and begin working on their thesis project no later than the second semester. The thesis is based on research that must be preapproved by the thesis or advisory committee, which is appointed prior to the first semester of registration in CHEM 799 Master’s Thesis. Students must complete CHEM 799 Master’s Thesis and present a seminar, followed by an oral defense.

Biochemistry Electives

Select 6 credits of electives in biochemistry or related fields with approval from department

Thesis

6

Total Credits 12

Non Thesis Option

The Non Thesis Option is designed for those seeking to go on to professional school, teach chemistry in secondary schools, or pursue other careers in which advanced work in chemistry is necessary or advantageous.

Students selecting this option are not required to complete a laboratory-based thesis. Instead, they must complete a research project or gain teaching experience in undergraduate chemistry labs, as described below.

Any combination of CHEM 670 Teaching Practicum and CHEM 796 Directed Reading and Research may be used to fulfill this requirement. However, CHEM 796 Directed Reading and Research may be used to fulfill this requirement only with prior written approval of the department and must be used to complete a laboratory or library-based research project, or must otherwise enhance the student's teaching skills.

Non Thesis Option

Select 3 credits of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 670</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 796</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Chemistry, BS/Chemistry, Accelerated MS

Overview

This bachelor's/accelerated master’s degree program allows academically strong undergraduates with a commitment to research to obtain both the Chemistry, BS (p. 643) and the Chemistry, MS (p. 648) degrees within an accelerated timeframe. Upon completion of this 144 credit program, students will be exceptionally well prepared for entry into a professional school or a PhD program in chemistry or a related discipline. Students are eligible to enter this program and enroll in graduate courses after successfully completing 90 undergraduate credits, inclusive of prerequisites, toward the Chemistry, BS (p. 643) degree. This flexibility makes it possible for students to complete graduate coursework during their final year.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog. Application information for this accelerated master’s program can be found here (https://www2.gmu.edu/admissions-aid/how-apply/accelerated-masters).
Successful applicants will have an overall undergraduate GPA of at least 3.00. Additionally, they will have completed 36 credits of CHEM courses with a GPA of at least 3.00.

**Accelerated Option Requirements**

At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (available from the Office of the University Registrar (http://registrar.gmu.edu)) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor’s degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework and should consult with their faculty advisor to coordinate their academic goals within the chemistry and biochemistry concentrations.

**Reserve Graduate Credit**

While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree.

**Department of Computational and Data Sciences**

Karen Underwood, Academic Programs Administrator

Phone: 703-993-9298
Email: cds@gmu.edu
Website: cds.gmu.edu

**Administration**

- Jason Kinser, Chair
- Estela Blaisten-Barojas, Graduate Coordinator CSI, COMP, Data Science Certificate
- Eduardo Lopez, Graduate Coordinator CSS
- Joe Marr, Undergraduate Coordinator

The mission of the Department of Computational and Data Sciences (CDS) is comprised of two objectives:

The first is the systematic development and application of computational techniques for modeling and simulation of scientific and social phenomena or social processes.

The second objective is the systematic development and application of techniques for mining, managing, and analyzing large sets of data.

The resulting interdisciplinary approach leads to understanding, interpretation, and prediction of phenomena that traditional theory or experiment cannot provide alone. CDS’s mission aims toward excellence in faculty and graduate student state-of-the-art research activities, as well as providing modern approaches to student education at both the graduate and undergraduate levels. The educational and research directions pursued in CDS are focused to reflect the interests of neighboring federal laboratories, scientific institutions, and high-technology firms to provide the students opportunities for continued or new employment. Graduate courses are also designed to accommodate part-time students, with most courses meeting once a week in the late afternoon or early evening.

The research and teaching activities associated with CDS’s programs are a reflection of the present central role of computation in the arenas of “big data” and of modeling and simulation.

**Undergraduate Programs**

This department offers the Computational and Data Sciences, BS (p. 651) and the Computational and Data Sciences Minor (p. 657). An accelerated master’s option is also available for undergraduate students interested in the Computational Science, MS (p. 651).

Many opportunities exist for undergraduate students to get involved with research. Students should consult with faculty working on research topics of interest to them based on their exploration of the departmental website.

**Graduate Programs**

This department offers the Data Science Graduate Certificate (p. 659), the Computational Social Science Graduate Certificate (p. 654), the Computational Science, MS (p. 651), the Computational Sciences and Informatics, PhD (p. 652), and the Computational Social Science, PhD (p. 655). An accelerated master’s option is also available for undergraduate students interested in the Computational Science, MS (p. 651). The department also supports the Computational Social Science Concentration in the Interdisciplinary Studies, MAIS (p. 534). These graduate programs are strongly supported by the extensive research activities of the faculty, including their collaborations with scientists and engineers at regional government laboratories.

**Faculty**

**Department Faculty**

**Professors**

Axtell, Blaisten-Barojas, Cioffi-Revilla, Klimov, Wegman

**Associate Professors**

Crooks, Griva, Kinser, Renz, Sheng, Zoltek

**Assistant Professors**

Glasbrenner, Lopez, Tian

**Term Faculty**

Marr

**Affiliated Faculty**

Griva, Kennedy, Klimov, Tryfona, Sheng

**Emeritus Professor**

Papconstantopoulos

**Adjunct Faculty**

Lockhart, Lyver, Sponseller

Faculty holding primary appointments in other academic units
Programs

- Computational Science, MS
- Computational Sciences and Informatics, PhD
- Computational Social Science Graduate Certificate
- Computational Social Science, PhD
- Computational and Data Sciences Minor
- Computational and Data Sciences, BS
- Data Science Graduate Certificate

The Department of Computational and Data Sciences also supports the Computational Social Science Concentration in the Interdisciplinary Studies, MAIS (p. 534).

Computational Science, MS

Banner Code: SC-MS-COMP

Estela Blaisten-Barojas, Graduate Coordinator

Research Hall, Room 221
Fairfax Campus
Phone: 703-993-1988
Email: blaisten@gmu.edu
Website: cos.gmu.edu/cds/ms-in-computational-science/

The master's addresses the growing demand for trained computational scientists and engineers, and data scientists. It combines a solid foundation in computational science skills with courses in a variety of scientific and engineering computer-intensive areas where modeling and simulation, data analysis, and high performance computing play a central role.

Working with an advisor, a student may choose to pursue an area of emphasis. The areas of emphasis are:

- Computer Modeling and Simulation: Intended for students who wish to learn computational solution techniques for modeling and simulation of scientific and engineering phenomena.
- Data Science: Intended for students who wish to learn computational methods for acquiring, extracting, and analyzing large-scale data obtained by observations, experiments, modeling, and database searches.

Students may also combine areas of emphasis to create their own customized curriculum under the guidance of the graduate coordinator.

Most of the courses are offered in the late afternoon or early evening to accommodate students with full-time employment outside of the university.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Applicants should have academic backgrounds in computational, physical or biological sciences, engineering, mathematics, or computer science. They should have an undergraduate degree from a regionally accredited institution with a GPA of at least 3.00 in their last 60 credits of study. In addition, applicants should have taken at least one course in differential equations and have facility in using a high-level computer programming language.

Application Requirements

To apply, prospective students should complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), supply two copies of official transcripts from each university attended, a current résumé, and an expanded goals statement. Applicants should also provide three letters of recommendation and an official report of scores on the GRE-GEN. The GRE-SUB is recommended if it is given in the student's undergraduate major. The GRE requirement will be waived if the student holds a BS degree from any program in George Mason's College of Science (p. 593), Volgenau School of Engineering (p. 953), or a master's degree from a regionally accredited U.S. institution. TOEFL scores are required of all international applicants. A TOEFL score of 570 (paper-based test) or 230 (computer-based test) or 88 points total and a minimum of 20 points in each section (Internet-based test) is required for international students. The ETS code for Mason is 5827. For more information visit Admission of International Students (p. 68).

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements

Total credits: 30

Students should refer to the Admissions & Policies (p. 651) tab for specific policies related to this program.

Core Courses

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 690</td>
<td>Numerical Methods</td>
</tr>
<tr>
<td>CSI 695</td>
<td>Scientific Databases</td>
</tr>
<tr>
<td>CSI 702</td>
<td>High-Performance Computing</td>
</tr>
<tr>
<td>CSI 703</td>
<td>Scientific and Statistical Visualization</td>
</tr>
</tbody>
</table>

Total Credits: 6

Computational Extended Core

Select 15 credits from any graduate-level CSI, CDS, or CSS courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI (p. 1302)</td>
<td></td>
</tr>
<tr>
<td>CDS (p. 1316)</td>
<td></td>
</tr>
</tbody>
</table>
Not including the following research courses: CSI 796 Directed Reading and Research, CSI 798 Research Project, CSI 799 Master's Thesis, CSI 898 Research Colloquium in Computational Sciences and Informatics, CSI 899 Colloquium in Computational Sciences and Informatics, CSI 991 Seminar in Scientific Computing, CSI 996 Doctoral Reading and Research, or from courses previously taken.

**Electives**

Select 9 credits of electives $^{1,2,3}$

Total Credits 9

1. Typically chosen from computational sciences and informatics (p. 1302), chemistry (p. 1244), mathematics (p. 1717), physics (p. 1828), engineering (p. 957), information technology (p. 1655), and statistics courses (p. 1968).
2. Students should create a curriculum plan for an area of emphasis or combined areas of emphases in consultation with their academic advisor.
3. No more than 6 credits may be chosen from areas outside of CSI.

Elective credits may also include:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 796</td>
<td>Directed Reading and Research</td>
<td>1-6</td>
</tr>
<tr>
<td>CSI 798</td>
<td>Research Project</td>
<td>1-3</td>
</tr>
<tr>
<td>CSI 799</td>
<td>Master's Thesis</td>
<td>1-6</td>
</tr>
</tbody>
</table>

**Accelerated Master's**

Computational and Data Sciences, BS/Computational Science, Accelerated MS

**Overview**

This option enables enthusiastic, highly qualified, undergraduates to obtain the Computational and Data Sciences, BS (p. 657) and the Computational Science, MS (p. 651) within the accelerated time frame of five years. The program requires 144 credits total, allowing students to undertake graduate coursework during their final year in the bachelor's degree. Upon completion of this 144 credit BS/MS combined program, students are exceptionally well prepared for undertaking doctoral studies or entering the professional workforce.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog. Application information for this Accelerated Master's program can be found on the Department of Computational and Data Sciences (http://cos.gmu.edu/cds/academic-programs) website. Applicants must have an overall undergraduate GPA of at least 3.00 and have completed at least 90 credits. Additionally, applicants will have completed the following courses with a GPA of 3.00 or better:

**Electives**

Select 9 credits of electives $^{1,2,3}$

Total Credits 9

1. GRE-general scores are waived for graduates of BS degrees from any program in the College of Science or the Volgenau School of Engineering at George Mason University.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework and should consult with their faculty advisor to coordinate their academic goals within the modeling and simulation or data science emphases of the Computational Science, MS (p. 651).

**Reserve Graduate Credit**

While in undergraduate status, a student may take a maximum of six graduate credits as reserve graduate credits and apply those credits to a master’s program. Reserve graduate credits are not counted toward the 120 credits required in the undergraduate degree.

Computational Sciences and Informatics, PhD

**Banner Code:** SC-PHD-CSI

**Estela Blaisten-Barojas, Graduate Coordinator**

Research Hall, Room 221
Fairfax Campus

Phone: 703-993-1988
Email: blaisten@gmu.edu
Website: cos.gmu.edu/cds/phd-in-computational-sciences-and-informatics/

Founded in 1992, the program addresses the role of computation in science, mathematics, and engineering, and is designed around the emphases of Computer Modeling and Simulation and of Data Science. Computational science, focused on modeling and simulation, is defined as the systematic development and application of computing systems and computational solution techniques for modeling and simulation of scientific and engineering phenomena. Informatics, focused on data science, is defined as the systematic development and application of computing systems and computational solution techniques for analyzing data obtained through experiments, modeling, database searches, and instrumentation. The resulting interdisciplinary approach leads to understanding that traditional theory or experimentation alone
cannot provide. The close relationship of the PhD to the research and development activities in federal laboratories, scientific institutions, and high-technology firms affords students opportunities for continued or new employment. Scheduled courses and sequences accommodate part-time students, with most courses meeting once a week in the late afternoon or early evening. The research and teaching activities associated with the program reflect the recognized role of computation and data analysis as part of a triad with theory and experiment, leading to a better understanding of nature. The program is designed to be completed in four to five years.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Students interested in applying for admission should have a bachelor’s degree in computational science, any natural science, mathematics, engineering, or computer science with a minimum GPA of 3.00 in their last 60 credits of study. Applicants to the PhD program should have a mathematics background up to and including differential equations and should also have knowledge of a computer programming language such as C, C++, Fortran, Python, etc.

Application Requirements

The GRE is required, unless the applicant holds a master’s degree from a regionally-accredited school in the United States. A TOEFL score of 570 (paper-based test) or 230 (computer-based test) or 88 points total and a minimum of 20 points in each section (Internet-based test) is required for international students. The ETS code for Mason is 5827.

Students should submit a completed George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now) along with three letters of recommendation, an expanded goals statement, and application fee in addition to the items listed above.

Application deadlines can be found on the Office of Admissions website (https://admissions.gmu.edu/grad/application-deadlines-and-requirements/?academicUnit=SC&ga=1.13682175.956654242.1443444993). Applications requesting financial support must be received by February 1 for the fall semester. Applications from local applicants may be accepted after these general deadlines.

For additional information, please contact the CSI graduate coordinator.

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Reduction of Credit

For students entering the doctoral program with a master’s degree in a related field from a regionally accredited institution, the required coursework may be reduced up to 24 credits, subject to approval of the graduate coordinator and the college’s associate dean.

Transfer of Credit

Students who have prior graduate coursework that has not been applied to any degree may request to have a maximum of 30 of those graduate credits transferred, with approval of the graduate coordinator, the college’s associate dean, and in accord with university policy. Research-based courses and seminar courses are not eligible for reduction or transfer.

Requirements

Degree Requirements

Total: 72 credits

Students should refer to the Admissions & Policies (p. 653) tab for specific policies related to this program.

General Core Courses

Select two courses (6 credits) from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 690</td>
<td>Numerical Methods</td>
</tr>
<tr>
<td>CSI 695</td>
<td>Scientific Databases</td>
</tr>
<tr>
<td>CSI 702</td>
<td>High-Performance Computing</td>
</tr>
<tr>
<td>CSI 703</td>
<td>Scientific and Statistical Visualization</td>
</tr>
</tbody>
</table>

Total Credits: 6

Areas of Emphasis Courses

From the list below, students are advised to select six courses that correspond to areas of emphasis in:

- **Computer Modeling and Simulation** - Including applications to the natural sciences
- **Data Science** - Including computational learning, statistics, and data analytics

Select six courses (18 credits) from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 500</td>
<td>Computational Science Tools</td>
</tr>
<tr>
<td>CSI 501</td>
<td>Introduction to Scientific Programming</td>
</tr>
<tr>
<td>CSI 507</td>
<td>Statistical Inference</td>
</tr>
<tr>
<td>CSI 674</td>
<td>Bayesian Inference and Decision Theory</td>
</tr>
<tr>
<td>CSI 676</td>
<td>Regression Analysis</td>
</tr>
<tr>
<td>CSI 678</td>
<td>Times Series Analysis and Forecasting</td>
</tr>
<tr>
<td>CSI 685</td>
<td>Fundamentals of Materials Science</td>
</tr>
<tr>
<td>CSI 690</td>
<td>Numerical Methods</td>
</tr>
<tr>
<td>CSI 695</td>
<td>Scientific Databases</td>
</tr>
<tr>
<td>CSI 701</td>
<td>Foundations of Computational Science</td>
</tr>
<tr>
<td>CSI 702</td>
<td>High-Performance Computing</td>
</tr>
<tr>
<td>CSI 703</td>
<td>Scientific and Statistical Visualization</td>
</tr>
<tr>
<td>CSI 709</td>
<td>Topics in Computational Sciences and Informatics</td>
</tr>
<tr>
<td>CSI 721</td>
<td>Computational Fluid Dynamics I</td>
</tr>
<tr>
<td>CSI 739</td>
<td>Topics in Bioinformatics</td>
</tr>
<tr>
<td>CSI 740</td>
<td>Numerical Linear Algebra</td>
</tr>
<tr>
<td>CSI 742</td>
<td>The Mathematics of the Finite Element Method</td>
</tr>
</tbody>
</table>
CSI 744  Linear and Nonlinear Modeling in the Natural Sciences
CSI 747  Nonlinear Optimization and Applications
CSI 754  Earth Science Data and Advanced Data Analysis
CSI 758  Visualization and Modeling of Complex Systems
CSI 771  Computational Statistics
CSI 772  Statistical Learning
CSI 773  Statistical Graphics and Data Exploration
CSI 777  Principles of Knowledge Mining
CSI 780  Principles of Modeling and Simulation in Science
CSI 782  Statistical Mechanics for Modeling and Simulation
CSI 783  Computational Quantum Mechanics
CSI 786  Molecular Dynamics Modeling
CSI 787  Computational Materials Science
CSI 788  Simulation of Large Scale Systems
CSI 873  Computational Learning and Discovery
CSI 876  Measure and Linear Spaces
CSI 877  Geometric Methods in Statistics

1 When choosing courses, avoid courses previously taken to fulfill the 'General Core Courses' requirement and only choose one 500-level course.

Colloquium/Seminar
The department offers weekly colloquia and seminar series to ensure that students are exposed to the latest developments at area research institutions. One credit may be chosen from:

CSI 898  Research Colloquium in Computational Sciences and Informatics
or CSI 991  Seminar in Scientific Computing

Electives
Electives should be chosen to bring the total number of credits to 72. Courses must be approved by the student's advisor and the graduate coordinator. Additionally,

- A maximum of 2 credits of CSI 898 Research Colloquium in Computational Sciences and Informatics and/or CSI 991 Seminar in Scientific Computing may be applied as electives.
- A maximum of two 500-level courses may be applied between both the 'Areas of Emphasis Courses' requirement and the 'Electives' requirement.
- CSI 796 Directed Reading and Research and CSI 996 Doctoral Reading and Research are the only allowable research-based courses that can be used as electives.
- Students may pursue interdisciplinary research that supplements the 'Areas of Emphasis Courses' and 'Electives' requirements with each other and also with bioinformatics, climate dynamics, computational chemistry, computational social science, geoinformation sciences, and several other autonomous PhD program areas within the College of Science.

Doctoral Research
No more than 24 combined credits from CSI 998 Doctoral Dissertation Proposal and CSI 999 Doctoral Dissertation may be applied toward satisfying doctoral degree requirements, with a minimum of 6 credits of CSI 999 Doctoral Dissertation.

Students become eligible to register for CSI 998 Doctoral Dissertation Proposal upon having an approved dissertation committee. Upon advancement to candidacy, students will be eligible to register for CSI 999 Doctoral Dissertation.

Select 24 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 998</td>
<td>Doctoral Dissertation Proposal</td>
<td>6</td>
</tr>
<tr>
<td>CSI 999</td>
<td>Doctoral Dissertation</td>
<td>18</td>
</tr>
</tbody>
</table>

Total Credits 24

Candidacy Examination
The student must successfully complete separate written, computational, and oral candidacy examinations prepared and administered by the student's dissertation committee.

Dissertation Proposal and Advancement to Candidacy
Students advance to doctoral candidacy by fulfilling the following requirements:

- The student must successfully complete all coursework and candidacy examinations as stated above.
- The student prepares a dissertation proposal describing in detail the planned dissertation research. The proposal must be approved by the dissertation committee.
- Following successful completion of the research proposal and candidacy exams, the committee will recommend the student for advancement to doctoral candidacy to the graduate coordinator and the college's associate dean.

Dissertation Research and Defense
After advancing to candidacy, the student will work on a doctoral dissertation while enrolled in CSI 999 Doctoral Dissertation. The dissertation is a written piece of original contribution that demonstrates a doctoral candidate's mastery of the subject matter. A student is expected to produce new and original research worthy of publication in peer-reviewed journals. After the dissertation is completed, the committee will review the dissertation and examine the student in a public oral dissertation defense.

Computational Social Science Graduate Certificate

Banner Code: SC-CERG-CSS

Karen Underwood, Academic Programs Administrator
Research Hall, Room 373
Fairfax Campus
Phone: 703-993-9298
Email: cssgrad@gmu.edu
Website: cos.gmu.edu/cds/graduate-certificate-in-computational-social-science/

This program is designed for students who seek training in computer simulation and related computational methods for analyzing social systems and processes. The program is open to all students with graduate standing at George Mason University and all students who hold a bachelor’s degree from a regionally accredited university. The Computational Social Science (CSS) certificate allows students with social science or computational backgrounds to acquire new knowledge and modeling skills to improve their qualifications and attractiveness to employers in government, academia, or industry. The core courses provide a common foundation; additional elective courses allow for a variety of student interests across diverse social domains.

This graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants should have an undergraduate degree from a regionally-accredited institution, with a GPA of at least 3.00. To apply, prospective students should forward a completed George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), one copy of official transcripts from each college and graduate institution attended, and a current résumé. TOEFL scores are required of all international applicants. International applicants should see information regarding the admission of international students (p. 68).

Students intending to obtain the CSS certificate must apply to the CSS certificate program before beginning any CSS coursework intended to satisfy requirements. They must also have their coursework plan approved by the director.

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements

Certificate Requirements

Total credits: 15

Students should refer to the Admissions & Policies (p. 655) tab for specific policies related to this program.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 600</td>
<td>Introduction to Computational Social Science</td>
<td>3</td>
</tr>
<tr>
<td>CSS 610</td>
<td>Agent-based Modeling and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Electives

Nine credits of electives, to be selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 605</td>
<td>Object-Oriented Modeling in Social Science</td>
<td>3</td>
</tr>
<tr>
<td>CSS 620</td>
<td>Origins of Social Complexity</td>
<td>3</td>
</tr>
<tr>
<td>CSS 692</td>
<td>Social Network Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Other graduate courses in the fields of computational social science, social science, computer science, statistics, and other quantitative methods such as data visualization, information technology, and geographic information science.</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

1 These courses should be selected in conjunction with, and approved by, the student’s advisor. Students may include a maximum of 3 credits of programming courses to meet the elective requirements. Procedural, object-oriented languages, or other approved programming approaches may be used with permission of the director. Some courses on computational techniques, modeling, or statistics, such as visualization, graphics, and statistical and database packages may also be used to meet the requirements with prior approval of the director.

Computational Social Science, PhD

Banner Code: SC-PHD-CSS

Karen Underwood, Academic Programs Administrator

Research Hall, Room 373
Fairfax Campus
Phone: 703-993-9298
Email: cssgrad@gmu.edu
Website: cos.gmu.edu/cds/phd-in-computational-social-science/

The core objective of the program is to train graduate students to be professional computational social scientists in academia, government, or business. The program offers a unique and innovative interdisciplinary academic environment for systematically exploring, discovering, and developing skills to successfully follow careers in one of the areas of computational social science.

Admissions & Policies

Admissions

University-wide admissions policies can be found in Graduate Admissions Policies (p. 66).

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Applicants should have as background a bachelor’s degree in one of the social sciences; computer science, engineering, or a relevant discipline; and undergraduate courses in these and related areas. Bachelor’s degrees in the physical or biological sciences are also eligible, but applicants may be advised to take additional courses in social science or
computer science as prerequisites to admission. Minimal requirements also include one undergraduate course in calculus and knowledge of a computer programming language, preferably object-based.

**Application Requirements**

Applicants should have an undergraduate degree from a regionally-accredited institution, with a GPA of at least 3.25. To apply, prospective students should complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), one copy of official transcript from each college and graduate institution attended, a current résumé, an expanded goals statement not to exceed 2,000 words, and the names of two Mason faculty members who may be suitable advisors. Applicants should also include three letters of recommendation from faculty members or individuals with direct knowledge of the student’s academic or professional capabilities. The letters must arrive directly from the senders. Applicants should also submit an official report of scores obtained on the GRE-GEN. TOEFL scores are required for all international applicants.

**Policies**

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Reduction of Credit**

Students entering the doctoral program with a master’s degree in a related discipline may request that the required credits for the doctoral degree be reduced by a maximum of 30 credits with approval of the director of graduate studies and the associate dean and in accordance with university policy.

**Transfer of Credit**

Students who have prior graduate coursework that has not been applied to another degree may request to have a maximum of 24 of these graduate credits transferred, with approval of the director of graduate studies and the associate dean and in accordance with university policy.

**Academic Advising**

During the first year, each student will form a graduate studies committee, called the first-year committee, consisting of the student’s advisor plus two or three appropriately qualified individuals. The committee assists the student in designing a specific plan of study and evaluating the student’s progress by the end of the first year. During the second year, the student forms a doctoral committee, with membership approved by the CSS program director. The committee will advise the student on preparing for the doctoral candidacy exams and preparing, developing, and defending the doctoral dissertation.

**Requirements**

**Degree Requirements**

Total credits: 72

Students should refer to the Admissions & Policies (p. 655) tab for specific policies related to this program.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 600</td>
<td>Introduction to Computational Social Science</td>
<td>3</td>
</tr>
</tbody>
</table>

**Extended Core Courses**

Select 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 625</td>
<td>Complexity Theory in the Social Sciences</td>
<td></td>
</tr>
<tr>
<td>CSS 645</td>
<td>Spatial Agent-Based Models of Human-Environment Interactions</td>
<td></td>
</tr>
<tr>
<td>CSS 692</td>
<td>Social Network Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 12

**Discipline-based Courses**

Select 15 credits of discipline-based social science courses in a specific area such as anthropology, economics, geography, history, linguistics, political science, or sociology, as approved by the student’s advisor, to provide domain-specific knowledge

Total Credits: 15

**Electives**

Select 15 credits of electives or independent research, as approved by the student’s advisor, to provide further substantive or methodological specialization as needed

Total Credits: 15

Students with a strong background in computing, for example, a prior MS in computer science, but weaker social science training will be required to use all or most of these electives in a substantive social science. Conversely, students with a strong background in social science, for example, a BS in economics, will be required to use most or all of these electives in computing courses.

**Candidacy Examination**

The candidacy exam is taken after students have completed all core requirements and a majority of additional coursework (18 plus 15 credits), which typically corresponds to the fifth semester in the program. The purpose of the candidacy exam is to assess the student’s substantive and methodological knowledge in CSS as a whole and in the chosen focus area, the ability to integrate materials from different courses, and the potential for a successful dissertation. The exam consists of written and oral parts.

**Dissertation Proposal**

Upon passing the candidacy examination, each student shall prepare and, within a year, defend a dissertation proposal, written in the form of an extramural research grant proposal. The student shall develop the dissertation proposal in consultation with the dissertation committee. With successful defense of the proposal, a student becomes a PhD candidate.

**Dissertation Research**

Dissertation research credits are required in order to demonstrate doctoral-level originality and research excellence:

Select 24 credits from the following: 24

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSS 998</td>
<td>Doctoral Dissertation Proposal</td>
</tr>
</tbody>
</table>
Example Dissertation Areas
Areas for dissertation research include, but are not limited to, the following:

- Agent-based computational economics: trade, finance, decision making under risk
- Computational political economy: voting, institutions, norms, inequality
- Computational linguistics: generative grammars, parsing, classifiers, inference
- Social network analysis: connectivity, structure, evolution of the Internet, social media, cyber warfare
- Computational anthropology: emergence of hierarchy, settlement patterns
- Computational political science: systems of government, conflict and war, cooperation
- Computational sociology: segregation, collective action, leadership, trust
- Complexity theory: power laws, potential theory, criticality, bifurcation
- Computational methodology: multiagent systems, evolutionary computation
- Agent-based computational geography: land use change, humanitarian assistance, urban modeling

Doctoral Dissertation Defense
The PhD dissertation is the detailed written report of an original and significant research contribution to computational social science. It is defended before the dissertation committee in a forum open to fellow students and interested faculty and staff. The dissertation committee recommends that the graduate faculty of George Mason University accept the student candidate for the PhD degree upon a successful defense and completion of any final revisions.

Computational and Data Sciences Minor
Banner Code: CDS

Joseph Marr, Undergraduate Coordinator
Planetary Hall, Room 115
Fairfax Campus
Phone: 703-993-5017
Email: jmmarr2@gmu.edu
Website: cos.gmu.edu/cds/minor-in-computational-and-data-sciences/

The minor provides an attractive option for students majoring in science, technology, engineering, or mathematics (STEM) who wish to augment their major degree program with additional courses in modeling, simulation, data science, and scientific computing. The combination of computer science, numerical methods, science, and computational and data sciences (CDS) synthesis courses will significantly enhance the practical knowledge and computational skills of the students when compared with the major field alone. Students will acquire the knowledge, skills, and techniques commonly used across scientific disciplines, which will allow them to apply their George Mason University education in a practical way in industrial, government, and academic settings. Computational and data sciences skills are highly sought after in today's marketplace.

For additional information, please contact the CDS undergraduate coordinator/advisor.

Admissions & Policies

Policies
At least 8 credits must be unique to this minor and may not be used to fulfill requirements of the student's major, concentration, or another minor or undergraduate certificate. Students must complete at least 6 credits in their minor at George Mason and achieve a minimum GPA of 2.00 in courses applied to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15

Students should refer to the Admissions & Policies (p. 657) tab for specific policies related to this program.

Students should note that many of the required courses have prerequisites. Nonetheless, this minor is within efficient reach of most students majoring in science, mathematics, engineering, or computer science. It is very likely that students with these backgrounds will already have the prerequisites completed.

CDS Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 101</td>
<td>Introduction to Computational and Data Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or CDS 130</td>
<td>Computing for Scientists (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

CDS or CSI Courses

Select 9 credits from any CDS or CSI courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS (p. 1316)</td>
<td>9</td>
</tr>
<tr>
<td>CSI (p. 1302)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Upper-level Courses

Select 3 credits from any College of Science course at the 300 level or above

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

1 Other discipline-based courses may be permitted with permission of the undergraduate program director.

Computational and Data Sciences, BS
Banner Code: SC-BS-CDS

Joseph Marr, Undergraduate Coordinator
Planetary Hall, Room 115
Fairfax Campus
Phone: 703-993-5017
Email: jmarr2@gmu.edu
Website: cos.gmu.edu/cds/bs-in-computational-and-data-sciences/

The aim of this degree is to provide students with technical skills and knowledge for rigorously investigating physical and social phenomena. The BS is a transformative approach that integrates science at George Mason University based on the combination of real-world computer science skills, data acquisition and analysis, scientific modeling, applied mathematics, and simulation. As an interdisciplinary STEM-designated program, this degree addresses the current central role of computation in the areas of “big data,” modeling, and simulation. Graduates of the program will possess the computational, scientific, and mathematical skills necessary for participating effectively as members of the scientific simulation and data analysis groups that are of increasing importance in the federal and public sectors, and in high technology firms. Additionally, graduates of the program will be well prepared to pursue graduate studies.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog. To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

The university’s writing intensive requirement for the major will be met upon successful completion of CDS 302 Scientific Data and Databases. For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 658) tab for specific policies related to this program.

Core Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 130</td>
<td>Computing for Scientists (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CDS 151</td>
<td>Data Ethics in an Information Society (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CDS 230</td>
<td>Modeling and Simulation I</td>
<td>3</td>
</tr>
<tr>
<td>CDS 301</td>
<td>Scientific Information and Data Visualization</td>
<td>3</td>
</tr>
</tbody>
</table>

Extended Core Courses

Select 18 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 101</td>
<td>Introduction to Computational and Data Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CDS 102</td>
<td>and Introduction to Computational and Data Sciences Lab (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CDS 201</td>
<td>Introduction to Computational Social Science</td>
<td>3</td>
</tr>
<tr>
<td>CDS 205</td>
<td>Introduction to Agent-based Modeling and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>CDS 251</td>
<td>Introduction to Scientific Programming</td>
<td>3</td>
</tr>
<tr>
<td>CDS 290</td>
<td>Topics in Computational and Data Sciences</td>
<td>3</td>
</tr>
<tr>
<td>CDS 292</td>
<td>Introduction to Social Network Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CDS 411</td>
<td>Modeling and Simulation II</td>
<td>3</td>
</tr>
<tr>
<td>CDS 486</td>
<td>Topics in Computational and Data Sciences</td>
<td>3</td>
</tr>
<tr>
<td>CSI 500</td>
<td>Computational Science Tools</td>
<td>3</td>
</tr>
<tr>
<td>CSI 501</td>
<td>Introduction to Scientific Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 18

Mathematics Courses

Select 10-11 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 446</td>
<td>Numerical Analysis I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 10-11

Statistics Courses

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 350</td>
<td>Introductory Statistics II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Science and Engineering Courses

Select 6 credits from either one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Mason Core: Natural Science or Mason Core: Information Technology courses.</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>
Any course offered by the College of Science or the Volgenau School of Engineering.

Total Credits  6

Mason Core and Elective Credits

In order to meet a minimum of 120 credits, this degree requires an additional 63-64 credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor’s Degrees (p. 86), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Elective Course Suggestions

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 410</td>
<td>Numerical Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 447</td>
<td>Numerical Analysis II</td>
<td></td>
</tr>
<tr>
<td>CDS 421</td>
<td>Introduction to Computational Fluid Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CDS 461</td>
<td>Molecular Dynamics and Monte Carlo Simulations</td>
<td>3</td>
</tr>
<tr>
<td>CDS 487</td>
<td>Electronic Structure Computations</td>
<td>3</td>
</tr>
<tr>
<td>CDS 490</td>
<td>Directed Study and Research</td>
<td>1-3</td>
</tr>
<tr>
<td>CDS 491</td>
<td>Internship</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 230</td>
<td>Modeling and Simulation I</td>
<td>3</td>
</tr>
<tr>
<td>CDS 205</td>
<td>Introduction to Agent-based Modeling and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>or CDS 251</td>
<td>Introduction to Scientific Programming</td>
<td></td>
</tr>
<tr>
<td>CDS 301</td>
<td>Scientific Information and Data Visualization</td>
<td>3</td>
</tr>
<tr>
<td>CDS 302</td>
<td>Scientific Data and Databases</td>
<td>3</td>
</tr>
<tr>
<td>CDS 303</td>
<td>Scientific Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CDS 411</td>
<td>Modeling and Simulation II</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDS 461</td>
<td>Molecular Dynamics and Monte Carlo Simulations</td>
<td>3</td>
</tr>
<tr>
<td>CDS 490</td>
<td>Directed Study and Research</td>
<td>1-3</td>
</tr>
<tr>
<td>CSI 500</td>
<td>Computational Science Tools</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits  21

Students must maintain an overall GPA of 3.00 or higher in graduate coursework and should consult with their faculty advisor to coordinate their academic goals within the modeling and simulation or data science emphases of the Computational Science, MS (p. 651).

1 GRE-general scores are waived for graduates of BS degrees from any program in the College of Science or the Volgenau School of Engineering at George Mason University.

Accelerated Master's

Computational Science, MS (p. 651) within the accelerated time frame of five years. The program requires 144 credits total, allowing students to undertake graduate coursework during their final year in the bachelor’s degree. Upon completion of this 144 credit BS/MS combined program, students are exceptionally well prepared for undertaking doctoral studies or entering the professional workforce.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog. Application information for this Accelerated Master's program can be found on the Department of Computational and Data Sciences (http://cos.gmu.edu/cds/academic-programs) website. Applicants must have an overall undergraduate GPA of at least 3.00 and have completed at least 90 credits. Additionally, applicants will have completed the following courses with a GPA of 3.00 or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 230</td>
<td>Modeling and Simulation I</td>
<td>3</td>
</tr>
<tr>
<td>CDS 205</td>
<td>Introduction to Agent-based Modeling and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>or CDS 251</td>
<td>Introduction to Scientific Programming</td>
<td></td>
</tr>
<tr>
<td>CDS 301</td>
<td>Scientific Information and Data Visualization</td>
<td>3</td>
</tr>
<tr>
<td>CDS 302</td>
<td>Scientific Data and Databases</td>
<td>3</td>
</tr>
<tr>
<td>CDS 303</td>
<td>Scientific Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CDS 411</td>
<td>Modeling and Simulation II</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDS 461</td>
<td>Molecular Dynamics and Monte Carlo Simulations</td>
<td>3</td>
</tr>
<tr>
<td>CDS 490</td>
<td>Directed Study and Research</td>
<td>1-3</td>
</tr>
<tr>
<td>CSI 500</td>
<td>Computational Science Tools</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits  21

Students must maintain an overall GPA of 3.00 or higher in graduate coursework and should consult with their faculty advisor to coordinate their academic goals within the modeling and simulation or data science emphases of the Computational Science, MS (p. 651).

1 GRE-general scores are waived for graduates of BS degrees from any program in the College of Science or the Volgenau School of Engineering at George Mason University.

Reserve Graduate Credit

While in undergraduate status, a student may take a maximum of six graduate credits as reserve graduate credits and apply those credits to a master's program. Reserve graduate credits are not counted toward the 120 credits required in the undergraduate degree.

Data Science Graduate Certificate

Banner Code: SC-CERG-DSCI

Estela Blaisten-Barojas, Graduate Coordinator

Research Hall, Room 221
This certificate program focuses on mastering a variety of basic computational skills to manage and analyze data. The certificate is designed primarily for professionals in technical fields who seek to upgrade their expertise in data science. This program is also available as an option for prospective or currently enrolled master’s degree students.

The coursework in this program provides an accelerated introduction to concepts in modern analysis of data. Topics include computer packages, graphics, databases, data analytics, and their applications.

This certificate may be pursued on a part-time basis or full-time basis.

**Applications Courses**

The applications courses provide content from a specific scientific domain and demonstrate the utilization of techniques within its context.

- Select one from the following:
  - CSI 695 Scientific Databases
  - CSI 777 Principles of Knowledge Mining
  - CSS 692 Social Network Analysis

**Total Credits**

3

**Department of Environmental Science and Policy**

**Susan Cheselka**

Phone: 703-993-1043  
Email: scheselk@gmu.edu  
Website: esp.gmu.edu

**Administration**

- A. Alonso Aguirre, Chair
- Chris Parsons, Undergraduate Director
- Joris L. van der Ham, Undergraduate Coordinator
- Al Torzilli, Graduate Director
- Sharon Bloomquist, Graduate Coordinator

Research and the development of multiple disciplines have contributed to remarkable gains in human and animal health, conservation and sustainability; however, interacting challenges as dense human populations, unstable governments, habitat loss and fragmentation, over-exploitation of wild aquatic and terrestrial animals and plants, human-wildlife conflict, invasive species, biodiversity loss, emerging infectious diseases, environmental contaminants, and climate change call for broader-based and more integrated teaching, research and intervention. The Department of Environmental Science and Policy (ESP) at George Mason University believes that addressing these challenges requires diverse knowledge and expertise in natural science, social science, and public policy. Our faculty and programs reflect the need for a transdisciplinary approach to environmental science, policy and conservation.

In addition to faculty who are involved in cutting edge research, ESP has one of the largest graduate programs in the university conducting groundbreaking studies in the environmental field. We also have an increasing number of undergraduates conducting their own individual research projects or gaining experience by helping with established studies.

The proximity of George Mason to Washington, DC, gives us a unique opportunity to partner with governmental agencies, environmental and conservation groups and environmental-focused companies. Students can be involved in practical study and training at the Smithsonian-Mason School of Conservation (http://smconservation.gmu.edu) (SMSC) and the Potomac Environmental Research Education Center (https://cos.gmu.edu/perec) (PEREC).

Research conducted in ESP ranges from terrestrial and marine mammal conservation to molecular and microbial ecology; from corporate
environmental management and policy to the environmental perceptions and practices of indigenous peoples.

**Faculty**

**Department Faculty**

**Professors**
Ahn, Crate, Jones, Lovejoy

**Associate Professors**
Aguirre (chair), Jonas, Parsons, Torzilli, Visseren-Hamakers

**Assistant Professors**
de Mutsert, Fowler, Kennedy

**Term Professor**
Talbot

**Term Associate Professors**
Kim, Largen, Peters, C. Smith, D. Sklarew

**Term Assistant Professors**
Salerno

**Research Assistant Professors**
Ren, Spooner, Wensing

**Instructor**
Perilla

**Adjuncts**
Allen, Hartl, Prasad, Sample, J. Sklarew, van der Ham, T. Visseren

**Emeritus Professors**
Bradley, Ernst, Kelso, Shaffer, Skog

**Other Environmental Program Faculty**

**Professors**
Adelman, Balint, Chandhoke, Conant, Conlan, Cook, Dukes, Foster, Gerber, Gifford, Gillevet, Gusterson, Haack, Hart, Houck, Jacobsen, Lawrey, Maibach, Maxwell, Metcalf, Olds, Pawlowski, Peters, Posner, Qu, Regan, Rockwood, Rosenberger, Rowan, Seto, Storr, Stough, Taylor, Willett, Wingfield, Wong

**Associate Professors**

**Assistant Professors**
Akerlof, Forkner, Frankenfeld, Rice, Schoeny, Srikantha

**Term Associate Professors**
Fuertes, Nord, Verardo

**Term Assistant Professors**
Kysar-Mattietti, Lessard-Pilon, Luther, McNeil

**Affiliate Faculty**
Akob, Bauer, Brown, Buchanan, Buchino, Campana, Comiskey, Cook, Favaro, Fisher, Helgen, Kress, Laurance, Luksenburg, Maldonado, Manca, McShea, Megonigal, Monfort, Munigandondh, Murray, Noe, Ogburn, Perrier, Seidensticker, A. Smith, Sohmer, Songsasen, Thornhill, Verissimo, Waters, Wright

**Programs**

- Conservation Biology Minor
- Conservation Studies Minor (COS)
- Environmental Policy Minor
- Environmental Science Minor
- Environmental Science and Policy, MS
- Environmental Science and Public Policy, PhD
- Environmental Science, BS
- Environmental and Sustainability Studies, BA (COS)
- Sustainability Studies Minor
- Sustainable Enterprise Minor

Department of Environmental Science and Policy also works closely with and provides administrative input to the Biology, BS (p. 624) Environmental and Conservation Biology Concentration (ESCB).

**Conservation Biology Minor**

**Banner Code:** CBIO

Joris L. van der Ham, Undergraduate Advisor

Email: jvanderh@gmu.edu
Website: esp.gmu.edu

The minor is intended for non-biology majors with an interest in wildlife and habitat conservation issues. The minor may particularly suit environmental science, environmental and sustainability studies, global and environmental change majors and Earth science majors, as well as School of Integrative Studies (p. 564) students wishing to increase their understanding and qualifications in the field of conservation biology. The minor may also be of interest to non-science majors, for example, students taking leisure studies classes with an interest in ecotourism.

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor and not counted toward the student’s major. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).
**Requirements**

**Minor Requirements**

Total credits: 19

Students should refer to the Admissions & Policies (p. 661) tab for specific policies related to this program.

Students must complete at least 19 credits with a minimum GPA of 2.00.

Many courses below have prerequisites that need to be met; see advisor for details.

**Core Biology Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Biodiversity and Biodiversity Lab and Recitation</td>
<td>5</td>
</tr>
<tr>
<td>&amp; BIOL 330</td>
<td></td>
<td></td>
</tr>
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Select one from the following: 3-6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>EVPP 318</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>BIOL 318</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>INTS 401</td>
<td>Conservation Biology</td>
</tr>
</tbody>
</table>

Total Credits 13-16

1 of 6 credits count toward minor core. Remaining 3 credits may apply to minor electives

**Electives**

Select at least 6 credits from the following: 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EVPP 336</td>
<td>Human Dimensions of the Environment</td>
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</tr>
<tr>
<td>EVPP 361</td>
<td>Introduction to Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 377</td>
<td>Applied Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 419</td>
<td>Marine Mammal Biology and Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 420</td>
<td>Marine Mammal Biology and Conservation Field Course</td>
<td></td>
</tr>
<tr>
<td>EVPP 421</td>
<td>Marine Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 440</td>
<td>Field Environmental Science</td>
<td></td>
</tr>
<tr>
<td>EVPP 490</td>
<td>Special Topics in Environmental Science and Policy</td>
<td></td>
</tr>
<tr>
<td>INTS 401</td>
<td>Conservation Biology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3-6

1 Other conservation-oriented classes may also be applicable as electives for this minor if approved by the faculty coordinator for the minor.

2 Conservation-oriented topics only.

3 3 of 6 credits count toward electives if course taken to satisfy core requirement above

**Conservation Studies Minor (COS)**

Banner Code: CNST

Joris L. van der Ham, Undergraduate Coordinator

Email: jvanderh@gmu.edu
Website: smconservation.gmu.edu

This minor is designed for undergraduate students who wish to augment their main academic program with conservation studies taught in an experiential manner. There are three, semester-long options by which students can complete the minor including ones that focus on "Conservation, Biodiversity and Society", "Wildlife Ecology and Conservation", or "Endangered Species Conservation". These semesters are grounded in natural science, and offer a collection of four to five interdisciplinary courses that combine public policy, sociology, conflict resolution, and global awareness with hands-on experience. Students are in residence at the Smithsonian Conservation Biology Institute in Front Royal, Virginia, and are taught by Mason faculty, Smithsonian scientists and practitioners.

The minor is available only to students who enroll in any of the Smithsonian Mason Semesters, semester-long residential programs held at the Smithsonian Conservation Biology Institute in Front Royal, VA. The semesters are offered jointly by the College of Humanities and Social Sciences and the College of Science under the auspices of the Smithsonian-Mason School of Conservation (http://smconservation.gmu.edu).

This is a Green Leaf program (p. 102).

**Admissions & Policies**

**Admissions**

The minor is available only to students who enroll in either of the Smithsonian Mason Semesters, semester-long residential programs held at the Smithsonian Conservation Biology Institute in Front Royal, VA.

**Policies**

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 15-16

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 566) tab.

This minor is designed for undergraduate students who wish to augment their main academic program with conservation studies taught in an experiential manner. There are three, semester-long options by which students can complete the minor including ones that focus on "Conservation, Biodiversity and Society", "Wildlife Ecology and Conservation", or "Endangered Species Conservation". These semesters are grounded in natural science, and offer a collection of four to five interdisciplinary courses that combine public policy, sociology, conflict resolution, and global awareness with hands-on experience. Students are in residence at the Smithsonian Conservation Biology Institute in Front Royal, Virginia, and are taught by Mason faculty, Smithsonian scientists and practitioners.

The minor is available only to students who enroll in any of the Smithsonian Mason Semesters, semester-long residential programs held at the Smithsonian Conservation Biology Institute in Front Royal, VA. The semesters are offered jointly by the College of Humanities and Social Sciences and the College of Science under the auspices of the Smithsonian-Mason School of Conservation (http://smconservation.gmu.edu).

This is a Green Leaf program (p. 102).

**Admissions & Policies**

**Admissions**

The minor is available only to students who enroll in either of the Smithsonian Mason Semesters, semester-long residential programs held at the Smithsonian Conservation Biology Institute in Front Royal, VA.

**Policies**

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 15-16

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 566) tab.

**Conservation, Biodiversity and Society Option**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 320</td>
<td>Conservation in Practice</td>
<td>3</td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td>4</td>
</tr>
<tr>
<td>CONS 410</td>
<td>Human Dimensions in Conservation (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 16
Wildlife Ecology and Conservation Option (fall semester only)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td>4</td>
</tr>
<tr>
<td>CONS 405</td>
<td>Landscape and Macrosystems Ecology</td>
<td>4</td>
</tr>
<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
<td>5</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Endangered Species and Conservation Option (spring semester only)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 406</td>
<td>Small Population Management</td>
<td>4</td>
</tr>
<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning</td>
<td>4</td>
</tr>
<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
<td>5</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Environmental Policy Minor

Banner Code: EVP

Joris L. van der Ham, Undergraduate Coordinator

Email: jvanderh@gmu.edu
Website: esp.gmu.edu

Students pursuing the Environmental Policy Minor will study aspects of human interactions with the natural world. This minor will provide students with a broad overview of ecology, the environmental consequences of human action, and conceptual and practical sustainability efforts. This includes relationships between social and biological sciences and environmental law. The minor complements majors in natural science but is also suitable for non-science majors.

This is a Green Leaf program (p. 102).

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Minor Requirements

Total credits: 21

Students should refer to the Admissions & Policies (p. 663) tab for specific policies related to this program.

Environmental Science Minor

Banner Code: EVSC

Joris L. van der Ham, Undergraduate Coordinator

Email: jvanderh@gmu.edu
Website: esp.gmu.edu
Students pursuing the Environmental Science Minor will identify and study the interactions between organic and inorganic elements in a wide variety of ecosystems. This insight will provide students with a broad overview of the workings of the natural world and develop an increased awareness of major environmental issues affecting modern society.

The minor complements majors in natural science but is also suitable for non-science majors. This minor is not intended to be taken in conjunction with majors that focus on environmental science, including the Earth Science, BS (p. 604) (concentration in Environmental Geoscience) or the Environmental Science, BS (p. 674).

### Admissions & Policies

#### Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

### Requirements

#### Minor Requirements

Total credits: 19-23

Students should refer to the Admissions & Policies (p. 664) tab for specific policies related to this program.

#### EVPP or BIOL Sequence

Select one of the following sequences: 8-12

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 110 &amp; EVPP 111</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135) and The Ecosphere: An Introduction to Environmental Science II (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>BIOL 103 &amp; BIOL 104 &amp; GEOL 101</td>
<td>Introductory Biology I (Mason Core) (p. 135) and Introductory Biology II (Mason Core) (p. 135) and Introductory Geology I (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 8-12

#### Applied Ecology Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 377 or BIOL 377</td>
<td>Applied Ecology 3</td>
</tr>
</tbody>
</table>

Total Credits 3

#### Electives

Select a minimum of 8 credits of EVPP electives, of which 4 credits must be upper level courses (p. 1501) 8

Total Credits 8

### Environmental Science and Policy, MS

Banner Code: SC-MS-EVSP

Sharon Bloomquist, Graduate Coordinator

Email: sbloomqu@gmu.edu
Website: esp.gmu.edu

This master’s program meets the increasing need for trained environmental professionals who can address the problems of land and water management, land use and urbanization, wetland loss, microbial ecology, bioremediation, conservation biology, and ecosystem preservation. These professionals will also contribute to the analysis and resolution of global problems, such as deforestation, insufficient world food supplies, acid deposition, population growth and public health, global climate change/warming, and depletion of the stratospheric ozone. Areas of specific departmental focus include ecosystems; conservation; environmental biocomplexity; molecular ecology; sustainability science; environmental policy and management; and human/environmental interactions.

Environmental problems are defined in the real world and do not necessarily conform to traditional academic disciplines. As such, solutions require creative combinations of diverse interests and subjects. Effective training requires rigorous, problem-focused interdisciplinary action in a setting in which research is an essential element supporting instruction.

This has been designated a Green Leaf program (p. 102).

#### Concentrations

The following concentrations are available in the master’s program:

- Aquatic Ecology (AQEC)
- Conservation Science and Policy (COSP)
- Earth Surface Processes and Environmental Geochemistry (ESEG)
- Environmental Biocomplexity (EVBC)
- Environmental Science and Policy (EVSP)
- Environmental Science Communication (ESCM)
- Environmental Management (EVMG)

### Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog. Additionally, information on the admission of international students can be found in the Admission of International Students (p. 68) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

#### Eligibility

Applicants should hold a bachelor’s degree from a regionally-accredited institution with a GPA of 3.00 in natural or Earth sciences, engineering,
resource planning, environmental studies, or a field that leads to an environmental focus.

Applicants should have taken at least two semesters of chemistry and three semesters of biology, including a course in ecology. Applicants who lack this coursework should contact the graduate coordinator’s office for advice. Successful completion of a two-semester sequence of introductory graduate-level environmental chemistry and biology courses can be used to satisfy the biology and chemistry prerequisites for admission. These introductory courses would be in addition to the requirements for the degree.

Application Requirements

Applicants should submit the following:

- Completed George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).
- Three letters of recommendation, including at least one from a former professor or, if not available, from someone with a PhD.
- The aptitude portion of the GRE is required. Successful applicants usually have achieved a minimum score of 235/336 (70%) for verbal and quantitative combined.
- Statement of interest indicating desired concentration, potential areas of environmental focus/research interest, interactions with potential faculty advisors, and career goals.
- Contact a potential George Mason faculty advisor (appropriate for research interests). An endorsement letter from the potential advisor must be sent to the Department of Environmental Science and Policy (p. 660)’s graduate office; the availability of an advisor in the student’s area of interest is a prerequisite for admission.

1 This endorsement letter is not required for students in the Environmental Management Concentration.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Course Selections

Some program requirements may be fulfilled by completing courses from a variety of academic units at Mason. A student’s course selection should reflect a coherent individual program focus, which is stated and briefly described in the program of study. Course selections should also support the research component of the student’s degree program (if applicable) and should be developed in close consultation with the supervisory committee. The supervisory committee approves a coursework program (the program of study) individually for each student.

In special cases, the graduate program director may permit the substitution of an alternative course in place of a required one.

Supervisory Committee

Students must form a supervisory committee and submit a program of study to the graduate coordinator for approval within the first 9 credits of coursework or by the end of the second semester, whichever comes first.

The supervisory committee consists of the advisor and at least two other members, chosen in consultation with the advisor, and must conform to AP.6.9 Requirements for Master’s Degrees (p. 91).

Students choosing the EVMG concentration are not required to form a supervisory committee.

Requirements

Degree Requirements

Total credits: 33 or 37

Students should refer to Admissions & Policies (p. 664) for specific policies related to this program.

Students in the AQEC, COSP, ESEG, EVBC, ESCM and EVSP concentrations will complete the concentration’s requirements, the research requirement, the seminar requirement, and electives as outlined below (for a total of 33 credits).

Students in the EVMG concentration will complete the concentration’s requirements as outlined in the concentration’s section below (for a total of 37 credits).

Aquatic Ecology Concentration (AQEC)

This concentration will provide students with a well-grounded master’s in the study of aquatic environments such as lakes, streams, watersheds, and estuaries. Emphasis is placed on food webs, biogeochemical cycles, water quality, habitat characteristics, and life histories of aquatic organisms. Students will become proficient with research tools including literature review, field and laboratory methods, and analytical tools as well as applications to management issues.

Aquatic Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 550</td>
<td>Waterscape Ecology and Management</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 581</td>
<td>Estuarine and Coastal Ecology</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science</td>
<td>6</td>
</tr>
<tr>
<td>EVPP 519</td>
<td>Marine Mammal Biology and Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 521</td>
<td>Marine Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 536</td>
<td>The Diversity of Fishes</td>
<td></td>
</tr>
<tr>
<td>EVPP 563</td>
<td>Coastal Morphology and Processes</td>
<td></td>
</tr>
<tr>
<td>EVPP 641</td>
<td>Environmental Science and Public Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 643</td>
<td>Microbial Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 645</td>
<td>Freshwater Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 646</td>
<td>Wetland Ecology and Management</td>
<td></td>
</tr>
<tr>
<td>EVPP 648</td>
<td>Population Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 652</td>
<td>The Hydrosphere</td>
<td></td>
</tr>
<tr>
<td>EVPP 741</td>
<td>Advanced Topics in Environmental Science</td>
<td></td>
</tr>
<tr>
<td>EVPP 745</td>
<td>Environmental Toxicology</td>
<td></td>
</tr>
<tr>
<td>CLIM 512</td>
<td>Physical Oceanography</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

Public Policy

Select from courses in environmental law, human ecology, environmental ethics, environmental conflict resolution, environmental planning, or public affairs.

Select at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science</td>
</tr>
</tbody>
</table>
EVPP 521  Marine Conservation
EVPP 608  Introduction to Environmental Social Science 1
EVPP 619  The Challenge of Biodiversity
EVPP 623  Translating Environmental Policy into Action
EVPP 635  Environment and Society
EVPP 642  Environmental Policy
EVPP 670  Environmental Law
EVPP 675  Environmental Planning and Administration
EVPP 741  Advanced Topics in Environmental Science and Public Policy

Total Credits  6

1 Required for those with limited coursework in the social sciences. Can be included within the 6 credits.

Aquatic Methods
Select from statistics, research design, multivariate data analysis, geographic information systems, lab and field classes.

Select at least 6 credits from the following:

EVPP 555  Lab in Waterscape Ecology
EVPP 582  Estuarine and Coastal Ecology Laboratory
EVPP 615  Molecular Environmental Biology II
EVPP 647  Wetland Ecology Lab and Field
EVPP 650  Ecosystem Analysis and Modeling
EVPP 651  Multivariate Data Analysis for Ecology and Environmental Science
CLIM 512  Physical Oceanography
CSS 600  Introduction to Computational Social Science
CSS 645  Spatial Agent-Based Models of Human-Environment Interactions
GGS 653  Geographic Information Analysis
PUAD 511  Problem Solving and Data Analysis I
PUAD 612  Problem Solving and Data Analysis II
SOCI 636  Statistical Reasoning

Total Credits  6

1 Required for those without previous coursework in ecology. Can be included within the 6 credits.
2 Variable topics, may be taken more than once if the topic is different.

Conservation Science
Select at least 6 credits of conservation science courses.  6
Suggested courses include:

EVPP 518  Conservation Biology
EVPP 519  Marine Mammal Biology and Conservation
EVPP 520  Marine Mammal Biology and Conservation Field Course
EVPP 543  Tropical Ecosystems
EVPP 550  Waterscape Ecology and Management
EVPP 607  Fundamentals of Ecology 1
EVPP 621  Overview of Biodiversity Conservation
CONS 630  Species Monitoring Conservation 2

Total Credits  6

1 Required for those with limited coursework in the social sciences. Can be included within the 6 credits.
2 Variable topics, may be taken more than once if the topic is different.

Conservation Policy and Human Dimensions of Conservation
Select from the following courses in conservation policy or social science courses.

Select at least 6 credits from the following:

EVPP 521  Marine Conservation
EVPP 575  Global Biodiversity Governance
EVPP 608  Introduction to Environmental Social Science 1
EVPP 622  Management of Wild Living Resources
EVPP 642  Environmental Policy
EVPP 643  Microbial Ecology
CONS 660  Effective Conservation Leadership
CONS 665  Conservation Conflict Resolution

Total Credits  6

1 Required for those with limited coursework in the social sciences. Can be included within the 6 credits.

Conservation Methods
Select at least 6 credits in relevant experimental methods, statistics, or conservation techniques courses. Suggested courses include:

EVPP 555  Lab in Waterscape Ecology
CONS 620  Spatial Ecology, Geospatial Analysis Remote Sensing for Conservation
CONS 625  Statistics for Ecology and Conservation Biology

Total Credits  6

Additional Requirements
See Additional Requirements below for details on the research requirement, the seminar requirement, and elective.

Conservation Science and Policy Concentration (COSP)
This concentration is designed to foster an interdisciplinary, research-oriented degree focusing on the conservation of threatened species and habitats, integrating biological sciences and the human dimensions of conservation practice.

Students may take courses offered by the Department of Environmental Science and Policy (p. 660) and other departments, including CONS courses which are offered through the Smithsonian Mason School of Conservation (p. 589). This unique partnership with the Smithsonian Conservation Biology Institute (https://www.si.edu/ResearchCenters/Conservation-Biology-Institute) (SCBI) in Front Royal, Virginia offers students hands-on education in cutting-edge conservation science and human dimensions through residential, intensive classes. SCBI is renowned for its conservation research and training of conservation practitioners around the world and instructors for these classes are drawn from SCBI’s conservation scientists and other experts from around the world.

Conservation Science
Select at least 6 credits of conservation science courses.  6
Suggested courses include:

EVPP 518  Conservation Biology
EVPP 519  Marine Mammal Biology and Conservation
EVPP 520  Marine Mammal Biology and Conservation Field Course
EVPP 543  Tropical Ecosystems
EVPP 550  Waterscape Ecology and Management
EVPP 607  Fundamentals of Ecology 1
EVPP 621  Overview of Biodiversity Conservation
CONS 630  Species Monitoring Conservation 2

Total Credits  6

1 Required for those without previous coursework in ecology. Can be included within the 6 credits.
2 Variable topics, may be taken more than once if the topic is different.

Conservation Policy and Human Dimensions of Conservation
Select from the following courses in conservation policy or social science courses.

Select at least 6 credits from the following:

EVPP 521  Marine Conservation
EVPP 575  Global Biodiversity Governance
EVPP 608  Introduction to Environmental Social Science 1
EVPP 622  Management of Wild Living Resources
EVPP 642  Environmental Policy
EVPP 643  Microbial Ecology
CONS 660  Effective Conservation Leadership
CONS 665  Conservation Conflict Resolution

Total Credits  6

1 Required for those with limited coursework in the social sciences. Can be included within the 6 credits.
Additional Requirements
See Additional Requirements below for details on the research requirement, the seminar requirement, and electives.

Earth Surface Processes and Environmental Geochemistry Concentration (ESEG)
This concentration offers a specific research focus in the Earth science area and is designed for students desiring a master’s with an Earth science geology theme.

Natural Sciences
Of the required 16 credits, select at least one course from each of the following areas: soils science, hydrogeology, and geochemistry (totaling 10 of the 16 required credits).

Select 16 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 503</td>
<td>Field Mapping Techniques</td>
</tr>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science</td>
</tr>
<tr>
<td>EVPP 543</td>
<td>Tropical Ecosystems</td>
</tr>
<tr>
<td>EVPP 550</td>
<td>Waterscape Ecology and Management</td>
</tr>
<tr>
<td>EVPP 563</td>
<td>Coastal Morphology and Processes</td>
</tr>
<tr>
<td>EVPP 577</td>
<td>Biogeochemistry: A Global Perspective</td>
</tr>
<tr>
<td>EVPP 607</td>
<td>Fundamentals of Ecology ¹</td>
</tr>
<tr>
<td>EVPP 610</td>
<td>Bioremediation: Theory and Applications</td>
</tr>
<tr>
<td>EVPP 643</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>EVPP 745</td>
<td>Environmental Toxicology</td>
</tr>
<tr>
<td>CHEM 633</td>
<td>Chemical Thermodynamics and Kinetics</td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Environmental Chemistry of Organic Substances</td>
</tr>
<tr>
<td>CHEM 728</td>
<td>Introduction to Solid Surfaces</td>
</tr>
<tr>
<td>GEOL 500</td>
<td>Selected Topics in Modern Geology</td>
</tr>
<tr>
<td>GEOL 501</td>
<td>Selected Topics in Modern Geology</td>
</tr>
<tr>
<td>GEOL 601</td>
<td>The Lithosphere</td>
</tr>
</tbody>
</table>

Total Credits 16

¹ Required for those without previous coursework in ecology. Can be included within the 6 credits.

Public Policy
Select from the following courses in environmental law, human dimension of global change, environmental ethics, human ecology, or planning.

Select at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science</td>
</tr>
<tr>
<td>EVPP 524</td>
<td>Introduction to Environmental and Resource Economics</td>
</tr>
<tr>
<td>EVPP 608</td>
<td>Introduction to Environmental Social Science ¹</td>
</tr>
<tr>
<td>EVPP 619</td>
<td>The Challenge of Biodiversity</td>
</tr>
<tr>
<td>EVPP 620</td>
<td>Development of U.S. Environmental Policies</td>
</tr>
<tr>
<td>EVPP 621</td>
<td>Overview of Biodiversity Conservation</td>
</tr>
<tr>
<td>EVPP 623</td>
<td>Translating Environmental Policy into Action</td>
</tr>
<tr>
<td>EVPP 635</td>
<td>Environment and Society</td>
</tr>
<tr>
<td>EVPP 642</td>
<td>Environmental Policy</td>
</tr>
<tr>
<td>EVPP 670</td>
<td>Environmental Law</td>
</tr>
</tbody>
</table>

¹ Required for those with limited coursework in the social sciences. Can be included within the 6 credits.

Methods
Select from the following courses in remote sensing, GIS, statistics, instrumentation, or modeling.

Select at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 503</td>
<td>Field Mapping Techniques</td>
</tr>
<tr>
<td>EVPP 531</td>
<td>Land-use Modeling Techniques and Applications</td>
</tr>
<tr>
<td>EVPP 615</td>
<td>Molecular Environmental Biology II</td>
</tr>
<tr>
<td>EVPP 631</td>
<td>Spatial Agent-based Models of Human-Environment Interactions</td>
</tr>
<tr>
<td>EVPP 632</td>
<td>Qualitative Research Methods for Environmental Scientists</td>
</tr>
<tr>
<td>EVPP 650</td>
<td>Ecosystem Analysis and Modeling</td>
</tr>
<tr>
<td>EVPP 651</td>
<td>Multivariate Data Analysis for Ecology and Environmental Science</td>
</tr>
<tr>
<td>GGS 531</td>
<td>Land-Use Modeling Techniques and Applications</td>
</tr>
<tr>
<td>GGS 550</td>
<td>Geospatial Science Fundamentals</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
</tr>
<tr>
<td>GGS 560</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>GGS 563</td>
<td>Advanced Geographic Information Systems</td>
</tr>
<tr>
<td>GGS 579</td>
<td>Remote Sensing</td>
</tr>
<tr>
<td>GGS 653</td>
<td>Geographic Information Analysis</td>
</tr>
</tbody>
</table>

Environmental Biocomplexity Concentration (EVBC)
This concentration is designed for students desiring a master’s with an environmental biocomplexity theme encompassing the disciplines of population genetics, microbial ecology, and/or molecular systematics.

Students are encouraged to complete at least 1 credit of directed studies (EVPP 693 Directed Studies in Environmental Science and Public Policy) as a laboratory rotation to enhance their mastery of experimental techniques.

Natural Sciences
Select from the following courses in courses that can be drawn from offerings in ecology, biogeochemistry, biochemistry, population genetics, molecular biology, molecular systematics, molecular evolution, microbial ecology, microbial diversity, quantitative genetics, and population biology.

Select at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science</td>
</tr>
<tr>
<td>EVPP 515</td>
<td>Molecular Environmental Biology I</td>
</tr>
<tr>
<td>EVPP 518</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>EVPP 519</td>
<td>Marine Mammal Biology and Conservation</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>EVPP 520</td>
<td>Marine Mammal Biology and Conservation Field Course</td>
</tr>
<tr>
<td>EVPP 521</td>
<td>Marine Conservation</td>
</tr>
<tr>
<td>EVPP 536</td>
<td>The Diversity of Fishes</td>
</tr>
<tr>
<td>EVPP 550</td>
<td>Waterscape Ecology and Management</td>
</tr>
<tr>
<td>EVPP 551</td>
<td>Fungi and Ecosystems</td>
</tr>
<tr>
<td>EVPP 563</td>
<td>Coastal Morphology and Processes</td>
</tr>
<tr>
<td>EVPP 581</td>
<td>Estuarine and Coastal Ecology</td>
</tr>
<tr>
<td>EVPP 607</td>
<td>Fundamentals of Ecology</td>
</tr>
<tr>
<td>EVPP 615</td>
<td>Molecular Environmental Biology II</td>
</tr>
<tr>
<td>EVPP 641</td>
<td>Environmental Science and Public Policy</td>
</tr>
<tr>
<td>EVPP 643</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>EVPP 646</td>
<td>Wetland Ecology and Management</td>
</tr>
<tr>
<td>EVPP 745</td>
<td>Environmental Toxicology</td>
</tr>
</tbody>
</table>

**Total Credits:** 6

1 Required for those without previous coursework in ecology. Can be included within the 6 credits.

**Public Policy**
Select from the following courses in environmental law, human ecology, environmental ethics, planning, or public affairs.

Select at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science</td>
</tr>
<tr>
<td>EVPP 520</td>
<td>Marine Mammal Biology and Conservation Field Course</td>
</tr>
<tr>
<td>EVPP 521</td>
<td>Marine Conservation</td>
</tr>
<tr>
<td>EVPP 524</td>
<td>Introduction to Environmental and Resource Economics</td>
</tr>
<tr>
<td>EVPP 608</td>
<td>Introduction to Environmental Social Science</td>
</tr>
<tr>
<td>EVPP 619</td>
<td>The Challenge of Biodiversity</td>
</tr>
<tr>
<td>EVPP 620</td>
<td>Development of U.S. Environmental Policies</td>
</tr>
<tr>
<td>EVPP 621</td>
<td>Overview of Biodiversity Conservation</td>
</tr>
<tr>
<td>EVPP 623</td>
<td>Translating Environmental Policy into Action</td>
</tr>
<tr>
<td>EVPP 635</td>
<td>Environment and Society</td>
</tr>
<tr>
<td>EVPP 642</td>
<td>Environmental Policy</td>
</tr>
<tr>
<td>EVPP 643</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>EVPP 670</td>
<td>Environmental Law</td>
</tr>
<tr>
<td>EVPP 741</td>
<td>Advanced Topics in Environmental Science and Public Policy</td>
</tr>
</tbody>
</table>

1 Required for those with limited coursework in the social sciences. Can be included within the 6 credits.

**Methods and Statistics**
Select from the following courses in statistics, bioinformatics, information systems, instrumental analysis, microbiological techniques, molecular methods, or phylogenetic methods.

Select at least 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 615</td>
<td>Molecular Environmental Biology II</td>
</tr>
<tr>
<td>EVPP 632</td>
<td>Qualitative Research Methods for Environmental Scientists</td>
</tr>
<tr>
<td>EVPP 650</td>
<td>Ecosystem Analysis and Modeling</td>
</tr>
<tr>
<td>EVPP 651</td>
<td>Multivariate Data Analysis for Ecology and Environmental Science</td>
</tr>
<tr>
<td>EVPP 745</td>
<td>Environmental Toxicology</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
</tr>
<tr>
<td>GGS 563</td>
<td>Advanced Geographic Information Systems</td>
</tr>
<tr>
<td>GGS 653</td>
<td>Geographic Information Analysis</td>
</tr>
</tbody>
</table>

**Environmental Science and Policy Concentration (EVSP)**
The environmental science and policy concentration is the largest within the master's and serves as a home for a broad array of research foci. It encourages an independent and creative approach to the development of curricula that reside in the general field of environmental science and policy.

The concentration's requirements may be fulfilled by completing courses from a variety of academic units at Mason.

**Natural Sciences**
Select from the following courses in biology, geology, geography, chemistry, or environmental engineering.

Select at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 515</td>
<td>Molecular Environmental Biology I</td>
</tr>
<tr>
<td>EVPP 518</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>EVPP 519</td>
<td>Marine Mammal Biology and Conservation</td>
</tr>
<tr>
<td>EVPP 520</td>
<td>Marine Mammal Biology and Conservation Field Course</td>
</tr>
<tr>
<td>EVPP 543</td>
<td>Tropical Ecosystems</td>
</tr>
<tr>
<td>EVPP 550</td>
<td>Waterscape Ecology and Management</td>
</tr>
<tr>
<td>EVPP 551</td>
<td>Fungi and Ecosystems</td>
</tr>
<tr>
<td>EVPP 581</td>
<td>Estuarine and Coastal Ecology</td>
</tr>
<tr>
<td>EVPP 607</td>
<td>Fundamentals of Ecology</td>
</tr>
<tr>
<td>EVPP 622</td>
<td>Management of Wild Living Resources</td>
</tr>
<tr>
<td>EVPP 641</td>
<td>Environmental Science and Public Policy</td>
</tr>
<tr>
<td>EVPP 643</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>EVPP 648</td>
<td>Population Ecology</td>
</tr>
<tr>
<td>EVPP 677</td>
<td>Applied Ecology and Ecosystem Management</td>
</tr>
<tr>
<td>EVPP 745</td>
<td>Environmental Toxicology</td>
</tr>
</tbody>
</table>

**Total Credits:** 6

1 Required for those without previous coursework in ecology. Can be included within the 6 credits.

**Public Policy**
Select from the following courses in environmental law, human ecology, environmental ethics, planning, or public affairs.

Select at least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 505</td>
<td>Selected Topics in Environmental Science</td>
</tr>
</tbody>
</table>

---
EVPP 519  Marine Mammal Biology and Conservation
EVPP 520  Marine Mammal Biology and Conservation Field Course
EVPP 521  Marine Conservation
EVPP 608  Introduction to Environmental Social Science
EVPP 619  The Challenge of Biodiversity
EVPP 621  Overview of Biodiversity Conservation
EVPP 622  Management of Wild Living Resources
EVPP 623  Translating Environmental Policy into Action
EVPP 635  Environment and Society
EVPP 642  Environmental Policy
EVPP 643  Microbial Ecology
EVPP 670  Environmental Law

1 Required for those with limited coursework in the social sciences. Can be included within the 6 credits.

Methods and Statistics
Select from the following courses in statistics, remote sensing, information systems, instrumental analysis, or modeling. A course in statistics is highly recommended.

Select at least 6 credits from the following: 6
EVPP 503  Field Mapping Techniques
EVPP 505  Selected Topics in Environmental Science
EVPP 524  Introduction to Environmental and Resource Economics
EVPP 531  Land-use Modeling Techniques and Applications
EVPP 615  Molecular Environmental Biology II
EVPP 632  Qualitative Research Methods for Environmental Scientists
EVPP 650  Ecosystem Analysis and Modeling
EVPP 651  Multivariate Data Analysis for Ecology and Environmental Science
EVPP 745  Environmental Toxicology
GGS 560  Quantitative Methods
GGS 653  Geographic Information Analysis
GGS 756  Physical Principles of Remote Sensing
SOCI 631  Survey Research

Additional Requirements
See Additional Requirements below for details on the research requirement, the seminar requirement, and electives.

Environmental Science Communication Concentration (ESCM)
A key to environmental action and behavior change is an ability to communicate environmental science and policy. This concentration is for students desiring an master’s degree with an interdisciplinary approach to communicating environmental issues and solutions.

Environmental Science
Select 6 credits from EVPP graduate courses, suggestions include:

EVPP 521  Marine Conservation
EVPP 543  Tropical Ecosystems
EVPP 607  Fundamentals of Ecology 1
EVPP 621  Overview of Biodiversity Conservation
EVPP 641  Environmental Science and Public Policy
EVPP 677  Applied Ecology and Ecosystem Management

Total Credits 6
1 Required for those without previous coursework in ecology. Can be included within the 6 credits.

Science Communication
EVPP 529  Environmental Science Communication 3
COMM 639  Science Communication 3
Select 6 credits of science communication courses; suggestion include, but are not limited to:
COMM 637  Risk Communication
COMM 640  Controversies in Science Communication
COMM 641  Advanced Communication Skills for STEM
COMM 642  Science and the Public
COMM 644  Analysis and Criticism of Science Journalism
COMM 660  Climate Change and Sustainability Communication Campaigns
COMM 735  Crisis Communication

Total Credits 12

Research Methods
Select 6 credits of courses in relevant experimental methods, statistics, or communication techniques. Suggested courses include, but are not limited to:
EVPP 631  Spatial Agent-based Models of Human-Environment Interactions
EVPP 683  Environmental Conflict Resolution: Situation Assessment, Process Design and Best Practices
COMM 725  Qualitative Methods
COMM 775  Media Content Analysis
PUAD 511  Problem Solving and Data Analysis I
PUAD 613  Economic Analysis in Public Administration
SOCI 620  Methods and Logic of Social Inquiry
SOCI 631  Survey Research
SOCI 634  Qualitative Research Methods
SOCI 636  Statistical Reasoning

Total Credits 6

Additional Requirements
See Additional Requirements below for details on the research requirement, the seminar requirement, and electives.
Additional Requirements for the Concentrations: AQEC, COSP, ESEG, EVBC, ESCM, EVSP

Students choosing the EVMG concentration are not required to fulfill these additional requirements; the EVMG requirements are listed below.

Research Requirement
The research requirement may be satisfied in one of two ways: a research project or a formal thesis.

The depth and sophistication of the research differs between the two options. The thesis normally involves original research with independent acquisition and interpretation of data, with the goal of peer-reviewed publication. Projects are generally less extensive and can include a broader range of activities.

Project Option
Students fulfilling the research requirement with the project option register for EVPP 798 Master’s Research Project in Environmental Science and Public Policy and are required to take a comprehensive examination covering knowledge mastered throughout the program of study. This examination includes both a written and an oral component and is administered by the student’s supervisory committee.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 798</td>
<td>Master’s Research Project in Environmental</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>Science and Public Policy (at least 1 credit)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Credits</td>
<td>1-3</td>
</tr>
</tbody>
</table>

Thesis Option
Students fulfilling the research requirement with the thesis option register for EVPP 799 Master’s Thesis in Environmental Science and Public Policy, present their results in a public seminar, and defend their thesis before their supervisory committee. Students will be graded pass/no credit on the research requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 799</td>
<td>Master’s Thesis in Environmental Science and</td>
<td>1-6</td>
</tr>
<tr>
<td></td>
<td>Public Policy (at least 3 credits)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Credits</td>
<td>1-6</td>
</tr>
</tbody>
</table>

Seminar Requirement
An appropriate course topic must be taken in order to fulfill this requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 692</td>
<td>Master’s Seminar in Environmental Science and</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Public Policy (at least 1 credit)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Credits</td>
<td>1</td>
</tr>
</tbody>
</table>

Electives
If necessary, students take additional electives to bring the degree total to 33 credits. These courses must be approved by the student’s supervisory committee and outlined on the student’s program of study.

Environmental Management Concentration (EVMG)
This concentration combines the managerial and administrative skills developed in a traditional master of public administration degree program with the scientific knowledge and understanding normally found in a master of science degree. It serves as a terminal professional master’s degree for individuals working in or aspiring to work as managers in the environmental field in government or private industry.

Students in this concentration have the graduate program director as their advisor upon admission. Full-time students can complete this degree in three semesters; part-time students can take six semesters. The requirements are as follows:

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 638</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 641</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 642</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 502</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 540</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following methods courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 650</td>
<td>Ecosystem Analysis and Modeling</td>
<td></td>
</tr>
<tr>
<td>GGS 550</td>
<td>Geospatial Science Fundamentals</td>
<td></td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>GGS 579</td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>PUAD 511</td>
<td>Problem Solving and Data Analysis I</td>
<td></td>
</tr>
<tr>
<td>SOCI 636</td>
<td>Statistical Reasoning</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Credits</td>
<td>18-19</td>
</tr>
</tbody>
</table>

Environmental Law
Select at least 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 670</td>
<td>Environmental Law</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 556</td>
<td>Environmental Law</td>
<td></td>
</tr>
<tr>
<td>PRLS 501</td>
<td>Introduction to Natural Resources Law</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Credits</td>
<td>3</td>
</tr>
</tbody>
</table>

Field Ecology
Select at least 4 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 550</td>
<td>Waterscape Ecology and Management</td>
<td></td>
</tr>
<tr>
<td>EVPP 555</td>
<td>Lab in Waterscape Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 646</td>
<td>Wetland Ecology and Management</td>
<td></td>
</tr>
<tr>
<td>EVPP 647</td>
<td>Lab and Field</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>approved 4-credit field ecology course</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Credits</td>
<td>4</td>
</tr>
</tbody>
</table>

Capstone

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 677</td>
<td>Applied Ecology and Ecosystem Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Credits</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
Select 9 credits (or more) to complete 37 credits from the following list of approved electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 524</td>
<td>Introduction to Environmental and Resource</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Economics</td>
<td></td>
</tr>
<tr>
<td>EVPP 525</td>
<td>Economics of Human/Environment Interactions</td>
<td></td>
</tr>
<tr>
<td>EVPP 550</td>
<td>Waterscape Ecology and Management</td>
<td></td>
</tr>
<tr>
<td>EVPP 575</td>
<td>Global Biodiversity Governance</td>
<td></td>
</tr>
<tr>
<td>EVPP 607</td>
<td>Fundamentals of Ecology</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 37
Accelerated Master’s

Bachelor's Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS

Overview
This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

Admission Requirements
Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master’s program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td>3</td>
</tr>
<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td>3</td>
</tr>
</tbody>
</table>

By the beginning of the undergraduate’s senior year, they should first submit a Graduate Application for Accelerated Master’s Program form (obtained from the Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us)). Secondly, in their senior year accelerated master’s students must complete the two graduate courses indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. They must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. Upon completion and conferral of the undergraduate degree in a Green Leaf-designated (p. 102) program, in the semester indicated in the application, they must additionally submit the Bachelor’s/Accelerated Master’s Transition form (found on the Office of the University Registrar website (http://registrar.gmu.edu/forms)) and will subsequently be admitted into graduate status.

By at least the beginning of their senior year, they should seek out a faculty member in the Department of Environmental Science and Policy (p. 661) who is willing to serve as their advisor (unless the student is planning to enroll in the MS concentration in Environmental Management). This advisor will aid the student in choosing the
appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master’s concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason (called “program faculty”) can serve as master’s advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.

Application Requirements
Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog, excluding the GRE exam requirement (which is not required for those enrolled in the accelerated program). This includes three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate’s proposed MS research), and a letter from their advisor stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate’s research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department’s website (http://esp.gmu.edu/academic-programs/graduate/admissions).

Reserve Graduate Credits
Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master’s program and must then complete an additional 27-31 credits to receive the master’s degree.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master’s degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor’s credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.

Environmental Science and Public Policy, PhD

Banner Code: SC-PHD-EVPP
Sharon Bloomquist, Graduate Coordinator
Email: sbloomqu@gmu.edu
Website: esp.gmu.edu

Our graduates contribute to the solution of complex environmental problems, which require the development of knowledge and skills in the collection, analysis, and interpretation of scientific data, as well as in the integration of scientific understanding into the public policy process.

This interdisciplinary program draws on faculty and expertise from the Department of Environmental Science and Policy’s core faculty, as well as faculty from across the university. This includes the Department of Biology (p. 617), the Department of Atmospheric, Oceanic and Earth Sciences (p. 599), the School of Systems Biology (p. 748), the Department of Chemistry and Biochemistry (p. 636), the Department of Economics (p. 335), the Department of Geography and Geoinformation Science (p. 687), and the Department of Sociology and Anthropology (p. 482), as well as the Schar School of Policy and Government (p. 906), the School of Integrative Studies (p. 564), the Volgenau School of Engineering (p. 953), and the College of Education and Human Development (p. 154) in addition to others.

This has been designated a Green Leaf program (p. 102).

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog. Additionally, information on the admission of international students can be found in the Admission of International Students (p. 68) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility and Application Requirements
Applicants should have a bachelor’s degree with an overall GPA of at least 3.00. They should have taken at least two semesters of chemistry and three semesters of biology, including a course in ecology.

Applicants should submit the following:

• Scores on the aptitude portion of GRE.
• Three letters of recommendation, with at least two from individuals with doctorates.
• Current résumé.
• Substantial statement of interest that includes a description of the specific area of proposed dissertation research, the potential focus (environmental science or environmental public policy), contacts that have been made with potential faculty advisors, and an explanation of career and research goals.
• Letter of endorsement from a prospective advisor to include how your research interests coincide with that of your advisor.

All students must obtain the consent of a faculty member willing to serve as an advisor prior to being fully admitted to the program. Admission decisions are based on the student’s qualifications and the availability of a faculty advisor. An advisor may be changed by mutual consent of student and advisor, or petition to the graduate program director and the associate dean for student affairs in the College of Science (p. 593). Applicants with questions should contact the ESP Graduate Programs Office (703-993-3187).
Science, Ecology, and Social Science Background

Science Background
Applicants who lack college-level coursework in biology and chemistry (two semesters of each) will be expected to complete a two semester sequence of introductory graduate-level environmental chemistry and biology courses as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 506</td>
<td>Science of the Environment I</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 507</td>
<td>Science of the Environment II</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

These introductory courses will add six credits to the degree's requirements but cannot be added to the graduate program of study.

Ecology Background
Students without previous coursework in general ecology will be required to take the following introductory course, which may be included in the graduate program of study.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 607</td>
<td>Fundamentals of Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

Social Science Background
Students with little previous coursework in the social sciences will be required to take the following introductory course, which may be included in the graduate program of study.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 608</td>
<td>Introduction to Environmental Social Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Reduction of Credits
For students entering the doctoral program with a master's degree in an academically related field from a regionally-accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of the program faculty and the college's associate dean for student affairs. See AP.6.5.2 Reduction of Credits (p. 88) for more information.

Requirements

Degree Requirements
Total credits: 72

Students should refer to the Admissions & Policies (p. 672) tab for specific policies related to this program.

Doctoral Coursework
Students are required to complete a coursework proposal by the end of their second semester. The coursework proposal must be approved by the student's advisor and the graduate program director. In keeping with the general philosophy inherent in a PhD degree, students adopt an individual program that focuses on a specific area of research. The student's coursework must provide the knowledge base from which an original research project in their specific areas of interest can be successfully completed.

Natural Sciences
Select at least 12 credits in biology, chemistry, environmental science, geology, geography, or environmental engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 606</td>
<td>Scientific and Environmental Research</td>
<td>12</td>
</tr>
</tbody>
</table>

Public Policy
Select at least 12 credits in public affairs, economics, sociology, and/or business. A course in environmental law is also required as part of this category

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 607</td>
<td>Environmental Policy</td>
<td>12</td>
</tr>
</tbody>
</table>

Research Methods and Technology
Select at least 6 credits in statistics, remote sensing, geographic information systems, analytical chemistry, molecular biology, modeling, or information technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 608</td>
<td>Research Methods and Technology</td>
<td>6</td>
</tr>
</tbody>
</table>

Doctoral Seminar
Students must present a total of 4 graduate seminar credits, with EVPP 991 Advanced Seminar in Environmental Science taken at least once.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 991</td>
<td>Advanced Seminar in Environmental Science</td>
<td>4</td>
</tr>
</tbody>
</table>

Electives
If necessary after doctoral coursework and dissertation research, students take additional electives to bring the total number of credits to 72.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EVPP 992</td>
<td>Master's Seminar in Environmental Science and Public Policy</td>
<td>2-14</td>
</tr>
</tbody>
</table>

Dissertation Committee
Before the end of the fourth semester of coursework, in consultation with their advisor, the student forms a dissertation committee of at least four members. Three of the committee members must be from the Mason graduate faculty. The fourth member may be from Mason or may be from outside the university provided that they hold a terminal degree in an appropriate field. The dissertation committee must be approved by the college's associate dean for student affairs.
Program of Study
After reviewing the student’s coursework proposal, progress to date, and area of research, the committee makes final recommendations concerning coursework that will be codified in the program of study to be signed by all committee members and the graduate program director. Students are advised to work closely with their advisor and committee to develop the coursework program in order to facilitate the process of course selection. During the duration of graduate study, a student must meet with the full dissertation committee at least once a year.

Qualifying Exams
On completion of all or nearly all coursework, students may request to take the qualifying or candidacy exam. The qualifying exam has both written and oral components. The written portion consists of questions submitted by each member of the dissertation committee. Successful completion of the written exam should be followed by the oral portion within one month. The qualifying exam may be repeated once at the discretion of the student’s committee.

Advancement to Candidacy
Upon approval of the program of study, completion of all or nearly all coursework, successful completion of the qualifying exam, and the approval of the dissertation proposal by the dissertation committee, the student is recommended for advancement to candidacy by the graduate program director. Students must advance to candidacy within five years of admission to the program.

Dissertation Research
Students must complete a dissertation. This may be accomplished by taking EVPP 999 Doctoral Dissertation Research alone, or in combination with EVPP 998 Doctoral Dissertation Proposal. However, at least six of these credits must be taken as EVPP 999 Doctoral Dissertation Research. Students working on dissertation research must register for a minimum of 3 credits of EVPP 999 Doctoral Dissertation Research per semester (excluding summers) until they have completed the minimum number of dissertation research credits. Then, they must register for 1 credit of EVPP 999 Doctoral Dissertation Research until the dissertation is complete and has been officially submitted to the library.

The dissertation is an original written work, demonstrating mastery of subject matter, methodologies, and conceptual foundations on a specific problem in the general field of environmental science and public policy. The dissertation generally involves collection and analysis of original data or the substantially new analysis and reinterpretation of existing data.

Select 12-24 credits from the following: 12-24

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>EVPP 998</td>
<td>Doctoral Dissertation Proposal</td>
</tr>
<tr>
<td>EVPP 999</td>
<td>Doctoral Dissertation Research</td>
</tr>
</tbody>
</table>

Total Credits 12-24

Dissertation Research and Defense
Before students may enroll in EVPP 999 Doctoral Dissertation Research, they must have advanced to candidacy and have a dissertation proposal approved by the dissertation committee, graduate program director, department chairperson, and the dean of the College of Science. Students must present the completed dissertation in a public seminar and defend the work before the dissertation committee and others who wish to attend. Awarding of the degree is contingent on approval of the dissertation by the dissertation committee, graduate program director, department chairperson, and the dean of the College of Science. The dissertation and defense must be completed a total of nine years from the date of first enrollment in the doctoral program.

Environmental Science, BS
Banner Code: SC-BS-EVSC

Joris L. van der Ham, Undergraduate Coordinator
Email: jvanderh@gmu.edu
Website: esp.gmu.edu

The Environmental Science, BS provides students with rigorous training in the fundamental science of the environment, and in the application of the key scientific principles to the analysis of environmental processes and problems and to the development of practical responses to those problems. The program covers ecological systems, environmental policy and the fundamental techniques of environmental science and engineering, protection and improvement of environmental quality, and public and private decision-making processes. Graduates of the program are prepared to undertake careers in a variety of environmental science fields, and are also qualified to pursue advanced scientific/professional education.

This is a Green Leaf program (p. 102).

Concentrations
Students select a concentration in:

- Conservation
- Ecological Science
- Environmental Health
- Human and Ecosystem Response to Climate Change
- Marine, Estuarine and Freshwater Ecology

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies
Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

Students can fulfill the writing intensive requirement for this major by taking EVPP 337 Environmental Policy Making in Developing Countries.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).
## Requirements

### Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 674) tab for specific policies related to this program.

### Core Requirements

All students complete the following core courses:

#### Environmental Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
<td>4</td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
<td>4</td>
</tr>
<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
<td>4</td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
<td>3</td>
</tr>
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<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
<td>1</td>
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<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 361</td>
<td>Introduction to Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 377</td>
<td>Applied Ecology</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 430</td>
<td>Fundamentals of Environmental Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
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Select one from the following:

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<th>Course Title</th>
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<td>EVPP 336</td>
<td>Human Dimensions of the Environment</td>
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<td>EVPP 338</td>
<td>Economics of Environmental Policy</td>
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<td>EVPP 362</td>
<td>Intermediate Environmental Policy</td>
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<tr>
<td>EVPP 475</td>
<td>Global Biodiversity Governance</td>
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Select one from the following:

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EVPP 378</td>
<td>RS: Ecological Sustainability (Mason Core) (p. 135)</td>
<td>3-4</td>
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<tr>
<td>EVPP 401</td>
<td>Integrated Environmental Assessment</td>
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<tr>
<td>EVPP 480</td>
<td>Sustainability in Action (Mason Core) (p. 135)</td>
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<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core) (p. 135)</td>
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</table>

Total Credits: 38-39

1. Fulfills the writing intensive requirement.
2. Only offered through the Smithsonian-Mason Semester.

#### Mathematics

Select two from the following: 7-8

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<th>Credits</th>
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<tbody>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core) (p. 135)</td>
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<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
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<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
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Total Credits: 7-8

#### Chemistry

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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
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<td>CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
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<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
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<tr>
<td>CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core) (p. 135)</td>
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Total Credits: 8

#### Geology

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<th>Credits</th>
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<tr>
<td>GEOL 102</td>
<td>Introductory Geology II (Mason Core) (p. 135)</td>
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Total Credits: 4

#### Information Technology

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<td>CDS 130</td>
<td>Computing for Scientists (Mason Core) (p. 135)</td>
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Total Credits: 3

#### Concentration in Conservation (CNSV)

Select 21 credits from the following: 21

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EVPP 318</td>
<td>Conservation Biology</td>
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</tr>
<tr>
<td>EVPP 378</td>
<td>RS: Ecological Sustainability (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>EVPP 395</td>
<td>Undergraduate Research in Environmental Science and Policy</td>
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<tr>
<td>EVPP 396</td>
<td>Directed Topic in Environmental Science and Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 419</td>
<td>Marine Mammal Biology and Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 420</td>
<td>Marine Mammal Biology and Conservation Field Course</td>
<td></td>
</tr>
<tr>
<td>EVPP 421</td>
<td>Marine Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 427</td>
<td>Disease Ecology and Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 440</td>
<td>Field Environmental Science</td>
<td></td>
</tr>
<tr>
<td>EVPP 475</td>
<td>Global Biodiversity Governance</td>
<td></td>
</tr>
<tr>
<td>EVPP 490</td>
<td>Special Topics in Environmental Science and Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>BIOL 310 &amp; BIOL 330</td>
<td>Biodiversity and Biodiversity Lab and Recitation</td>
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<tr>
<td>BIOL 435</td>
<td>Selected Topics in Biology</td>
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<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
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<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
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<td>CONS 320</td>
<td>Conservation in Practice</td>
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<td>CONS 401</td>
<td>Conservation Theory</td>
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<td>CONS 402</td>
<td>Applied Conservation</td>
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<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
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<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
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<tr>
<td>CONS 410</td>
<td>Human Dimensions in Conservation (Mason Core) (p. 135)</td>
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<td>CONS 411</td>
<td>Science Communication for Conservation</td>
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<td>CONS 420</td>
<td>Human-Wildlife Conflict</td>
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Total Credits: 21
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<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core) (p. 135) (Synthesis course)</td>
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<td>CONS 491</td>
<td>RS: Conservation Management Planning (Mason Core) (p. 135)</td>
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<tr>
<td>CONS 497</td>
<td>Special Topics in Conservation</td>
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<tr>
<td>CONS 498</td>
<td>Internship</td>
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<tr>
<td>CONS 499</td>
<td>Independent Study/Research</td>
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<tr>
<td>INTS 311</td>
<td>The Mysteries of Migration: Consequences for Conservation</td>
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<tr>
<td>PRLS 300</td>
<td>People with Nature</td>
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<td>PRLS 402</td>
<td>Human Behavior in Natural Environments</td>
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</table>

| Additional courses as approved by the program coordinator |         |

Total Credits: 21

1. In a relevant topic
2. Only offered through the Smithsonian-Mason Semester

**Concentration in Ecological Science (ECSI)**

Select 21 credits from the following: 21

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EVPP 309</td>
<td>Introduction to Oceanography</td>
<td></td>
</tr>
<tr>
<td>EVPP 350</td>
<td>Freshwater Ecosystems</td>
<td></td>
</tr>
<tr>
<td>EVPP 355</td>
<td>Ecological Engineering and Ecosystem Restoration</td>
<td></td>
</tr>
<tr>
<td>EVPP 378</td>
<td>RS: Ecological Sustainability (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>EVPP 395</td>
<td>Undergraduate Research in Environmental Science and Policy</td>
<td>1</td>
</tr>
<tr>
<td>EVPP 396</td>
<td>Directed Topic in Environmental Science and Policy</td>
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</tr>
<tr>
<td>EVPP 408</td>
<td>Mushrooms, Molds and Society</td>
<td></td>
</tr>
<tr>
<td>EVPP 427</td>
<td>Disease Ecology and Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 440</td>
<td>Field Environmental Science</td>
<td>1</td>
</tr>
<tr>
<td>EVPP 449</td>
<td>Marine Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 490</td>
<td>Special Topics in Environmental Science and Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td>1</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Biodiversity</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 330</td>
<td>Biodiversity Lab and Recitation</td>
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<tr>
<td>BIOL 345</td>
<td>Plant Ecology</td>
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<td>BIOL 435</td>
<td>Selected Topics in Biology</td>
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<tr>
<td>BIOL 459</td>
<td>Fungi and Ecosystems</td>
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</tr>
<tr>
<td>GEOL 305</td>
<td>Environmental Geology</td>
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<td>GEOL 306</td>
<td>Soil Science</td>
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<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
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| Additional courses as approved by the program coordinator |         |

Total Credits: 21

1. In a relevant topic

**Concentration in Human and Ecosystem Response to Climate Change (HERC)**

**Required Course**

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>EVPP 336</td>
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Select 18 credits from the following: 18

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<th>Title</th>
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<tbody>
<tr>
<td>EVPP 309</td>
<td>Introduction to Oceanography</td>
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<td>EVPP 355</td>
<td>Ecological Engineering and Ecosystem Restoration</td>
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<td>EVPP 378</td>
<td>RS: Ecological Sustainability (Mason Core) (p. 135)</td>
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<td>EVPP 395</td>
<td>Undergraduate Research in Environmental Science and Policy</td>
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<td>EVPP 396</td>
<td>Directed Topic in Environmental Science and Policy</td>
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<tr>
<td>EVPP 427</td>
<td>Disease Ecology and Conservation</td>
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<td>EVPP 432</td>
<td>Energy Policy</td>
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<td>EVPP 436</td>
<td>The Human Dimensions of Global Climate Change</td>
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<td>EVPP 440</td>
<td>Field Environmental Science</td>
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<tr>
<td>EVPP 475</td>
<td>Global Biodiversity Governance</td>
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</tr>
<tr>
<td>EVPP 490</td>
<td>Special Topics in Environmental Science and Policy</td>
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</table>

Total Credits: 21

1. In a relevant topic
Required Courses

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<thead>
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<th>Title</th>
<th>Credits</th>
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<tr>
<td>EVPP 309</td>
<td>Introduction to Oceanography</td>
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<tr>
<td>EVPP 350</td>
<td>Freshwater Ecosystems</td>
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<td>EVPP 421</td>
<td>Marine Conservation</td>
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<td>Marine Ecology</td>
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<tr>
<td>EVPP 318</td>
<td>Conservation Biology</td>
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</tr>
<tr>
<td>EVPP 363</td>
<td>Coastal Morphology and Processes</td>
<td></td>
</tr>
<tr>
<td>EVPP 380</td>
<td>Wetlands of the World</td>
<td></td>
</tr>
<tr>
<td>EVPP 395</td>
<td>Undergraduate Research in Environmental Science and Policy</td>
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<td>EVPP 396</td>
<td>Directed Topic in Environmental Science and Policy</td>
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<tr>
<td>EVPP 419</td>
<td>Marine Mammal Biology and Conservation</td>
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<td>EVPP 440</td>
<td>Field Environmental Science</td>
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<td>EVPP 490</td>
<td>Special Topics in Environmental Science and Policy</td>
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<td>EVPP 494</td>
<td>Internship</td>
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<tr>
<td>BIOL 331</td>
<td>Invertebrate Zoology</td>
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<td>The Diversity of Fishes</td>
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<td>GEOL 364</td>
<td>Marine Geology</td>
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<td>GEOL 458</td>
<td>Chemical Oceanography</td>
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<td>Sustainable Development</td>
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<td>CLIM 412</td>
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1 In a relevant topic

Concentration in Marine, Estuarine and Freshwater Ecology (MEFC)

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<th>Credits</th>
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<td>EVPP 309</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 350</td>
<td>Freshwater Ecosystems</td>
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<td>EVPP 421</td>
<td>Marine Conservation</td>
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</tr>
<tr>
<td>EVPP 449</td>
<td>Marine Ecology</td>
<td>3</td>
</tr>
<tr>
<td>Select 8 credits from the following:</td>
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<td>8</td>
</tr>
<tr>
<td>EVPP 318</td>
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<tr>
<td>EVPP 363</td>
<td>Coastal Morphology and Processes</td>
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</tr>
<tr>
<td>EVPP 380</td>
<td>Wetlands of the World</td>
<td></td>
</tr>
<tr>
<td>EVPP 395</td>
<td>Undergraduate Research in Environmental Science and Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 396</td>
<td>Directed Topic in Environmental Science and Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 419</td>
<td>Marine Mammal Biology and Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 420</td>
<td>Marine Mammal Biology and Conservation Field Course</td>
<td></td>
</tr>
<tr>
<td>EVPP 427</td>
<td>Disease Ecology and Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 440</td>
<td>Field Environmental Science</td>
<td></td>
</tr>
<tr>
<td>EVPP 490</td>
<td>Special Topics in Environmental Science and Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>BIOL 331</td>
<td>Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>BIOL 480</td>
<td>The Diversity of Fishes</td>
<td></td>
</tr>
<tr>
<td>GEOL 364</td>
<td>Marine Geology</td>
<td></td>
</tr>
<tr>
<td>GEOL 458</td>
<td>Chemical Oceanography</td>
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</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
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<tr>
<td>CLIM 412</td>
<td>Physical Oceanography</td>
<td></td>
</tr>
<tr>
<td>INTS 318</td>
<td>Exploring Virginia’s Watersheds</td>
<td></td>
</tr>
<tr>
<td>Total Credits: 21</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 In a relevant topic

Mason Core and Elective Credits

In order to meet a minimum of 120 credits, this degree requires an additional 37-39 credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor’s Degrees (p. 86), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication (p. 135)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
<td>3</td>
<td></td>
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<tr>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 40

1 minimum 3 credits
Accelerated Master's

Bachelor's Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS

Overview
This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master's program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td></td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td></td>
</tr>
<tr>
<td>Option 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
<td></td>
</tr>
<tr>
<td>EVPP 301</td>
<td>Environmental Science: Biological Diversity and Ecosystems</td>
<td></td>
</tr>
<tr>
<td>EVPP 302</td>
<td>Environmental Science: Biomes and Human Dimensions</td>
<td></td>
</tr>
<tr>
<td>EVPP 305</td>
<td>Environmental Microbiology Essentials</td>
<td></td>
</tr>
<tr>
<td>EVPP 306</td>
<td>Environmental Microbiology Essentials Laboratory</td>
<td></td>
</tr>
<tr>
<td>Option 3:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td></td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td></td>
</tr>
<tr>
<td>6 credits of 6 credits of BIOL or CONS electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 4:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONS 403</td>
<td>Ecology and Conservation Theory</td>
<td></td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td></td>
</tr>
<tr>
<td>BIOL or CONS electives</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

By the beginning of the undergraduate's senior year, they should first submit a Graduate Application for Accelerated Master's Program Application with a minimum grade of 3.00 in each course. They must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. Upon completion and conferral of the undergraduate degree in a Green Leaf-designated (p. 102) program, in the semester indicated in the application, they must additionally submit the Bachelor's/Accelerated Master's Transition form (found on the Office of the University Registrar website (http://registrar.gmu.edu/forms)) and will subsequently be admitted into graduate status.

By at least the beginning of their senior year, they should seek out a faculty member in the Department of Environmental Science and Policy (p. 661) who is willing to serve as their advisor (unless the student is planning to enroll in the MS concentration in Environmental Management). This advisor will aid the student in choosing the appropriate graduate courses to take and help to prepare the student for graduate studies. Admission into a research-oriented master's concentration is dependent upon securing the agreement of a faculty advisor. Faculty from a variety of departments and colleges at George Mason (called "program faculty") can serve as master's advisors. Potential students are encouraged to speak with the graduate program coordinator in the department to obtain guidance on this issue.

Application Requirements
Applicants to all graduate programs at Mason must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog, excluding the GRE exam requirement (which is not required for those enrolled in the accelerated program). This includes three letters of recommendation (at least one from a former professor or someone with a PhD), a recent resume, a statement of interest/research goals and interests (including information on the candidate's proposed MS research), and a letter from their advisor stating that the advisor agrees to take on the candidate as an MS student, how the candidate would be a good fit for them and why candidate's research topic would be suitable (please note that a letter of endorsement from an advisor not necessary for candidates taking the Environmental Management concentration).

For information specific to the accelerated Environmental Science and Policy, MS (p. 664), see Graduate Admissions on the department's website (http://esp.gmu.edu/academic-programs/graduate/admissions).

Reserve Graduate Credits
Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master's program and must then complete an additional 27-31 credits to receive the master's degree.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master's degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor's credits). The ability to take courses for reserve
graduate credit is available to all high achieving undergraduates with the permission of the department.

**Environmental and Sustainability Studies, BA (COS)**

**Banner Code: LA-BA-EVSS**

Joris L. van der Ham, Undergraduate Coordinator

Email: jvanderh@gmu.edu
Website: esp.gmu.edu

The BA in Environmental and Sustainability Studies is a joint program between the College of Humanities and Social Sciences (p. 295) and the College of Science (p. 593).

This degree provides students with theoretical and practical knowledge of three aspects of environmental and sustainability studies: people, prosperity, and planet. In addition to required core courses, students develop more in-depth knowledge in one of six concentrations. This degree prepares students for employment and graduate study in fields related to social justice, business and public policy, and environmental protection as they relate to the environment and sustainability.

This is a Green Leaf program (p. 102).

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Policies**

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

**Requirements**

**Degree Requirements**

Total credits: minimum 120

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 566) tab.

Of the credits required for this degree, 14 credits simultaneously fulfill core requirements for the major and Mason Core requirements, and, depending on the concentration and electives chosen, up to 9 credits may simultaneously fulfill Mason Core requirements and college BA requirements.

**Core Courses in the Major**

Core requirements may satisfy Mason Core requirements in natural science (EVPP 110 The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135), EVPP 111 The Ecosphere: An Introduction to Environmental Science II (Mason Core) (p. 135)) and the college BA requirement for social and behavioral science (GOVT 361 Introduction to Environmental Policy).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 377</td>
<td>Applied Ecology</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 110 &amp; EVPP 111 &amp; EVPP 336</td>
<td>The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135) and The Ecosphere: An Introduction to Environmental Science II (Mason Core) (p. 135) and Human Dimensions of the Environment</td>
<td>11-12</td>
</tr>
<tr>
<td>EVPP 210 &amp; EVPP 301 &amp; EVPP 302</td>
<td>Environmental Biology: Molecules and Cells and Environmental Science: Biological Diversity and Ecosystems and Environmental Science: Biomes and Human Dimensions</td>
<td></td>
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<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
<td>4</td>
</tr>
<tr>
<td>ECON 105</td>
<td>Environmental Economics for the Citizen (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 322</td>
<td>Business and Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 361</td>
<td>Introduction to Environmental Policy (satisfies the college BA requirement for social and behavioral science)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 361</td>
<td>Introduction to Environmental Policy</td>
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</tr>
<tr>
<td>SOCI 313</td>
<td>Statistics for the Behavioral Sciences (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td></td>
</tr>
<tr>
<td>INTS 210</td>
<td>Sustainable World</td>
<td>4</td>
</tr>
<tr>
<td>EVPP 480</td>
<td>Sustainability in Action (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>INTS 390</td>
<td>International Internship (minimum of 3 credits required)</td>
<td>3</td>
</tr>
<tr>
<td>INTS 490</td>
<td>Internship (minimum of 3 credits required)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 42-43

**Concentration in the Major**

**Available Concentrations**

- Concentration in Business and Sustainability (BUSU) (p. 680)
- Concentration in Climate Change and Society (CCSO) (p. 680)
- Concentration in Conservation and Sustainability (CSUS) (p. 680)
- Concentration in Environmental Policy and Economics (EVPE) (p. 681)
- Concentration in Equity and Environmental Justice (EQEJ) (p. 681)
Concentration in Sustainable Food and Agriculture (SFG) (p. 682)

Concentration in Business and Sustainability (BUSU)
The requirements for this concentration, depending on the electives chosen, may satisfy the college BA requirement in philosophy and religious studies (PHIL 243 Global Environmental Ethics (Mason Core) (p. 135), PHIL 305 Business Ethics).

Students who have already taken and received credit for MGMT 303 Principles of Management or OM 303 Operations Management shall substitute MGMT 303 Principles of Management for MBUS 301 Managing People and Organizations in a Global Economy and OM 303 Operations Management for MBUS 306 Managing Projects and Operations. Both courses cannot be taken for credit. Students who have taken and received credit for both ACCT 203 Survey of Accounting and FNAN 303 Financial Management shall substitute the combination for MBUS 300 Accounting in a Global Economy. All three courses cannot be taken for credit.

For this concentration, students may substitute OM 211 Honors Statistical Analysis for Management for SOCI 313 Statistics for the Behavioral Sciences (Mason Core) (p. 135) (core requirement for degree). Students cannot receive credit for more than one of these.

Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Required Courses</td>
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</tr>
<tr>
<td>MBUS 300</td>
<td>Accounting in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>MBUS 301</td>
<td>Managing People and Organizations in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>MBUS 306</td>
<td>Managing Projects and Operations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Additional Course</td>
<td></td>
</tr>
<tr>
<td>GOVT 353</td>
<td>Social Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>IT 495</td>
<td>Turning Ideas into Successful Companies</td>
<td></td>
</tr>
<tr>
<td>MBUS 304</td>
<td>Entrepreneurship: Starting and Managing a New Enterprise</td>
<td></td>
</tr>
<tr>
<td>MGMT 451</td>
<td>Introduction to Entrepreneurship</td>
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Two Courses

<table>
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<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td>Select two courses (6 credits) from the following:</td>
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</tr>
<tr>
<td>ECON 335</td>
<td>Environmental Economics</td>
<td></td>
</tr>
<tr>
<td>EVPP 338</td>
<td>Economics of Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>EVPP 362</td>
<td>Intermediate Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
<td></td>
</tr>
<tr>
<td>INTS 204</td>
<td>Leadership Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHIL 305</td>
<td>Business Ethics</td>
<td></td>
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<tr>
<td></td>
<td>Other course work with advisor approval</td>
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<td></td>
<td>Total Credits</td>
<td>6</td>
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</table>

Concentration in Climate Change and Society (CCSO)
The requirements for this concentration, depending on the electives chosen, may satisfy the college BA requirement in philosophy and religious studies (PHIL 243 Global Environmental Ethics (Mason Core) (p. 135), PHIL 343 Topics in Environmental Philosophy (Mason Core) (p. 135)).

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM 101</td>
<td>Global Warming: Weather, Climate, and Society (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>or GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>EVPP 432</td>
<td>Energy Policy</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 436</td>
<td>The Human Dimensions of Global Climate Change</td>
<td>3</td>
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<tr>
<td></td>
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<td>9-10</td>
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</table>

Three Courses

<table>
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<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Select three courses (9 credits) from the following:</td>
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<tr>
<td>EVPP 362</td>
<td>Intermediate Environmental Policy</td>
<td></td>
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<tr>
<td>GGS 302</td>
<td>Global Environmental Hazards</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 309</td>
<td>Meteorology and Climate</td>
<td></td>
</tr>
<tr>
<td>GGS 312</td>
<td>Physical Climatology</td>
<td></td>
</tr>
<tr>
<td>GGS 314</td>
<td>Severe and Extreme Weather</td>
<td></td>
</tr>
<tr>
<td>PHIL 243</td>
<td>Global Environmental Ethics (Mason Core) (p. 135) (satisfies the college BA requirement in philosophy and religious studies)</td>
<td></td>
</tr>
<tr>
<td>PHIL 343</td>
<td>Topics in Environmental Philosophy (Mason Core) (p. 135) (satisfies the college BA requirement in philosophy and religious studies)</td>
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</tr>
<tr>
<td></td>
<td>Other course work with advisor approval</td>
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</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>9</td>
</tr>
</tbody>
</table>

Concentration in Conservation and Sustainability (CSUS)

Smithsonian-Mason Program
Students complete one of the programs offered through the Smithsonian-Mason School of Conservation in cooperation with the Smithsonian Conservation Biology Institute.

Conservation, Biodiversity and Society Option (16 credits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 320</td>
<td>Conservation in Practice</td>
<td>3</td>
</tr>
<tr>
<td>CONS 401</td>
<td>Conservation Theory</td>
<td>3</td>
</tr>
<tr>
<td>CONS 402</td>
<td>Applied Conservation</td>
<td>4</td>
</tr>
<tr>
<td>CONS 410</td>
<td>Human Dimensions in Conservation (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CONS 490</td>
<td>RS: Integrated Conservation Strategies (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>16</td>
</tr>
</tbody>
</table>

Wildlife, Ecology, and Conservation Option (15 credits)

Offered only in Fall semesters, students complete four required courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 404</td>
<td>Biodiversity Monitoring</td>
<td>4</td>
</tr>
</tbody>
</table>
Endangered Species and Conservation Option (15 credits)
Offered only in Spring semesters, students complete four required courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CONS 406</td>
<td>Small Population Management</td>
<td>4</td>
</tr>
<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
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</table>

Three Credits

<table>
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<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Select a minimum of three credits from the following:</td>
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<tr>
<td>BIOL 472</td>
<td>Introductory Animal Behavior</td>
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<tr>
<td>EVPP 419</td>
<td>Marine Mammal Biology and Conservation</td>
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<tr>
<td>EVPP 421</td>
<td>Marine Conservation</td>
<td></td>
</tr>
<tr>
<td>EVPP 430</td>
<td>Fundamentals of Environmental Geographic Information Systems</td>
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</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>INTS 211</td>
<td>Introduction to Conservation Studies</td>
<td></td>
</tr>
<tr>
<td>INTS 311</td>
<td>The Mysteries of Migration: Consequences for Conservation</td>
<td></td>
</tr>
<tr>
<td>INTS 370</td>
<td>Sustainable Food Systems</td>
<td></td>
</tr>
<tr>
<td>INTS 371</td>
<td>Food Systems and Policy</td>
<td></td>
</tr>
<tr>
<td>INTS 403</td>
<td>Conservation Behavior</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Concentration in Environmental Policy and Economics (EVPE)
The requirements for this concentration satisfy the Mason Core requirement in social and behavioral science (ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135)) and, depending on the elective chosen, may fulfill the college BA requirement in non-Western culture (ECON 362 African Economic Development (Mason Core) (p. 135)).

Required Courses
Completion of these courses will satisfy the Mason Core social and behavioral science requirement.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 338</td>
<td>Economics of Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 362</td>
<td>Intermediate Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>or GOVT 362</td>
<td>Intermediate Environmental Policy</td>
<td></td>
</tr>
<tr>
<td>GOVT 351</td>
<td>Administration in the Political System</td>
<td>3</td>
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<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Six Credits
Select a minimum of six credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CONF 394</td>
<td>Human Rights and Inequality</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
<td></td>
</tr>
<tr>
<td>GOVT 445</td>
<td>Human Rights</td>
<td></td>
</tr>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
<tr>
<td>INTS 338</td>
<td>Animal Rights and Humane Education</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>
INTS 362 Social Justice and Human Rights
INTS 402 Plants and People - Sustenance, Ceremony, and Sustainability
SOCI 320 Social Structure and Globalization (Mason Core) (p. 135)
SOCI 355 Social Inequality (Mason Core) (p. 135)
Other course work with advisor approval
Total Credits 6

Concentration in Sustainable Food and Agriculture (SFG)
Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>INTS 370</td>
<td>Sustainable Food Systems</td>
<td>6</td>
</tr>
<tr>
<td>INTS 371</td>
<td>Food Systems and Policy</td>
<td>3</td>
</tr>
<tr>
<td>INTS 470</td>
<td>Professional Pathways in Sustainable Food Systems</td>
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Total Credits 10

Eight Credits

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ANTH 366</td>
<td>Food and Human Evolution</td>
<td></td>
</tr>
<tr>
<td>ANTH 376</td>
<td>Food and Culture</td>
<td></td>
</tr>
<tr>
<td>BIOL 344</td>
<td>Plant Diversity and Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 345</td>
<td>Plant Ecology</td>
<td></td>
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<tr>
<td>EVPP 436</td>
<td>The Human Dimensions of Global Climate Change</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
<tr>
<td>INTS 338</td>
<td>Animal Rights and Humane Education</td>
<td></td>
</tr>
<tr>
<td>INTS 402</td>
<td>Plants and People - Sustenance, Ceremony, and Sustainability</td>
<td></td>
</tr>
<tr>
<td>NUTR 295</td>
<td>Introduction to Nutrition (Mason Core) (p. 135)</td>
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<tr>
<td>NUTR 408</td>
<td>Food Security</td>
<td></td>
</tr>
<tr>
<td>Other course work with advisor approval</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 8

Writing-Intensive Requirement
The university requires all students to complete at least one course designated as "writing intensive" in their major at the 300 level or above. Students majoring in environmental and sustainability studies should consult an advisor to learn how to fulfill this requirement.

Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication (p. 135)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning (p. 136)</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Information Technology (p. 136) 3-7

Core Requirements
Arts (p. 137) 3
Global Understanding (p. 139) 3
Literature (p. 140) 3
Natural Science (p. 141) 7
Social and Behavioral Sciences (p. 142) 3
Western Civilization/World History (p. 143) 3

Synthesis/Capstone Requirement 1
Synthesis/Capstone (p. 143) 3
Total Credits 40

1 minimum 3 credits

College Level Requirements for the BA degree
In addition to the Mason Core (p. 135) program, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill a college level requirement may also be used simultaneously to satisfy other requirements (Mason Core (p. 135) requirements or requirements for the major).

Philosophy or Religious Studies

Select 3 credits from the following: 3

PHIL (p. 1818) 1
RELI (p. 1904)

1 Note that the following courses may not be used to fulfill this requirement:
  - PHIL 323 Classical Western Political Theory
  - PHIL 324 Modern Western Political Theory
  - PHIL 327 Contemporary Western Political Theory
  - PHIL 393 Humanities College to Career
  - PHIL 460 Senior Seminar in Philosophy, Politics, and Economics

Additionally, PHIL 253 Philosophy and Literature (Mason Core) (p. 135) and RELI 235 Religion and Literature (Mason Core) (p. 135) cannot be used to fulfill both the philosophy/religious studies requirement and the Mason Core literature (p. 140) requirement.

Social and Behavioral Sciences

Select 3 credits of social and behavioral sciences from the following (additional to the Mason Core social and behavioral sciences requirement) 1

ANTH (p. 1119)
CRIM (p. 1372)
ECON (p. 1413)
GOVT (p. 1588)
HIST (p. 1628) 2
LING (p. 1694)
PSYC (p. 1844)
SOCI (p. 1923)

Or choose from the following GGS courses:

GGS 101 Major World Regions (Mason Core) (p. 135)
GGS 103 Human Geography (Mason Core) (p. 135)
The two courses used to fulfill the combined college and Mason Core requirements must be from different disciplines in the social and behavioral sciences.

Foreign Language

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermediate-level proficiency in one foreign language, fulfilled by:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) (p. 414)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or achieving a satisfactory score on an approved proficiency test</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Or completing the following ASL three course sequence:</td>
<td></td>
</tr>
<tr>
<td>EDSE 115</td>
<td>American Sign Language (ASL) I</td>
<td></td>
</tr>
<tr>
<td>EDSE 116</td>
<td>American Sign Language (ASL) II</td>
<td></td>
</tr>
<tr>
<td>EDSE 219</td>
<td>American Sign Language (ASL) III</td>
<td></td>
</tr>
</tbody>
</table>

1 Students who are already proficient in a second language may be eligible for a waiver of this requirement. Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

Non-Western Culture

Select 3 credits of an approved course in the study of a non-Western culture (additional to the Mason Core requirement in global understanding)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
</tbody>
</table>

ANTH 302 | Peoples and Cultures of Latin America (Mason Core) (p. 135) | 3       |

ANTH 303 | Peoples and Cultures of the Andes | 3       |

ANTH 306 | Peoples and Cultures of Island Asia (Mason Core) (p. 135) | 3       |

ANTH 307 | Ancient Mesoamerica (Mason Core) (p. 135) | 3       |

ANTH 308 | Peoples and Cultures of the Middle East (Mason Core) (p. 135) | 3       |

ANTH 309 | Peoples and Cultures of India (Mason Core) (p. 135) | 3       |

ANTH 313 | Myth, Magic, and Mind (Mason Core) (p. 135) | 3       |

ANTH 314 | Zombies | 3       |

ANTH 316 | Peoples and Cultures of the Caribbean (Mason Core) (p. 135) | 3       |

ANTH 323 | Digging and Dealing in the Dead: Ethics in Archaeology | 3       |

ANTH 330 | Peoples and Cultures of Selected Regions: Non-Western | 3       |

ANTH 332 | Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135) | 3       |

ANTH 381 | Medical Anthropology | 3       |

ANTH 383 | Cities of the Global South | 3       |

ANTH 396 | Issues in Anthropology: Social Sciences (Mason Core) (p. 135) | 3       |

ARAB 360 | Topics in Arabic Cultural Production | 3       |

ARAB 420 | Survey of Arabic Literature | 3       |

ARAB 440 | Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135) | 3       |

ARTH 203 | Survey of Asian Art (Mason Core) (p. 135) | 3       |

ARTH 204 | Survey of Latin American Art (Mason Core) (p. 135) | 3       |

ARTH 206 | Survey of African Art (Mason Core) (p. 135) | 3       |

ARTH 318 | Art and Archaeology of Ancient Egypt | 3       |

ARTH 319 | Art and Archaeology of the Ancient Near East (Mason Core) (p. 135) | 3       |

ARTH 320 | Art of the Islamic World (Mason Core) (p. 135) | 3       |

ARTH 382 | Arts of India (Mason Core) (p. 135) | 3       |

ARTH 383 | Arts of Southeast Asia (Mason Core) (p. 135) | 3       |

ARTH 384 | Arts of China (Mason Core) (p. 135) | 3       |

ARTH 385 | Arts of Japan (Mason Core) (p. 135) | 3       |

ARTH 386 | The Silk Road (Mason Core) (p. 135) | 3       |

ARTH 482 | RS: Advanced Studies in Asian Art | 3       |

CHIN 318 | Introduction to Classical Chinese (Mason Core) (p. 135) | 3       |

CHIN 320 | Contemporary Chinese Film | 3       |

CHIN 325 | Major Chinese Writers (Mason Core) (p. 135) | 3       |

DANC 118 | World Dance (Mason Core) (p. 135) | 3       |

ECON 361 | Economic Development of Latin America (Mason Core) (p. 135) | 3       |
<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core)</td>
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<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td>3</td>
</tr>
<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
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<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td>3</td>
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<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
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<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
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<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
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<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
<td>3</td>
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<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core)</td>
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<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core)</td>
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<td>HIST 261</td>
<td>Survey of African History (Mason Core)</td>
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<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core)</td>
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<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
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<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
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<tr>
<td>HIST 328</td>
<td>Rise of Russia (Mason Core)</td>
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<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
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</tr>
<tr>
<td>HIST 354</td>
<td>Modern China</td>
<td>3</td>
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<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core)</td>
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<td>HIST 358</td>
<td>Post-1949 China (Mason Core)</td>
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<td>HIST 360</td>
<td>History of South Africa (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
</tr>
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<td>HIST 460</td>
<td>Modern Iran (Mason Core)</td>
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</tr>
<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 103</td>
<td>Musics of the World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
</tr>
<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur’an and Hadith</td>
<td>3</td>
</tr>
<tr>
<td>RELI 379</td>
<td>Islamic Law, Society, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>RELI 387</td>
<td>Islam, Democracy, and Human Rights</td>
<td>3</td>
</tr>
<tr>
<td>RELI 490</td>
<td>Comparative Study of Religions (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 353</td>
<td>Russian Civilization (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RUSS 354</td>
<td>Contemporary Post-Soviet Life (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 A course used to fulfill the Mason Core global understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core requirements, college-level requirements, or requirements for the major). Additional information on waivers can be found at the Office of Undergraduate Academic Affairs (http://chssundergrad.gmu.edu).

**Electives**

Any remaining credits may be completed with elective courses to bring the degree total to 120.

Total Credits 0
Accelerated Master's

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)

Overview

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master's in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

Accelerated Option Requirements

While undergraduate students, accelerated master's students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master's pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits

6

Sustainability Studies Minor

Banner Code: SSTS

Joris L. van der Ham, Undergraduate Coordinator

Email: jvanderh@gmu.edu
Website: esp.gmu.edu

The core principle of sustainability is the desire to meet the basic material needs of the current generation without compromising the ability of future generations to meet their needs. In order to achieve this goal, we must recognize and address the conflicts and trade-offs involved in balancing environmental integrity, social equity, and economic stability. Such complex work necessarily involves contributions from a wide range of disciplines, and it also requires a re-examination of the relationship between human value systems and cultural practices and the associated long-term implications for the ecosystem.

This is a Green Leaf program (p. 102).

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Minor Requirements

Total credits: 16

Students should refer to the Admissions & Policies (p. 685) tab for specific policies related to this program.

Candidates for the minor must complete coursework with a minimum GPA of 2.00.

Core Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 480</td>
<td>Sustainability in Action (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>INTS 210</td>
<td>Sustainable World</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits

8
Electives

A maximum of two courses from a single department or program can be counted for elective credit. Preapproved courses are listed here and others may be substituted. See the undergraduate coordinator for additional electives.

Select 8 credits from the following:

ANTH 370 Environment and Culture
AVT 385 EcoArt (Mason Core) (p. 135)
BIOL 379 RS: Ecological Sustainability (Mason Core) (p. 135)
CEIE 355 Environmental Engineering and Science
CEIE 401 Sustainable Land Development
CEIE 450 Environmental Engineering Systems
CHEM 155 Introduction to Environmental Chemistry I (Mason Core) (p. 135)
CLIM 101 Global Warming: Weather, Climate, and Society (Mason Core) (p. 135)
CONS 401 Conservation Theory
CONS 404 Biodiversity Monitoring
CONS 410 Human Dimensions in Conservation (Mason Core) (p. 135)
CONS 411 Science Communication for Conservation
ECON 105 Environmental Economics for the Citizen (Mason Core) (p. 135)
ECON 335 Environmental Economics
EVPP 110 The Ecosphere: An Introduction to Environmental Science I (Mason Core) (p. 135)
EVPP 201 Environment and You: Issues for the Twenty-First Century (Mason Core) (p. 135)
EVPP 322 Business and Sustainability
EVPP 336 Human Dimensions of the Environment
EVPP 337 Environmental Policy Making in Developing Countries
EVPP 338 Economics of Environmental Policy
EVPP 355 Ecological Engineering and Ecosystem Restoration
EVPP 361 Introduction to Environmental Policy
EVPP 362 Intermediate Environmental Policy
EVPP 378 RS: Ecological Sustainability (Mason Core) (p. 135)
EVPP 421 Marine Conservation
GEOL 305 Environmental Geology
GGS 102 Physical Geography (Mason Core) (p. 135)
GGS 103 Human Geography (Mason Core) (p. 135)
GGS 121 Dynamic Atmosphere and Hydrosphere (Mason Core) (p. 135)
GGS 122 Dynamic Geosphere and Ecosphere
GGS 302 Global Environmental Hazards
GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
GGS 304 Population Geography (Mason Core) (p. 135)
GGS 307 Sustainable Development
GGS 312 Physical Climatology
or CLIM 312 Physical Climatology
GGS 314 Severe and Extreme Weather
or CLIM 314 Severe and Extreme Weather
GGS 319 Air Pollution
or CLIM 319 Air Pollution
GGS 455 Environmental Impact Assessment
INTS 102 Global Networks and Communities
INTS 211 Introduction to Conservation Studies
INTS 311 The Mysteries of Migration: Consequences for Conservation
INTS 318 Exploring Virginia’s Watersheds
INTS 334 Environmental Justice
INTS 338 Animal Rights and Humane Education
INTS 401 Conservation Biology
INTS 402 Plants and People - Sustenance, Ceremony, and Sustainability
PHIL 343 Topics in Environmental Philosophy (Mason Core) (p. 135)
PHYS 331 Fundamentals of Renewable Energy
PHYS 385 Materials Science with Applications to Renewable Energy
PRLS 250 Wilderness Travel and Sustainability
PRLS 300 People with Nature
PRLS 402 Human Behavior in Natural Environments
PRLS 501 Introduction to Natural Resources Law
SOCI 320 Social Structure and Globalization (Mason Core) (p. 135)
TOUR 340 Sustainable Tourism
USST 301 Urban Growth in a Shrinking World

Total Credits 8

Sustainable Enterprise Minor

Banner Code: SSTE

Joris L. van der Ham, Undergraduate Coordinator
Email: jvanderh@gmu.edu
Website: esp.gmu.edu

Sustainable enterprises are businesses that are financially prosperous and seek to benefit the environment and society. They measure success in terms of a “triple bottom line” that focuses on 3 P’s:

• Prosperity - Business profitability/value
• Planet - Ecological integrity
• People - Social equity

Sustainable enterprises balance all 3 P’s simultaneously, and view solutions to environmental and social problems as investments and business opportunities. Developing sustainable business strategies therefore requires innovation and the identification of solutions.
that frequently "leapfrog" existing products, technologies, and best management practices.

The minor emphasizes the private sector as a critical player in helping solve pressing environmental and social problems, while capitalizing on market mechanisms and competitive opportunities. Students who obtain the Sustainable Enterprise Minor will obtain a business understanding of sustainability innovation, ethical foundations, and regulatory framework to pursue private sector triple bottom line strategies.

This is a Green Leaf program (p. 102).

**Admissions & Policies**

**Policies**

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

**Requirements**

**Minor Requirements**

Total credits: 17-20

Students should refer to the Admissions & Policies (p. 687) tab for specific policies related to this program.

Students must successfully complete the following courses with a minimum GPA of 2.00.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 322</td>
<td>Business and Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 480</td>
<td>Sustainability in Action (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>7</strong></td>
</tr>
</tbody>
</table>

**Electives**

**Environmental Policy and Economics**

Select at least 3 credits from the following:

- EVPP 361 Introduction to Environmental Policy
- EVPP 362 Intermediate Environmental Policy
- EVPP 432 Energy Policy
- EVPP 490 Special Topics in Environmental Science and Policy (if the topic is applicable—consult an advisor for guidance)
- ECON 335 Environmental Economics

**Business and Innovation**

Select at least 3-4 credits from the following:

- MBUS 300 Accounting in a Global Economy
- MBUS 301 Managing People and Organizations in a Global Economy
- MBUS 305 Introduction to International Business (Mason Core) (p. 135)
- MBUS 306 Managing Projects and Operations
- PSYC 335 Psychology of Creativity and Innovation

**Social Responsibility and Ethics**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 305</td>
<td>Business Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 343</td>
<td>Topics in Environmental Philosophy (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

9-10

**Internship**

The plan of work for this internship must be approved by the undergraduate coordinator.

Students who are currently employed may request that the internship requirement be waived on the basis of their job experience. Instead of the internship, these students will be required to complete a 3-credit independent study with the minor’s director or another faculty member. This alternative will entail independent research by applying sustainable enterprise principles and practices in an analysis of the student’s work place, and will culminate in a final project.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPP 395</td>
<td>Undergraduate Research in Environmental Science and Policy</td>
<td>1-3</td>
</tr>
<tr>
<td>or EVPP 494</td>
<td>Internship</td>
<td>1-3</td>
</tr>
</tbody>
</table>

**Total Credits**

1-3

**Department of Geography and Geoinformation Science**

Phone: 703-993-1210
703-993-1212
Email: ggs@gmu.edu
Website: cos.gmu.edu/ggs/

Located in the heart of Fairfax, just a few miles from Washington DC, the Department of Geography and Geoinformation Science (GGS) offers an outstanding environment to study and perform cutting-edge research in remote sensing, geography, geoinformatics, earth systems science, and their various sub-disciplines.

With a variety of educational offerings, ranging from undergraduate programs to graduate certificates and M.S. and Ph.D. programs, a strong and broad research agenda, and superb name recognition within the leading agencies and companies in our field, our department is a premier choice for academic education.

**Undergraduate Programs**

The Department of Geography and Geoinformation Science offers a Geography, BA (p. 698) and Geography, BS (p. 702). Majors in both programs complete coursework in systematic and regional geography. Students in the BA choose a concentration, a minor, or a second major to complete their degree while BS students take additional courses to increase their technical and quantitative proficiency. Additionally, the department offers the GeoManagement Undergraduate Certificate (p. 693).

**Undergraduate Certificates**

The GeoManagement Undergraduate Certificate (p. 693) accommodates students who are pursuing a degree in the Department of
Geography and Geoinformation Science who also wish to acquire more knowledge on how to manage people and organizations dealing with GIS in a global economy. By understanding marketing terms, financial matters, and also having a good understanding of how to manage people, students will be well prepared to face challenges in multidisciplinary GIS-oriented environments. All courses are available online.

Minors
For students pursuing any major in the university, the department offers a Geography Minor (p. 697) (fully available online) as well as a Geographic Information Systems Minor (p. 695) (research and scholarship intensive).

Graduate Degrees
Graduate programs are distinguished by an emphasis on cutting-edge research and their applications toward solving practical problems in human and environmental realms. Degree options include three master’s degrees and one doctoral program.

Graduate Certificates
For students wishing to pursue graduate-level specialization and skill advancement in specific, focused application areas the department offers the following graduate-level certificates: Data Journalism Graduate Certificate (p. 689), Environmental GIS and Biodiversity Conservation Graduate Certificate (p. 693), Geographic Information Science Graduate Certificate (p. 694), Geographic Information Science Graduate Certificate (p. 705), and Remote Sensing and Image Processing Graduate Certificate (p. 706). Students may take these as stand-alone certificates or, under certain circumstances, pursue them concurrently with another graduate degree program. Certificate coursework may be applicable towards other graduate degree requirements. In order to follow a graduate certificate program, students must hold a bachelor’s degree from a regionally accredited institution and must apply for and be admitted into the corresponding program.

Master’s Programs
The Earth Systems Science, MS (p. 690) (offered jointly with the Department of Atmospheric, Oceanic and Earth Sciences (p. 599)) provides a global systems approach to the study of the atmosphere, hydrosphere and lithosphere. The degree emphasis is on the observation and quantitative analysis of earth systems. The Geographic and Cartographic Sciences, MS (p. 696) focuses on techniques to compile, display and analyze spatial data. The Geoinformatics and Geospatial Intelligence, MS (p. 704) focuses primarily on computational approaches that support the synthesis and analysis of diverse data types in order to identify and monitor complex events and phenomena that manifest themselves over space and time.

Earth Systems and Geoinformation Sciences, PhD
The Earth Systems and Geoinformation Sciences, PhD (p. 691) combines and extends the three scientific avenues mapped by our master’s programs to provide a thorough and interdisciplinary approach to doctoral studies.

Distance Education
While all courses and programs listed are offered in traditional face-to-face on campus teaching, the department offers select programs through fully online modules. These online programs include an online version of our Geography Minor (p. 697), the GeoManagement Undergraduate Certificate (p. 693), and an online version of the Geospatial Intelligence Graduate Certificate (p. 705).

Courses Available Online
Individual courses which are currently available online (in addition to their traditional delivery modes) are:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>GGS 311</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 312</td>
<td>Physical Climatology</td>
<td>3</td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td>3</td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td>3</td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
<td>3</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 650</td>
<td>Introduction to GIS Algorithms and Programming</td>
<td>3</td>
</tr>
<tr>
<td>GGS 680</td>
<td>Earth Image Processing</td>
<td>3</td>
</tr>
<tr>
<td>GGS 692</td>
<td>Web-based Geographic Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Faculty

Department Faculty
Professors
Agouris (dean), Di, Haack, Houser, Qu, Stefanidis (chair), Wong, C. Yang

Associate Professors
Croitoru, Curtin, Fuhrmann (associate chair), Leslie, Pfoser, Rice, D. Sun, R. Yang

Assistant Professors
Züfle

Research or Contract Professors
Batarseh, Feng, Li, M. Sun

Term Instructors
Boudinot, Kozar

Adjunct Faculty
Dillon, Grymes, Komwa, McGlone, Owen, Resmini, Self, Ward

Requirements & Policies

Requirements

Writing-Intensive Requirement
The university requires all students to complete at least one course designated as “writing intensive” in their majors at the 300 level or above.
Students majoring in geography fulfill this requirement by successfully completing GGS 415 Seminar in Geography.

**Policies**

Students are governed by the university’s policies (p. 74).

**GGS Lab Use**

Access to GGS lab space is contingent upon active student status and registration in GGS courses. Labs are key card accessible and only authorized students may use the labs for academic work.

**Non-degree Status**

Applicants who have not been admitted to a specific graduate degree or certificate program and still wish to attend courses may apply for non-degree studies. This is intended for students who do not seek a specific degree. These students must apply for non-degree status and be admitted through a process comparable to the one followed by degree-seeking students.

While it may be possible to transfer some of the credits earned in non-degree status to a degree program, such transfers are not automatic. Non-degree students who intend to transfer their credits to a degree programs should discuss this in a timely manner with the appropriate department coordinator. Further information can be found in the Non-degree Enrollment (p. 71) section of this catalog.

**Programs**

- Data Journalism Graduate Certificate
- Earth Systems Science, MS (GGS)
- Earth Systems and Geoinformation Sciences, PhD
- Environmental GIS and Biodiversity Conservation Graduate Certificate
- GeoManagement Undergraduate Certificate
- Geographic Information Science Graduate Certificate
- Geographic Information Systems Minor
- Geographic and Cartographic Sciences, MS
- Geography Minor
- Geography, BA
- Geography, BS
- Geoinformatics and Geospatial Intelligence, MS
- Geospatial Intelligence Graduate Certificate
- Remote Sensing and Image Processing Graduate Certificate

**Data Journalism Graduate Certificate**

Banner Code: SC-CERG-DJNL

Dieter Pfoser, Program Coordinator

4400 University Drive, MSN 6C3
Fairfax, VA 22030

Phone: 703-993-1212
Email: dpfoser@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/graduate-certificate-in-data-journalism/

This certificate is designed for students and professionals wishing to advance their knowledge and careers in the emerging field of Data Journalism. Data-driven journalism is about obtaining, reporting on, curating, and publishing (storifying) data in the public interest. Maps and data infographics are some of the best ways to publish data in order to inform the public and raise awareness.

Principles of journalism, methods and tools for information visualization, social media analysis, and scientific data communication topics are visited in this program.

This certificate may be pursued on a part-time and full-time basis.

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Policies**

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Requirements**

**Certificate Requirements**

Total credits: 15

Students should refer to the Admissions & Policies (p. 689) tab for specific policies related to this program.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 590</td>
<td>Selected Topics in Geography</td>
<td>3</td>
</tr>
<tr>
<td>GGS 692</td>
<td>Web-based Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>COMM 642</td>
<td>Science and the Public</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 655</td>
<td>Theory and Practice of Digital Communication</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 9

1 Only when the subject is GeoSocial Analysis.

**Electives**

Select two courses from the following list or others in consultation with an advisor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS 501</td>
<td>Scientific Information and Data Visualization</td>
</tr>
<tr>
<td>CSI 672</td>
<td>Statistical Inference</td>
</tr>
<tr>
<td>or STAT 652</td>
<td>Statistical Inference</td>
</tr>
<tr>
<td>COMM 637</td>
<td>Risk Communication</td>
</tr>
<tr>
<td>COMM 640</td>
<td>Controversies in Science Communication</td>
</tr>
<tr>
<td>COMM 641</td>
<td>Advanced Communication Skills for STEM</td>
</tr>
<tr>
<td>COMM 644</td>
<td>Analysis and Criticism of Science Journalism</td>
</tr>
</tbody>
</table>
Earth Systems Science, MS (GGS)

Banner Code: SC-MS-ESSC

Sven Fuhrmann, Program Coordinator

4400 University Drive, MSN 6C3
Fairfax, VA 22030

Phone: 703-993-1212
Email: sfuhrman@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/ms-in-earth-systems-science/

This is a shared program between the Department of Atmospheric, Oceanic, and Earth Sciences (p. 599) and the Department of Geography and Geoinformation Science (p. 687).

The program addresses the growing demand for trained professionals in the Earth sciences. The degree emphasizes a research-oriented, global systems approach to studying the Earth and its systems- the atmosphere, the hydrosphere, and the lithosphere, including their interrelationships and interactions with the biosphere. Emphasis is on the observation, measurement, and analysis of Earth’s systems.

Most student research projects and theses will relate to geologic and geographic topics, however studies of related topics in Earth science are welcome. Students completing the program are qualified to pursue careers that require knowledge of the basics of Earth systems science and the requisite tools, specifically pertaining to the area of Earth science that they choose to investigate. Students are encouraged to undertake a master’s thesis but may choose a research project. In the latter case, students must pass a comprehensive exam.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Applicants should have earned a BS degree in atmospheric, Earth, environmental, geological, geographical, ocean, or physical science. Previous coursework should include at least two semesters each of calculus, chemistry, and physics, and one semester of statistics. Applicants should have a minimum GPA of 3.00 in their undergraduate degree.

Application Requirements

Official transcripts from each college and graduate institution attended, a current résumé, and a goals statement are required. Applicants also need three letters of recommendation and an official report of scores obtained on the GRE-GEN. The GRE requirement for admission may be waived if the student holds a master’s degree from a regionally accredited U.S. institution. TOEFL scores are required of all international applicants.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements

Total credits: 30

Students should refer to the Admissions & Policies tab for specific policies related to this program.

Candidates must complete 10 credits of GGS courses and 10 credits of GEOL/CLIM courses toward their requirements. ("Culminating Experience" credits do not count toward this requirement).

Earth Science Core

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM</td>
<td>Introduction to Physical Climate System</td>
<td>3</td>
</tr>
<tr>
<td>CLIM</td>
<td>Land-Climate Interactions</td>
<td>3</td>
</tr>
<tr>
<td>GEOL</td>
<td>Paleoclimatology</td>
<td>3</td>
</tr>
<tr>
<td>GGS</td>
<td>Introduction to Atmosphere and Weather</td>
<td>3</td>
</tr>
<tr>
<td>PHYS</td>
<td>Atmospheric Physics I</td>
<td>3</td>
</tr>
</tbody>
</table>

Hydrosphere:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIM</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>CLIM</td>
<td>Physical and Dynamical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>GEOL</td>
<td>Hydrogeology</td>
<td>3</td>
</tr>
<tr>
<td>GGS</td>
<td>The Hydrosphere</td>
<td>3</td>
</tr>
</tbody>
</table>

Lithosphere:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>GEOL</td>
<td>Soil Science</td>
<td>3</td>
</tr>
<tr>
<td>GGS</td>
<td>The Lithosphere</td>
<td>3</td>
</tr>
<tr>
<td>or GEOL</td>
<td>The Lithosphere</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Techniques

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS</td>
<td>Quantitative Methods</td>
<td>3</td>
</tr>
<tr>
<td>GGS</td>
<td>Remote Sensing</td>
<td>3</td>
</tr>
<tr>
<td>GGS</td>
<td>Earth Image Processing</td>
<td>3</td>
</tr>
<tr>
<td>GGS</td>
<td>Earth Science Data and Advanced Data Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Courses can be substituted with advisor approval

Total Credits: 6
Colloquium

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 900</td>
<td>Geography and Geoinformation Science Colloquium</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 536</td>
<td>Paleontology Seminar</td>
<td>1</td>
</tr>
<tr>
<td>GEOL 792</td>
<td>Seminar in Earth Systems Science, Geology, Earth Science</td>
<td></td>
</tr>
<tr>
<td>CLIM 991</td>
<td>Climate Dynamics Seminar</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 2

Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 10 credits of courses at the 500 to 900-level (excluding 700, 798, and 799 courses)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>CLIM Courses (p. 1279)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GEOL Courses (p. 1568)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GGS Courses (p. 1554)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVPP Courses (p. 1501)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 10

Culminating Experience

Choose the culminating experience of either a thesis or a project (either must total 3 credits):

Thesis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits from the following:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>GGS 799</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td>GEOL 799</td>
<td>Master's Thesis in Earth Systems Science</td>
</tr>
<tr>
<td></td>
<td>CLIM 799</td>
<td>Master's Thesis in Climate</td>
</tr>
</tbody>
</table>

Total Credits 3

Project

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select one from the following:</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>GGS 700</td>
<td>Comprehensive Exam</td>
</tr>
<tr>
<td></td>
<td>GEOL 700</td>
<td>Comprehensive Exam</td>
</tr>
<tr>
<td></td>
<td>CLIM 700</td>
<td>Climate Comprehensive Exam</td>
</tr>
<tr>
<td></td>
<td>Select one from the following:</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>GGS 798</td>
<td>Research Project in Earth Systems Science</td>
</tr>
<tr>
<td></td>
<td>GEOL 798</td>
<td>Master's Research Project in Earth Systems Science</td>
</tr>
<tr>
<td></td>
<td>CLIM 798</td>
<td>Master's Climate Research Project</td>
</tr>
</tbody>
</table>

Total Credits 3

Earth Systems and Geoinformation Sciences, PhD

Banner Code: SC-PHD-ESGS

Ruixin Yang, Program Coordinator

4400 University Drive, MSN 6C3
required credits may be reduced up to 30 credits, subject to approval of the program faculty and the associate dean for student affairs. See AP.6.5.2 Reduction of Credits (p. 88) for more information.

Secondary Program Options
Students enrolled in this doctoral program have the option of adding a secondary graduate certificate or master's program (p. 689). Depending upon the secondary program chosen, many courses may be applicable to both programs. Before adding a secondary program, students are advised to carefully review AP.6.8 Requirements for Graduate Certificate (p. 90) or AP.6.9 Requirements for Master's Degrees (p. 91) and AP.6.10 Requirements for Doctoral Degrees (p. 92). Faculty advisors should be contacted for further guidance and for secondary program suggestions.

Requirements

Degree Requirements
Total credits: 72

Students should refer to the Admissions & Policies (p. 691) tab for specific policies related to this program.

Core Courses
Students are required to take 24 credits of courses selected from the six core areas below. Of the cores, students must complete at least one course in five of the cores and two courses in at least three of those five cores.

The six core areas from which to choose these 24 credits are: 24

<table>
<thead>
<tr>
<th>Core</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantitative Core</td>
<td>GGS 560</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td></td>
<td>GGS 754</td>
<td>Earth Science Data and Advanced Data Analysis</td>
</tr>
<tr>
<td></td>
<td>GGS 791</td>
<td>Advanced Spatial Statistics</td>
</tr>
<tr>
<td>Geoinformatics Core</td>
<td>GGS 650</td>
<td>Introduction to GIS Algorithms and Programming</td>
</tr>
<tr>
<td></td>
<td>GGS 664</td>
<td>Spatial Data Structures</td>
</tr>
<tr>
<td></td>
<td>GGS 675</td>
<td>Location Science</td>
</tr>
<tr>
<td></td>
<td>GGS 692</td>
<td>Web-based Geographic Information Systems</td>
</tr>
<tr>
<td></td>
<td>GGS 787</td>
<td>Scientific Data Mining for Geoinformatics</td>
</tr>
<tr>
<td>Geosciences and Physical Geography Core</td>
<td>GGS 656</td>
<td>The Hydrosphere</td>
</tr>
<tr>
<td></td>
<td>GGS 657</td>
<td>The Lithosphere</td>
</tr>
<tr>
<td></td>
<td>GGS 670</td>
<td>Introduction to Atmosphere and Weather</td>
</tr>
<tr>
<td></td>
<td>GGS 721</td>
<td>Biogeography</td>
</tr>
<tr>
<td></td>
<td>PHYS 575</td>
<td>Atmospheric Physics I</td>
</tr>
<tr>
<td>Human Geography Core</td>
<td>GGS 505</td>
<td>Transportation Geography</td>
</tr>
<tr>
<td></td>
<td>GGS 533</td>
<td>Issues in Regional Geography</td>
</tr>
<tr>
<td></td>
<td>GGS 540</td>
<td>Health Geography</td>
</tr>
<tr>
<td></td>
<td>GGS 704</td>
<td>Spatial Demography</td>
</tr>
<tr>
<td>Geographic Information Science Core</td>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
</tr>
</tbody>
</table>

Remote Sensing Core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 563</td>
<td>Advanced Geographic Information Systems</td>
</tr>
<tr>
<td>GGS 671</td>
<td>Algorithms and Modeling in GIS</td>
</tr>
</tbody>
</table>

Remote Sensing Core:

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 579</td>
<td>Remote Sensing</td>
</tr>
<tr>
<td>GGS 680</td>
<td>Earth Image Processing</td>
</tr>
<tr>
<td>GGS 756</td>
<td>Physical Principles of Remote Sensing</td>
</tr>
<tr>
<td>GGS 760</td>
<td>Advanced Topics in Remote Sensing</td>
</tr>
<tr>
<td>GGS 777</td>
<td>Remote Sensing Natural Hazards</td>
</tr>
</tbody>
</table>

Total Credits 24

Research Synthesis and Colloquium

Research Synthesis
Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 684</td>
<td>Selected Topics in Geospatial Intelligence</td>
</tr>
<tr>
<td>GGS 689</td>
<td>Seminar in Geographic Thought and Methodology</td>
</tr>
<tr>
<td>GGS 795</td>
<td>Seminar in Regional Analysis</td>
</tr>
</tbody>
</table>

Colloquium 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 900</td>
<td>Geography and Geoinformation Science Colloquium (complete twice)</td>
</tr>
</tbody>
</table>

Total Credits 5

Electives

In consultation with the advisor, students select credits necessary to reach 72 total credits 1 19-31

1 At least half of the elective credits taken at Mason must be from GGS courses.

Dissertation Research

Students take 12-24 credits, with at least 6 credits in GGS 999 Dissertation. After reaching candidacy, students must stay continuously enrolled GGS 999 Dissertation until defending their dissertation.

Select 12-24 credits from the following: 12-24

<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 998</td>
<td>Dissertation Proposal</td>
</tr>
<tr>
<td>GGS 999</td>
<td>Dissertation</td>
</tr>
</tbody>
</table>

Total Credits 12-24

Dissertation Committee

All students will be assigned a temporary academic advisor when they first enroll in the program. No later than the end of the second year, each student should identify a dissertation advisor and form a doctoral committee. The committee will be chaired by a GGS tenure or tenure-track professor and be composed of at least 50% GGS faculty. All members of the committee must be Mason Graduate Faculty and approved by the department's director of academic programs.

Candidacy Examination

After completing all required courses, each student must take a candidacy exam administered by the dissertation committee. The exam will have written and oral components. Its purpose is to determine whether the student has acquired adequate general knowledge in the selected subject area, as well as much more detailed knowledge of the specific research topic planned for the dissertation.
Dissertation Proposal and Advancement to Candidacy
After students have completed all required courses and passed the candidacy exam, they should prepare an acceptable dissertation proposal. After the dissertation proposal is approved and the appropriate paperwork is completed, the student will be advanced to candidacy.

Doctoral Dissertation
The degree will be awarded upon completion of the required coursework and successful defense of a PhD dissertation that makes an original and significant contribution to the field.

Environmental GIS and Biodiversity Conservation Graduate Certificate
Banner Code: SC-CERG-EGBC
Sven Fuhrmann, Program Coordinator
4400 University Drive, MSN 6C3
Fairfax, VA 22030
Phone: 703-993-1212
Email: sfuhrman@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/graduate-certificate-in-environmental-gis-and-biodiversity-conservation/

As biodiversity is the life support system of our planet, it is important to prepare students for careers that require knowledge of both ecology and public policy. This certificate focuses in the fields of conservation biology, land use policy, conservation planning, and modern tools and approaches used in GIS to prepare students to tackle complex environmental challenges in a changing world.

This certificate is suitable for traditional students as well as for student-professionals (such as environmental scientists, managers, practitioners in government, and experts in non-governmental organizations) who wish to acquire further knowledge to advance their careers.

This certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants for this certificate should hold a BA or BS in a related discipline from a regionally accredited institution.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 18
Refer to the Admissions & Policies (p. 693) for policies specific to this program.

Core Courses
Geospatial Requirements
GGS 553 Geographic Information Systems 3
or GGS 692 Web-based Geographic Information Systems
Remote Sensing Requirements
GGS 579 Remote Sensing 3
or GGS 680 Earth Image Processing
Conservation Requirements
EVPP 518 Conservation Biology 1 3
Statistics Requirements
GGS 560 Quantitative Methods 3
or CONS 625 Statistics for Ecology and Conservation Biology
Total Credits 12

1  This course may be substituted with advisor approval.

Practice-oriented Conservation Coursework
Select 6 credits from the following:

CONS 620 Spatial Ecology, Geospatial Analysis
Remote Sensing for Conservation
CONS 630 Species Monitoring Conservation
CONS 640 Adaptive Management for Conservation Success
or CONS 660 Effective Conservation Leadership
or CONS 665 Conservation Conflict Resolution
CONS 645 Estimating Animal Abundance and Occupancy
CONS 697 Special Topics in Conservation
Total Credits 6

GeoManagement Undergraduate Certificate
Banner Code: SC-CERB-GEOM
Sven Fuhrmann, Program Coordinator
4400 University Drive, MSN 6C3
Fairfax, VA 22030
Phone: 703-993-1212
Email: sfuhrman@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/undergraduate-certificate-in-geomanagement/

Considering our global environment, professionals working on large-scale GIS projects often find it only natural to couple management and marketing topics with geography. This certificate accommodates
students who are pursuing a degree in the Department of Geography and Geoinformation Science (p. 687) who also wish to acquire more knowledge on how to manage people and organizations dealing with GIS in a global economy. By understanding marketing terms, financial matters, and also having a good understanding of how to manage people, students will be well prepared to face challenges in multidisciplinary GIS-oriented environments.

All courses are available online; further information can be found with Mason Online (http://masononline.gmu.edu).

This certificate may be pursued on a full-time or part-time basis.

Admissions & Policies

Admissions

University-wide admissions policies can be found in Undergraduate Admissions Policies (p. 63).

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Certificate Requirements

Total credits: 24-25

Students should refer to the Admissions & Policies (p. 694) tab for specific policies related to this program.

Management

Students in this certificate can take the following MBUS courses for certificate credit without sophomore standing (listed as a course prerequisite):

Select two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBUS 300</td>
<td>Accounting in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>MBUS 301</td>
<td>Managing People and Organizations in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>MBUS 302</td>
<td>Managing Information in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>MBUS 303</td>
<td>Marketing in a Global Economy</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Geoinformation Science

GGS 101 Major World Regions (Mason Core) (p. 135) 3
or GGS 103 Human Geography (Mason Core) (p. 135) 3

GGS 102 Physical Geography (Mason Core) (p. 135) 3
or GGS 121 Dynamic Atmosphere and Hydrosphere (Mason Core) (p. 135) 3

GGS 311 Introduction to Geographic Information Systems 3
GGS 312 Physical Climatology 3
GGS 315 Geography of the United States 3
GGS 380 Geography of Virginia 3

Total Credits 18-19

Geographic Information Science Graduate Certificate

Banner Code: SC-CERG-GISC

Dieter Pfoser, Program Coordinator

MSN 6C3
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1212
Email: dpfoser@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/graduate-certificate-in-geographic-information-sciences/

This graduate certificate prepares students for employment in federal, state, and local government positions that require GIS skills. The certificate has been found suitable for the needs of business and industry, including those corporations that serve as contractors to governments in the United States and overseas.

The Geographic Information Science Graduate Certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants to this certificate program must submit a current résumé. GRE scores and letters of recommendation are not required but will strengthen an application, if available. TOEFL scores are required of all international applicants.

All applicants should have a working knowledge of, or prior education or training in, computer technology. Knowledge of GIS, remote sensing technology, and cartography are preferred. Students from any discipline are welcome to apply.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Premium Tuition Rate

This professional certificate program charges students at a differential (premium) tuition rate. This rate applies to all students who enroll in this certificate program, regardless of in-state or out-of-state status. The
differential tuition will be used to fund continuing improvements in the departmental computational facilities used to support the certificate program.

## Requirements

### Certificate Requirements

Total credits: 15

Students should refer to the Admissions & Policies (p. 694) tab for specific policies related to this program.

### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 563</td>
<td>Advanced Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

### Electives

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 505</td>
<td>Transportation Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 531</td>
<td>Land-Use Modeling Techniques and Applications</td>
<td></td>
</tr>
<tr>
<td>GGS 551</td>
<td>Thematic Cartography</td>
<td></td>
</tr>
<tr>
<td>GGS 560</td>
<td>Quantitative Methods</td>
<td></td>
</tr>
<tr>
<td>GGS 579</td>
<td>Remote Sensing</td>
<td></td>
</tr>
<tr>
<td>GGS 605</td>
<td>Systematic Applications of GIS</td>
<td></td>
</tr>
<tr>
<td>GGS 631</td>
<td>Spatial Agent-Based Models of Human-Environment Interactions</td>
<td></td>
</tr>
<tr>
<td>GGS 650</td>
<td>Introduction to GIS Algorithms and Programming</td>
<td></td>
</tr>
<tr>
<td>GGS 653</td>
<td>Geographic Information Analysis</td>
<td></td>
</tr>
<tr>
<td>GGS 655</td>
<td>Map Design</td>
<td></td>
</tr>
<tr>
<td>GGS 658</td>
<td>Terrain Mapping</td>
<td></td>
</tr>
<tr>
<td>GGS 660</td>
<td>Automated Cartography</td>
<td></td>
</tr>
<tr>
<td>GGS 661</td>
<td>Map Projections and Coordinate Systems</td>
<td></td>
</tr>
<tr>
<td>GGS 664</td>
<td>Spatial Data Structures</td>
<td></td>
</tr>
<tr>
<td>GGS 671</td>
<td>Algorithms and Modeling in GIS</td>
<td></td>
</tr>
<tr>
<td>GGS 675</td>
<td>Location Science</td>
<td></td>
</tr>
<tr>
<td>GGS 692</td>
<td>Web-based Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>GGS 772</td>
<td>Cloud Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>GGS 773</td>
<td>Interoperability of Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>GGS 787</td>
<td>Scientific Data Mining for Geoinformatics</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

### Geographic Information Systems Minor

Banner Code: GIS

Jonathan Kozar, Program Coordinator

4400 University Drive, MSN 6C3

Fairfax, VA 22030
Phone: 703-993-1212
Email: jkozar@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/minor-in-geographic-information-systems/

The Geographic Information Systems Minor is designed to prepare students with the basic training necessary to enter the rapidly expanding field of geographic information science. The curriculum in the minor is multidisciplinary in content and interdisciplinary in approach, drawing on a variety of geographic and computational science components. A Geographic Information System (GIS) is an integrative approach to help solving complex spatial problems in most professional fields and at different scales. GIS has irrevocably altered the way we capture, store, analyze, and visualize spatial information. Although it has its roots in cartography and the graphical display of information, its breadth spans from geographic data acquisition, geospatial database construction and management, spatial analysis, and geovisualization. Public and private sector organizations work with an overwhelming amount of spatial data in their day-to-day operations. With so much spatial information, GIS has become essential to the effective operation of both public and private organizations.

Employment opportunities are limitless for students who are proficient in this interdisciplinary field. GIS professionals work in places like government agencies, utility companies, marketing firms, non-profit organizations, and publishing companies. Federal government agencies such as NGA, FEMA, USGS, DOD, EPA, and NASA routinely recruit individuals with strong GIS backgrounds.

### Admissions & Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Policies

All coursework must be completed with a minimum GPA of 2.00.

### Minor Requirements

Total credits: 18-20

Students should refer to the Admissions & Policies (p. 695) tab for specific policies related to this program.

### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td>3</td>
</tr>
<tr>
<td>GGS 300</td>
<td>Quantitative Methods for Geographical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GGS 311</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 463</td>
<td>Applied Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>
**Electives**
Select 6-8 credits from the following: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 308</td>
<td>Field Mapping Techniques</td>
</tr>
<tr>
<td>GGS 310</td>
<td>Introduction to Digital Cartography</td>
</tr>
<tr>
<td>GGS 354</td>
<td>Data Analysis and Global Change Detection Techniques</td>
</tr>
<tr>
<td>GGS 410</td>
<td>Introduction to Hyperspectral Imaging</td>
</tr>
<tr>
<td>GGS 411</td>
<td>Advanced Digital Cartography</td>
</tr>
<tr>
<td>GGS 412</td>
<td>Air Photography Interpretation</td>
</tr>
<tr>
<td>GGS 416</td>
<td>Satellite Image Analysis</td>
</tr>
<tr>
<td>GGS 470</td>
<td>Special Topics in Geographic Techniques</td>
</tr>
<tr>
<td>GGS 480</td>
<td>GGS Internship</td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 6-8

1 With departmental permission, one course with significant geographic information systems (GIS) content may be used as an elective.

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**Geographic and Cartographic Sciences, MS**

Banner Code: SC-MS-GECA

**Matt Rice, Program Coordinator**

4400 University Drive, MSN 6C3
Fairfax, VA 22030

Phone: 703-993-1212
Email: rice@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/ms-in-geographic-and-cartographic-sciences/

The Geographic and Cartographic Sciences, MS (GECA) focuses on the growing demand for scientists and professionals in the field of geographic information science, who use geographical approaches and tools such as geographic information systems (GIS), remote sensing, cartography, and geovisualization to address and solve geographic problems. This expertise is useful to a wide variety of employers in the federal, state, and local government sectors, as well as in business, industry, and non-profit organizations. The degree’s coursework concentrates on the collection, analysis, and display of geographic data, and the use of emerging geospatial technologies to address problems in the human and environmental geographic domains. The GECA program’s disciplinary domain has been recognized by the US Department of Labor as one of the three most strategic job growth areas. Students in this program benefit from a large and diverse local employment market, as well as a network of more than 700 program alumni (1978-present) who live and work in the local area.

**Research Facilities**
The Department of Geography and Geoinformation Science (p. 687) has extensive research and teaching facilities, including several labs equipped with GIS, remote sensing, cartographic, and analytical software from leading industry vendors and open source groups. Specialized instructional space for geographic information science is housed in newly renovated labs in Exploratory Hall on the Fairfax Campus.

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**Admissions & Policies**

**Admissions**
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Eligibility and Application Requirements**
Applicants for this master’s should have a bachelor’s degree in geography, cartography, or a closely related field. Applicants without an undergraduate degree in geography may be required to take one course in each of the following: physical geography, human geography, and cartography. All applicants must have a course in statistics. The program also requires GRE test scores, three letters of recommendation, transcripts of all college coursework, and a statement of interest in the degree. The GRE requirement will be waived if the student holds a master’s degree from a regionally-accredited U.S. institution. TOEFL scores are required for all foreign applicants. Credit from courses taken at other departments and other universities may be applied to the program with prior approval.

**Policies**
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87)

**Secondary Program Options**
Students enrolled in this master's program have the option of adding a secondary graduate certificate program (p. 689). Depending upon the secondary program chosen, many courses may be applicable to both the certificate and the master's. Before adding a secondary program, students are advised to carefully review the Requirements for Graduate Certificates (p. 90) and the Requirements for Master’s Degrees (p. 91) in the AP.6 Graduate Policies (p. 87) section of this catalog. Faculty advisors should be contacted for further guidance and for graduate certificate program suggestions.

**Requirements**

**Degree Requirements**
Total credits: 30 or 37

Students should refer to the Admissions & Policies (p. 696) tab for specific policies related to this program.

Students must complete either 30 graduate credits (with a thesis) or 37 graduate credits (without a thesis). If the non-thesis option is selected, students are required to pass a comprehensive exam.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 560</td>
<td>Quantitative Methods</td>
<td>3</td>
</tr>
<tr>
<td>GGS 579</td>
<td>Remote Sensing</td>
<td>3</td>
</tr>
</tbody>
</table>
# Seminar in Geographic Thought and Methodology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 689</td>
<td>Seminar in Geographic Thought and Methodology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits:** 12

## Thesis or Non-thesis Options

### Thesis Option

Students selecting the thesis option must complete:

- Three credits of GGS 799 Thesis
- Select 15 credits of electives in 500 to 799-level GGS courses. Electives should be selected in consultation with an advisor. With departmental approval, up to 9 credits from closely related disciplines may be applied to the degree.

**Total Credits:** 18

### Non-thesis Option

Students selecting the non-thesis option must complete:

- GGS 700 Comprehensive Exam (1 credit)
- Select 24 credits of electives in 500 to 799-level GGS courses. Electives should be selected in consultation with an advisor. With departmental approval, up to 9 credits from closely related disciplines may be applied to the degree.

**Total Credits:** 25

## Geography Minor

**Banner Code:** GEOG

Jonathan Kozar, Program Coordinator

MSN 6C3
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1212
Email: jkozar@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/minor-in-geography/

If desired, this minor can be pursued fully online; details can be found with Mason Online (http://masononline.gmu.edu).

## Admissions & Policies

### Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Students must complete all coursework with a minimum GPA of 2.00.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

## Requirements

### Minor Requirements

**Total credits:** 18-20

Students should refer to the Admissions & Policies (p. 697) tab for specific policies related to this program.

### Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>or GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits:** 6-7

### Systematic and Regional Requirement

Select one course in systematic geography and one course in regional geography:

#### Systematic Geography:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GGS 302</td>
<td>Global Environmental Hazards</td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
</tr>
<tr>
<td>GGS 309</td>
<td>Meteorology and Climate</td>
</tr>
<tr>
<td>GGS 312</td>
<td>Physical Climatology</td>
</tr>
<tr>
<td>GGS 314</td>
<td>Severe and Extreme Weather</td>
</tr>
<tr>
<td>GGS 319</td>
<td>Air Pollution</td>
</tr>
<tr>
<td>GGS 321</td>
<td>Biogeography</td>
</tr>
<tr>
<td>GGS 322</td>
<td>Issues in Global Change</td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
</tr>
<tr>
<td>GGS 398</td>
<td>Selected Topics in Global Change</td>
</tr>
<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
</tr>
<tr>
<td>GGS 455</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>GGS 456</td>
<td>Introduction to Atmospheric Radiation</td>
</tr>
</tbody>
</table>

#### Regional Geography:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
</tr>
<tr>
<td>GGS 333</td>
<td>Issues in Regional Geography</td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
</tr>
</tbody>
</table>

**Total Credits:** 6

### Upper-level Electives

Students must take two upper-level GGS electives chosen in consultation with the minor coordinator (p. 1554)

**Total Credits:** 6-7
Geography, BA

Banner Code: SC-BA-GEOG

Jonathan Kozar, Program Coordinator

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Website: cos.gmu.edu/ggs/academic-programs/ba-in-geography/

The Geography, BA is designed to offer students the opportunity to study the integrated social and environmental processes that continuously shape and reshape the world we live in. This major provides students with broad training across the core subdisciplines of geography (human, physical, and GIScience), while also offering the requisite flexibility for those students seeking a multidisciplinary educational experience. Students will find numerous opportunities for employment in both the private and public sectors, as well as in academia, as geographers are well suited to address important local, regional, and global challenges in today's world, given their interdisciplinary approach and uniquely spatial perspective.

The Department of Geography and Geoinformation Science (p. 687) fosters a supportive, active learning environment in which students are encouraged to work closely with both faculty and peers. The curriculum in this major provides students with the synthesis skills and broad base of knowledge that prepares them to be successful in an ever-evolving job market. For students who wish to pursue their interest in geography with a more technical curriculum, the department also offers a Geography, BS (p. 702).

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 84) including the Mason Core (p. 135). As outlined in the Requirements tab, students in this bachelor’s program must also complete the additional College Requirements for the BA Degree.

GGS 415 Seminar in Geography fulfills the writing intensive requirement.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 698) tab for specific policies related to this program.

Candidates for a degree in geography must complete the approved GGS geography courses with a minimum GPA of 2.00.

Students must complete the Core, Systematic and Regional Geography, and GGS electives, then select one concentration or an additional program, and lastly complete the College Requirements for the BA Degree and the Mason Core and Elective Credits.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td>3</td>
</tr>
<tr>
<td>GGS 300</td>
<td>Quantitative Methods for Geographical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GGS 310</td>
<td>Introduction to Digital Cartography</td>
<td>4</td>
</tr>
<tr>
<td>GGS 311</td>
<td>Introduction to Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 415</td>
<td>Seminar in Geography</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 122</td>
<td>Dynamic Geosphere and Ecosphere</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 22-23

1 Fulfills writing intensive requirement.

Systematic and Regional Geography

Students must take one systematic course and one regional course from the list below.

Systematic Courses

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 302</td>
<td>Global Environmental Hazards</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
<td></td>
</tr>
<tr>
<td>GGS 309</td>
<td>Meteorology and Climate</td>
<td></td>
</tr>
<tr>
<td>GGS 312</td>
<td>Physical Climatology</td>
<td></td>
</tr>
<tr>
<td>GGS 314</td>
<td>Severe and Extreme Weather</td>
<td></td>
</tr>
<tr>
<td>GGS 319</td>
<td>Air Pollution</td>
<td></td>
</tr>
<tr>
<td>GGS 321</td>
<td>Biogeography</td>
<td></td>
</tr>
<tr>
<td>GGS 322</td>
<td>Issues in Global Change</td>
<td></td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 455</td>
<td>Environmental Impact Assessment</td>
<td></td>
</tr>
<tr>
<td>GGS 456</td>
<td>Introduction to Atmospheric Radiation</td>
<td></td>
</tr>
</tbody>
</table>

Regional Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 358</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 455</td>
<td>Environmental Impact Assessment</td>
<td></td>
</tr>
<tr>
<td>GGS 456</td>
<td>Introduction to Atmospheric Radiation</td>
<td></td>
</tr>
</tbody>
</table>
Select one from the following:

- GGS 315 Geography of the United States
- GGS 316 Geography of Latin America
- GGS 320 Geography of Europe
- GGS 325 Geography of North Africa and the Middle East
- GGS 330 Geography of the Soviet Succession States
- GGS 333 Issues in Regional Geography
- GGS 380 Geography of Virginia

Total Credits 6

GGS Electives

Select 9-10 credits of electives. ¹

Total Credits 9-10

¹ Two of the three courses must be upper-level GGS courses.

Environmental Geography Concentration (EGEO)

The Environmental Geography concentration for the BA in Geography provides a unique opportunity for majors to take a broader, integrative science approach to studies of the environment. In collaboration with the Department of Environmental Science and Policy (p. 660), BA in Geography majors have the opportunity to focus their studies on geographic approaches to climatology and global changes, environmental issues, policy matters, and sustainability topics.

Some courses may have prerequisite requirements:

Core Courses

- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- EVPP 336 Human Dimensions of the Environment
- EVPP 337 Environmental Policy Making in Developing Countries
- or EVPP 377 Applied Ecology

Methods Course

- GGS 354 Data Analysis and Global Change Detection Techniques
- or GGS 412 Air Photography Interpretation

Electives 6-7

Select two courses from the following:

- GGS 302 Global Environmental Hazards
- GGS 307 Sustainable Development
- GGS 309 Meteorology and Climate
- GGS 312 Physical Climatology
- GGS 314 Severe and Extreme Weather
- GGS 319 Air Pollution
- GGS 322 Issues in Global Change
- GGS 354 Data Analysis and Global Change Detection Techniques

Total Credits 15-16

¹ Course cannot be selected if previously selected as a core or methods course.

Health Geography Concentration (HGEO)

The field of Health Geography addresses the role of place, location dynamics and geography in health, well-being, and disease. Public health patterns can vary significantly by physical and social characteristics of places both within and between regions, states, or countries. In collaboration with the Department of Global and Community Health (p. 237), BA in Geography majors get introduced to local and global health issues and develop their skill set in spatial and statistical analysis of diverse health outcomes in populations.

Some courses may have prerequisite requirements:

Core Courses

- GGS 340 Health Geography
- GCH 300 Introduction to Public Health

Electives

Select 9 credits from the following courses. Choose at least one GGS elective and at least one GCH elective:

- GGS 302 Global Environmental Hazards
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 306 Urban Geography
- GGS 319 Air Pollution
- GGS 321 Biogeography
- GGS 322 Issues in Global Change
- GGS 354 Data Analysis and Global Change Detection Techniques
- GGS 463 Applied Geographic Information Systems
- GCH 205 Global Health (Mason Core) (p. 135)
- GCH 332 Health and Disease
- GCH 360 Health and Environment
- GCH 412 Fundamentals of Epidemiology
- GCH 445 Social Determinants of Health
- GCH 450 Culture, Sexuality and the Global AIDS Epidemic

Total Credits 15

Additional Program

Students who are not selecting a concentration may choose 15 or more credits consisting of an established minor, concentration, second major, or other coherent selection of courses approved by the advisor and the department chair:
Select 15 or more credits as outlined above.  15

**Total Credits**  15

**Mason Core and Elective Credits**

In order to meet a minimum of 120 credits, this degree requires an additional 65-68 credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor's Degrees (p. 86), College Requirements for the BA Degree (outlined below), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
</tbody>
</table>

**Core Requirements**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Synthesis/Capstone Requirement**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**  40

1 minimum 3 credits

**College Requirements for the BA Degree**

In addition to the program requirements and the Mason Core (p. 135) requirements, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill this college-level requirement may also be used simultaneously to satisfy other requirements such as Mason Core (p. 135) requirements, other college-level requirements, or requirements for the major. In some cases, the requirements listed below may be superseded by requirements of the degree program and the Mason Core (p. 135).

**Philosophy or Religious Studies**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL (p. 1818)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RELI (p. 1904)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

1 PHIL 323 Classical Western Political Theory and PHIL 324 Modern Western Political Theory may not be used to fulfill this requirement.

**Social and Behavioral Sciences**

Choose one approved Mason Core: Social and Behavioral Sciences (p. 142) course in addition to the Mason Core (p. 135)-required course for a total of 6 credits. The two courses used to fulfill the combined college-level and university requirements must be from different disciplines.

This requirement may be fulfilled by completing any course in ANTH (p. 1119), CRIM (p. 1372), ECON (p. 1413), GOVT (p. 1588), HIST (p. 1628)1, LING (p. 1694), PSYC (p. 1844), or SOCI (p. 1923), and the following GGS (p. 1554) courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**  3

1 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

**Natural Science**

Choose one credit in addition to the Mason Core: Natural Science (p. 141) requirement for a total of 8 credits. This combined college-level and university requirement must be fulfilled by completing two of any approved Mason Core: Natural Science (p. 141) courses that include a laboratory experience.1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

1 BIOL 124 Human Anatomy and Physiology and BIOL 125 Human Anatomy and Physiology may not be used to fulfill this requirement.

**Foreign Language**

Intermediate-level proficiency in one foreign language is required. This requirement may be fulfilled by completing a course in a foreign language numbered 202, 209, or 210 (or higher-level courses taught in the language).
level requirements, or requirements for the major).

A course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core (p. 135) requirements, college-level requirements, or requirements for the major).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North America and the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td>3</td>
</tr>
<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
<td>3</td>
</tr>
<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Non-Western Culture

Students may be eligible for a waiver of this requirement if they are already proficient in a second language or if they have received a satisfactory score on an approved proficiency test. Additional information on waivers can be found via the college’s Office of Academic and Student Affairs (https://cos.gmu.edu/uaa).

Choose one approved Non-Western Culture Requirement\(^1\) course in addition to the course used to fulfill the Mason Core: Global Understanding (p. 139) requirement. A course used to fulfill the Mason Core: Global Understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. However, a course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core (p. 135) requirements, college-level requirements, or requirements for the major).

Select 3 credits from approved Non-Western Culture courses if a waiver isn’t applicable:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 114</td>
<td>Introduction to Cultural Anthropology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 300</td>
<td>Civilizations</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>Native North Americans</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>Peoples and Cultures of Latin America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 303</td>
<td>Peoples and Cultures of the Andes</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 306</td>
<td>Peoples and Cultures of Island Asia (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 307</td>
<td>Ancient Mesoamerica (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 308</td>
<td>Peoples and Cultures of the Middle East (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 309</td>
<td>Peoples and Cultures of India (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 313</td>
<td>Myth, Magic, and Mind (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>Zombies</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 316</td>
<td>Peoples and Cultures of the Caribbean (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 323</td>
<td>Digging and Dealing in the Dead: Ethics in Archaeology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 330</td>
<td>Peoples and Cultures of Selected Regions: Non-Western</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 332</td>
<td>Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 381</td>
<td>Medical Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 383</td>
<td>Cities of the Global South</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 396</td>
<td>Issues in Anthropology: Social Sciences (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 360</td>
<td>Topics in Arabic Cultural Production</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 420</td>
<td>Survey of Arabic Literature</td>
<td>3</td>
</tr>
<tr>
<td>ARAB 440</td>
<td>Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>
The Geography, BS is designed to offer students the opportunity to study the integrated social and environmental processes that continuously shape and reshape the world we live in. This major provides students with broad training across the core subdisciplines of geography (human, physical, and GIScience), emphasizing application and technique-driven coursework, in addition to a rigorous science and mathematics curriculum. Students will find numerous opportunities for employment in both the private and public sectors, as well as in academia, as geographers are well suited to address important local, regional, and global challenges in today's world, given their interdisciplinary approach and uniquely spatial perspective.

The Department of Geography and Geoinformation Science fosters a supportive, active learning environment in which students are encouraged to work closely with both faculty and peers. The curriculum in this major provides students with the analytical, technical, and practical training that prepares them to be successful in an ever-evolving job market. For students who wish to pursue their interest in geography via a more flexible degree program, the department also offers a Geography, BA (p. 698).

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).
### Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 84) including the Mason Core (p. 135).

GGS 415 Seminar in Geography fulfills the writing intensive requirement.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

---

### Requirements

#### Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 702) tab for specific policies related to this program.

#### Geography

Candidates for the Geography, BS degree must complete the following Core, Breadth and Experience, and Geography Elective courses with a minimum GPA of 2.00:

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core) (p. 135) 3-4</td>
</tr>
<tr>
<td>or GGS 121</td>
<td>Dynamic Atmosphere and Hydrosphere (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135) 3</td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies 3</td>
</tr>
<tr>
<td>GGS 300</td>
<td>Quantitative Methods for Geographical Analysis 3</td>
</tr>
<tr>
<td>GGS 310</td>
<td>Introduction to Digital Cartography 4</td>
</tr>
<tr>
<td>GGS 311</td>
<td>Introduction to Geographic Information Systems 3</td>
</tr>
<tr>
<td>GGS 415</td>
<td>Seminar in Geography 1 3</td>
</tr>
</tbody>
</table>

Total Credits 22-23

1. Fulfills the writing intensive requirement.

**Breadth and Experience Courses**

**Advanced Technique Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 412</td>
<td>Air Photography Interpretation</td>
<td>3</td>
</tr>
<tr>
<td>GGS 308</td>
<td>Field Mapping Techniques</td>
<td></td>
</tr>
<tr>
<td>GGS 354</td>
<td>Data Analysis and Global Change Detection Techniques</td>
<td>9</td>
</tr>
<tr>
<td>GGS 410</td>
<td>Introduction to Hyperspectral Imaging</td>
<td></td>
</tr>
<tr>
<td>GGS 411</td>
<td>Advanced Digital Cartography</td>
<td></td>
</tr>
<tr>
<td>GGS 416</td>
<td>Satellite Image Analysis</td>
<td></td>
</tr>
<tr>
<td>GGS 463</td>
<td>Applied Geographic Information Systems</td>
<td></td>
</tr>
<tr>
<td>GGS 470</td>
<td>Special Topics in Geographic Techniques</td>
<td></td>
</tr>
</tbody>
</table>

**Systematic Courses**

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GGS 302</td>
<td>Global Environmental Hazards</td>
</tr>
</tbody>
</table>

**Geography Electives**

Select 3 credits of undergraduate-level GGS courses

Total Credits 3

Select 6 credits of 300 or 400-level GGS courses

Total Credits 6

**Outside Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II (or IT 207 or STAT 250) Applied IT Programming (or STAT 250) Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 11-12

**Mason Core and Elective Credits**

In order to meet a minimum of 120 credits, this degree requires an additional 58-60 credits, which may be applied toward any remaining Mason Core (p. 135) requirements, Requirements for Bachelor’s Degrees (p. 86), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged
to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundation Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Synthesis/Capstone Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>40</td>
</tr>
</tbody>
</table>

1 minimum 3 credits

**Geoinformatics and Geospatial Intelligence, MS**

Banner Code: SC-MS-GEOI

Arie Croitoru, Program Coordinator

4400 University Drive, MSN 6C3
Fairfax, VA 22030

Phone: 703-993-1212
Email: acroitor@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/ms-in-geoinformatics-and-geospatial-intelligence/

The program addresses the emerging demand for scientists trained in the collection, organization, analysis, and dissemination of information about physical features, man-made structures, moving objects, people, and events that are geo-referenced or geo-located. This program focuses primarily on the computational approaches that support the synthesis and analysis of diverse types of data in order to identify and monitor complex events and phenomena that manifest over space and time. While geospatial intelligence has a strong Department of Defense connotation, the principles behind it have a significant dual use potential, addressing the needs of a broader audience, ranging for example from intelligent navigation in urban spaces to emergency response systems for natural and man-made disasters.

The MS is designed to expose students to fundamental theoretical principles and practical applications involving:

- Geographic Information Science
- Digital image analysis as it applies to geoinformatics and geospatial intelligence
- Computational principles for geoinformatics and intelligence

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in Graduate Admissions Policies (p. 66).

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Eligibility and Application Requirements**

Applicants for this master’s should hold a BA or BS degree in a discipline related to the program’s theme from a regionally accredited university, with a minimum GPA of 3.00, including courses in differential and integral calculus. A working knowledge of a computer programming language is a plus. When the background of an individual student does not meet the program’s requirements, remedial or preparatory courses tailored to student’s needs may be recommended. To apply, prospective students should complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now). Official transcripts from each college and graduate institution attended, a current résumé, and a goals statement will be required.

Applicants will also need three letters of recommendation and an official report of scores obtained on the GRE-GEN. The GRE requirement for admission may be waived if the student holds a master’s degree from a regionally accredited US institution. TOEFL scores are required of all international applicants.

**Policies**

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Secondary Program Options**

Students enrolled in this master’s program have the option of adding a secondary graduate certificate program. Depending upon the secondary program chosen, many courses may be applicable to both the certificate and the master’s. Before adding a secondary program, students are advised to carefully review AP.6.8 Requirements for Graduate Certificates (p. 90) and AP.6.9 Requirements for Master’s Degrees (p. 91). Faculty advisors should be contacted for further guidance and for graduate certificate program suggestions.

**Requirements**

**Degree Requirements**

Total credits: 33

Students should refer to the Admissions & Policies (p. 704) tab for specific policies related to this program.

**Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 550</td>
<td>Geospatial Science Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 664</td>
<td>Spatial Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>GGS 684</td>
<td>Selected Topics in Geospatial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>GGS 685</td>
<td>Capstone Course in Geoinformatics</td>
<td>3</td>
</tr>
<tr>
<td>GGS 680</td>
<td>Earth Image Processing</td>
<td>3</td>
</tr>
</tbody>
</table>
Geospatial Intelligence Graduate Certificate

Banner Code: SC-CERG-GI

Arie Croitoru, Program Coordinator

4400 University Drive, MSN 6C3
Fairfax, VA 22030

Phone: 703-993-1212
Email: acroitor@gmu.edu
Website: https://cos.gmu.edu/ggs/academic-programs/graduate-certificate-in-geospatial-intelligence/

This graduate certificate program is for persons employed in geospatial intelligence applications (i.e., federal agency and/or corporate or association personnel) or those interested in entering this field. Our program offers fundamental knowledge on geospatial intelligence and the ability to apply this knowledge to a diverse range of constantly evolving geospatial intelligence situations. This program has been accredited by the United States Geospatial Intelligence Foundation.

The majority of courses required for this certificate are also available online. For more information visit Mason Online (http://masononline.gmu.edu).

The graduate certificate in geospatial intelligence may be pursued on a part-time or full-time basis, and qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Geospatial_Intelligence/Gedt.html).

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

Applicants to this graduate certificate program should hold a BA or BS degree in a discipline related to the certificate’s theme from a regionally-accredited university with a minimum GPA of 3.00. To apply, prospective students should complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now). In addition, applicants to this certificate program must submit a current résumé, GRE scores. Letters of recommendation are not required but will considerably strengthen an application, if available. TOEFL scores are required of all international applicants.

Applicants should have undergraduate backgrounds that include courses in differential and integral calculus, and they should possess working knowledge of a computer programming language. Depending on the background of the individual student, the coordinator may recommend remedial or preparatory courses tailored to the student’s needs.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Premium Tuition Rate

This professional certificate program charges students at a differential (premium) tuition rate. This rate applies to all students who enroll in this certificate program, regardless of in-state or out-of-state status. The differential tuition will be used to fund continuing improvements in the departmental computational facilities used to support the certificate program.

Transfer of Credit

Students may transfer no more than 3 credits into the certificate program with the approval of the academic director.

Requirements

Certificate Requirements

Total credits: 18
Students should refer to the Admissions & Policies (p. 705) tab for specific policies related to this program.

**Core Courses**
The mandatory core courses reflect the three key science emphases areas of this program, namely geospatial image analysis, spatial analysis, and information technology:

- **GGS 553** Geographic Information Systems 3
- **GGS 680** Earth Image Processing 3
- **GGS 684** Selected Topics in Geospatial Intelligence 3
- **GGS 685** Capstone Course in Geoinformatics 3

Select one from the following: 3

- **GGS 650** Introduction to GIS Algorithms and Programming
- **GGS 664** Spatial Data Structures
- **GGS 692** Web-based Geographic Information Systems

**Total Credits** 15

**Elective**
Select one additional elective course from the following: 3

- **GGS 563** Advanced Geographic Information Systems
- **GGS 579** Remote Sensing
- **GGS 631** Spatial Agent-Based Models of Human-Environment Interactions
- **GGS 650** Introduction to GIS Algorithms and Programming
- **GGS 658** Terrain Mapping
- **GGS 664** Spatial Data Structures
- **GGS 671** Algorithms and Modeling in GIS
- **GGS 675** Location Science
- **GGS 692** Web-based Geographic Information Systems
- **GGS 740** Hyperspectral Imaging Systems
- **GGS 772** Cloud Geographic Information Systems
- **GGS 787** Scientific Data Mining for Geoinformatics

**Total Credits** 3

**Remote Sensing and Image Processing Graduate Certificate**

**Banner Code:** SC-CERG-RSIP

**Donglian Sun, Program Coordinator**

MSN 6C3
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1212
Email: dsun@gmu.edu
Website: cos.gmu.edu/ggs/academic-programs/graduate-certificate-in-remote-sensing-and-image-processing/

This certificate program focuses on the skills needed to take advantage of the enormous increase in the availability and use of remotely sensed data related to the Earth. The program requires students to complete 15 credits of GGS graduate courses. Ideal candidates for this certificate are those who have a background in Earth and environmental sciences and are working in or planning to enter into the field of remote sensing, Earth observing, or image processing.

The Remote Sensing and Image Processing Graduate Certificate may be pursued on a part-time or full-time basis.

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants to this certificate program must submit a current résumé. TOEFL scores are required of all international applicants who do not hold at least a bachelor’s degree from a regionally-accredited institution within the US (some exceptions apply).

Applicants should hold a BA or BS degree in a discipline related to the science and applications of remote sensing from a regionally accredited university, with a minimum GPA of 3.00. Applicants should have some prior education or training in remote sensing or image processing. Students with a background in one of the physical sciences (physics, chemistry, atmospheric science, hydrology, or geology), geography, or environmental science will be particularly well-suited to undertake this program. Applicants should have an undergraduate background that includes courses in differential and integral calculus, and they should possess working knowledge of a computer programming language.

**Policies**

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Premium Tuition Rate**

This professional certificate program charges students at a differential (premium) tuition rate. This rate applies to all students who enroll in this certificate program, regardless of in-state or out-of-state status. The differential tuition will be used to fund continuing improvements in the departmental computational facilities used to support the certificate program.

**Requirements**

**Certificate Requirements**

Total credits: 15

Students should refer to the Admissions & Policies (p. 706) tab for specific policies related to this program.

**Core Courses**

- **GGS 579** Remote Sensing 3
GGS 680  Earth Image Processing  3
GGS 740  Hyperspectral Imaging Systems  3

Total Credits 9

Electives
Select two electives from the following: 6

GGS 562  Photogrammetry
GGS 754  Earth Science Data and Advanced Data Analysis
GGS 756  Physical Principles of Remote Sensing
GGS 760  Advanced Topics in Remote Sensing
GGS 840  Hyperspectral Imaging Applications

Total Credits 6

Department of Mathematical Sciences

Phone: 703-993-1460
Email: dwalnut@gmu.edu
Website: math.gmu.edu

Administration

• David Walnut, Chair
• David Singman, Associate Chair
• Daniel Anderson, Undergraduate Coordinator
• Flavia Colonna, Graduate Coordinator

The Department of Mathematical Sciences offers undergraduate and graduate degree programs in mathematics for students with various interests and career goals. Students may pursue the standard program, or a program focused on actuarial mathematics, applied mathematics, mathematics education or mathematical statistics. Students may complement other interests by taking a double major in mathematics and a related field, such as chemistry, economics, physics, computer science, or engineering.

Graduating seniors are required to have an exit interview.

Math Tutoring Center

The department manages the Math Tutoring Center (http://math.gmu.edu/tutor-center.php?_ga=1.265621830.873783809.1452007880), which offers free tutoring for first- and second-year math courses. Tutoring is given by advanced mathematics students and is available on a drop-in basis with daytime and evening hours throughout the term.

Math Learning Center

For a fee, the Math Learning Center (http://math.gmu.edu/math-learning-center.php) offers self-paced and classroom noncredit tutorial programs for students who do not place into the math course they need. Special tutors and tutorial software are available to those enrolled in the program. Successful completion of the relevant program enables students to enroll in MATH 105 Precalculus Mathematics, MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135), MATH 110 Introductory Probability (Mason Core) (p. 135), MATH 111 Linear Mathematical Modeling (Mason Core) (p. 135), or MATH 125 Discrete Mathematics I (Mason Core) (p. 135).

Certificate in College Teaching

A student enrolled in the Mathematics, MS (p. 721) or Mathematics, PhD (p. 723) who is primarily interested in pursuing a career in undergraduate education at the college level is encouraged to consider enrolling in the College Teaching Graduate Certificate (p. 525) offered through the College of Humanities and Social Sciences (p. 295). Credit can be earned for HE 685 Practicum by working one semester as a graduate teaching assistant in the Department of Mathematical Sciences (p. 707).

Faculty

Department Faculty

Professors
Alligood, Anderson (undergraduate coordinator), Colonna (graduate coordinator), Goldin, Kulesza, Lawrence, Morris, Sachs, Sander, Saperstone, Sauer (COS distinguished scholar), Seshaiyer, Singman (associate chair), Soltan, Walnut (chair), Wanner

Associate Professors
Agnarsson, Emelianenko, Griva, Lamba, Lawton, Zoltek

Assistant Professors
Antil, Carchedi, Epstein, Holzer, Manon

Term Assistant Professors
De la Pena, Eckley, Fernandez, Fox, Nelson

Term Instructors
Boyette, Bulancea, Crossin, Gilbert, Granfield, Sausville

Affiliates
Nash

Emeriti
Cabell, Kiley, Levy, Lin, Shapiro

Admissions & Policies

Policies

Writing-Intensive Requirement
Mason policy requires all students to complete at least one course designated as “writing intensive” in their major. Students majoring in mathematics fulfill this requirement by successfully completing MATH 290 Introduction to Advanced Mathematics.

Teacher Licensure
Students who wish to become teachers should consult the College of Education and Human Development (p. 154) section of this catalog and attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education (http://gse.gmu.edu).
Information on Undergraduate MATH Courses

For Mathematics Majors
The following cannot be used as substitutes for any requirements of the major in mathematics:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 104</td>
<td>Trigonometry and Transcendental Functions</td>
<td>2</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Precalculus Mathematics</td>
<td>4</td>
</tr>
<tr>
<td>MATH 106</td>
<td>Quantitative Reasoning (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 110</td>
<td>Introductory Probability (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 111</td>
<td>Linear Mathematical Modeling (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 112</td>
<td>Discrete Mathematics for IT</td>
<td>3</td>
</tr>
<tr>
<td>MATH 271</td>
<td>Mathematics for the Elementary School Teachers I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 272</td>
<td>Mathematics for the Elementary School Teachers II</td>
<td>3</td>
</tr>
</tbody>
</table>

For Non-mathematics Majors

- MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135), MATH 110 Introductory Probability (Mason Core) (p. 135), and MATH 111 Linear Mathematical Modeling (Mason Core) (p. 135) are designed for students in the social and behavioral sciences.

- Liberal arts majors are advised to take MATH 106 Quantitative Reasoning (Mason Core) (p. 135), MATH 110 Introductory Probability (Mason Core) (p. 135), or MATH 111 Linear Mathematical Modeling (Mason Core) (p. 135).

- Students in the natural sciences who plan to do graduate work are advised to add courses from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 313</td>
<td>Introduction to Applied Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 314</td>
<td>Introduction to Applied Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 351</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>MATH 352</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 441</td>
<td>Deterministic Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>MATH 442</td>
<td>Stochastic Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>MATH 446</td>
<td>Numerical Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 447</td>
<td>Numerical Analysis II</td>
<td>3</td>
</tr>
</tbody>
</table>

For Both Mathematics and Non-mathematics Majors

- MATH 104 Trigonometry and Transcendental Functions, MATH 105 Precalculus Mathematics, MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135), MATH 112 Discrete Mathematics for IT, MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135), MATH 125 Discrete Mathematics I (Mason Core) (p. 135) have a qualifying score on the Math Placement Test (http://math.gmu.edu/placement_test.php) as a prerequisite. The Math Placement Test (http://math.gmu.edu/placement_test.php) is given frequently; for the schedule, inquire at the department office or check the Department of Mathematical Sciences website (http://math.gmu.edu).

- The sequence MATH 123 Calculus with Algebra/Trigonometry, Part A and MATH 124 Calculus with Algebra/Trigonometry, Part B (Mason Core) (p. 135) is an option for students who need MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) but believe they are not prepared for that course. In these two 3-credit courses, students will learn fundamental algebra and calculus so that upon completion of the sequence, students will be prepared for MATH 114 Analytic Geometry and Calculus II.

- Students who do not achieve the necessary test score needed to take a math course may go to the Math Learning Center (http://math.gmu.edu/math-learning-center.php), or they may study and retake the test on their own. A student who does not complete the relevant program in the Math Learning Center (http://math.gmu.edu/math-learning-center.php) or does not achieve the necessary score on the Math Placement Test (http://math.gmu.edu/placement_test.php) will not be able to enroll in the class. Depending on their test scores, students who do not place into MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) will be advised to take MATH 104 Trigonometry and Transcendental Functions or MATH 105 Precalculus Mathematics or visit the Math Learning Center (http://math.gmu.edu/math-learning-center.php) to prepare for MATH 105 Precalculus Mathematics.

- MATH 104 Trigonometry and Transcendental Functions and MATH 105 Precalculus Mathematics do not fulfill the Mason Core (p. 135) ‘Quantitative Reasoning’ requirement.

- Students may not receive credit for both MATH 214 Elementary Differential Equations and MATH 216 Theory of Differential Equations; both MATH 213 Analytic Geometry and Calculus III and MATH 215 Analytic Geometry and Calculus III (Honors); both MATH 351 Probability and STAT 344 Probability and Statistics for Engineers and Scientists I; and both MATH 352 Statistics and STAT 354 Probability and Statistics for Engineers and Scientists II.

- After receiving a grade of ‘C’ or better in one of the courses listed below on the left, students may not receive credit for the corresponding course on the right:

<table>
<thead>
<tr>
<th>Course</th>
<th>May Not Receive Credit for</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113 or MATH 123</td>
<td>MATH 105 or MATH 108</td>
</tr>
<tr>
<td>MATH 351 or STAT 344</td>
<td>MATH 110</td>
</tr>
<tr>
<td>MATH 441</td>
<td>MATH 111</td>
</tr>
<tr>
<td>MATH 125</td>
<td>MATH 112</td>
</tr>
</tbody>
</table>

Programs

- Actuarial Sciences Graduate Certificate
- Mathematics Minor
- Mathematics for School of Business Students Minor
- Mathematics, BA
- Mathematics, BS
- Mathematics, MS
- Mathematics, PhD

Actuarial Sciences Graduate Certificate

Banner Code: SC-CERG-ACTS

Douglas Eckley
The Actuarial Sciences Graduate Certificate is designed to serve students and professionals in the Washington, D.C. area who are interested in pursuing careers as actuaries. The course content provides students with specific training related to the following exams:

- Society of Actuaries (SOA) Exam FM (formerly Course 2)
- SOA Exam MLC (formerly Course 3)
- SOA Exam C (formerly Course 4)
- VEE for applied statistics (formerly part of Course 4)
- Exam EA-1 and EA-2A (for those pursuing EA designation from the U.S. Treasury)

The courses also provide a solid foundation for the corresponding Casualty Actuary Society (CAS) exams. Preparation for the first exam is equivalent to meeting the prerequisites for the certificate courses in the area of probability and statistics.

The Actuarial Sciences Graduate Certificate may only be pursued on a part-time basis.

### Admissions & Policies

#### Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Interested applicants must submit three letters of recommendation. GRE scores are not required.

Students intending to pursue the Actuarial Sciences Graduate Certificate must have three semesters of calculus, a course in linear algebra (equivalent to MATH 203 Linear Algebra), a calculus-based course in probability (equivalent to MATH 351 Probability), and statistics (equivalent to MATH 352 Statistics). Completion of the SOA Exam P is also sufficient preparation for the certificate program.

#### Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

### Requirements

#### Certificate Requirements

Total credits: 18

Students should refer to the Admissions & Policies (p. 709) tab for specific policies related to this certificate.

### Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 551</td>
<td>Regression and Time Series</td>
<td>3</td>
</tr>
<tr>
<td>MATH 554</td>
<td>Financial Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 555</td>
<td>Actuarial Modeling I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 556</td>
<td>Actuarial Modeling II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

### Electives

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 557</td>
<td>Financial Derivatives</td>
<td></td>
</tr>
<tr>
<td>MATH 653</td>
<td>Construction and Evaluation of Actuarial Models I</td>
<td></td>
</tr>
<tr>
<td>MATH 654</td>
<td>Construction and Evaluation of Actuarial Models II</td>
<td></td>
</tr>
<tr>
<td>MATH 655</td>
<td>Pension Valuation (recommended only for students who wish to pursue a career as a pension actuary)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any other elective approved by the graduate committee and chosen in consultation with advisor.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

### Preparation for the SOA, CAS, and EA Exams

The graduate certificate coursework provides preparation for SOA, CAS, and EA exams as follows:

- MATH 551 Regression and Time Series is the SOA VEE for Applied Statistics and is preparation for part of the CAS Exam 3
- MATH 554 Financial Mathematics covers most of the SOA Exam FM material as well as CAS Exam 2 and much of the EA-1 exam
- MATH 555 Actuarial Modeling I and MATH 556 Actuarial Modeling II cover all of the Exam MLC material and most of the CAS Exam 3L as well as the remainder of the EA-1 exam
- MATH 557 Financial Derivatives covers all of the SOA EXAM MFE material
- MATH 653 Construction and Evaluation of Actuarial Models I and MATH 654 Construction and Evaluation of Actuarial Models II covers all of the SOA Exam C material as well as CAS Exam 4
- MATH 655 Pension Valuation covers all of the EA-2A Exam material

### Counting Actuarial Courses for Other Mathematics Degrees

A student enrolled in the Actuarial Sciences Graduate Certificate and another graduate degree program in mathematics can count actuarial mathematics courses toward the master’s or doctoral degree according to the following rules:

- None of the following actuarial mathematics courses can count toward the Mathematics, PhD (p. 723):
  - MATH 551 Regression and Time Series 3
  - MATH 554 Financial Mathematics 3
  - MATH 555 Actuarial Modeling I 3
  - MATH 556 Actuarial Modeling II 3
  - MATH 557 Financial Derivatives 3
  - MATH 653 Construction and Evaluation of Actuarial Models I 3
  - MATH 654 Construction and Evaluation of Actuarial Models II 3
Mathematics Minor

Banner Code: MATH

Academic Advising
Exploratory Hall, Room 4411
Fairfax Campus
Phone: 703-993-1482
Email: danders1@gmu.edu
Website: math.gmu.edu/degree-programs.php

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Students must earn a minimum 2.00 GPA in courses applied to the minor.

Requirements

Minor Requirements

Total credits: 21

Students should refer to the Admissions & Policies (p. 710) tab for specific policies related to this program.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core)</td>
<td>3 (p. 135)</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Analytic Geometry and Calculus III (Honors)</td>
<td></td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 216</td>
<td>Theory of Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH 290</td>
<td>Introduction to Advanced Mathematics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

1 Students must earn a 2.00 or better in MATH 290 Introduction to Advanced Mathematics.

Mathematics Elective

Select 3 credits from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 315</td>
<td>Advanced Calculus I</td>
</tr>
<tr>
<td>MATH 321</td>
<td>Abstract Algebra</td>
</tr>
<tr>
<td>MATH 322</td>
<td>Advanced Linear Algebra</td>
</tr>
</tbody>
</table>

Total Credits 3

1 Students must earn a 2.00 or better

General Elective

Select 3 credits from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
</tr>
</tbody>
</table>

Total Credits 3

1 Excluding MATH 400 History of Math (Topic Varies) (Mason Core) (p. 135)

Mathematics for School of Business Students Minor

Banner Code: MBUS

Academic Advising
Exploratory Hall, Room 4411
Fairfax Campus
Phone: 703-993-1482
Email: danders1@gmu.edu
Website: math.gmu.edu/degree-programs.php

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Students must complete all coursework with a minimum GPA of 2.00.
Minor Requirements

Total credits: 20

Students should refer to the Admissions & Policies (p. 710) tab for specific policies related to this program.

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 351</td>
<td>Probability</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 17

Additional Mathematics Course

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 352</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 441</td>
<td>Deterministic Operations Research</td>
</tr>
<tr>
<td>MATH 554</td>
<td>Financial Mathematics</td>
</tr>
</tbody>
</table>

Total Credits: 3

Mathematics, BA

Banner Code: SC-BA-MATH

Academic Advising

Exploratory Hall, Room 4411
Fairfax Campus

Phone: 703-993-1482
Email: danders1@gmu.edu
Website: math.gmu.edu/degree-programs.php

Students may select an optional concentration in mathematics education; students who do not select this concentration study traditional mathematics.

Teacher Licensure

Students who wish to become teachers and plan to seek teacher licensure should consider the following options:

- Secondary Education – Mathematics (6-12) Undergraduate Certificate (p. 205)
- Mathematics, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Mathematics concentration) (p. 715)

Interested students should attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education's website (http://gse.gmu.edu).

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135). As outlined in the Requirements tab, students in this bachelor’s program must also complete the additional College Requirements for the BA Degree.

MATH 290 Introduction to Advanced Mathematics meets the writing intensive requirement for this major.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Course Recommendations and Policies

Students intending to enter graduate school in mathematics are strongly advised to take MATH 315 Advanced Calculus I and MATH 321 Abstract Algebra.

Students may not receive credit for both MATH 214 Elementary Differential Equations and MATH 216 Theory of Differential Equations; both MATH 213 Analytic Geometry and Calculus III and MATH 215 Analytic Geometry and Calculus III (Honors); both MATH 351 Probability and STAT 344 Probability and Statistics for Engineers and Scientists I; and both MATH 352 Statistics and STAT 354 Probability and Statistics for Engineers and Scientists II.

After receiving a grade of ‘C’ or better in one of the courses listed below on the left, students may not receive credit for the corresponding course on the right:

<table>
<thead>
<tr>
<th>Course</th>
<th>May Not Receive Credit for</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113 or MATH 123</td>
<td>MATH 105 or MATH 108</td>
</tr>
<tr>
<td>MATH 351 or STAT 344</td>
<td>MATH 110</td>
</tr>
<tr>
<td>MATH 441</td>
<td>MATH 111</td>
</tr>
<tr>
<td>MATH 125</td>
<td>MATH 112</td>
</tr>
</tbody>
</table>

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 711) tab for specific policies related to this program.

A maximum of 6 credits of grades below 2.00 in coursework designated MATH may be applied toward the major.

Students may select an optional concentration in mathematics education; students who do not select this concentration study traditional mathematics.
Core Courses

Mathematics, BA

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Analytic Geometry and Calculus III (Honors)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 216</td>
<td>Theory of Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>MATH 290</td>
<td>Introduction to Advanced Mathematics 1</td>
<td>3</td>
</tr>
<tr>
<td>MATH 322</td>
<td>Advanced Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 26

1. Fulfills the writing intensive requirement.

BA without Concentration

In addition to completing the core courses above, students not selecting the concentration option must complete 12 additional traditional mathematics credits in MATH courses numbered above 300.

Select 12 credits in MATH 300-level or higher (p. 1717) 1

Total Credits: 12

1. Excluding MATH 400 History of Math (Topic Varies) (Mason Core) (p. 135)

Concentration in Mathematics Education (MTHE)

Students selecting the mathematics education concentration take the following coursework. A grade of 'C' or better is required for all licensure coursework.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 302</td>
<td>Foundations of Geometry</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 312</td>
<td>Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 315</td>
<td>Advanced Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 321</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 351</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 372</td>
<td>Teaching Mathematics in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 472</td>
<td>Advanced Methods for Teaching Mathematics in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core)</td>
<td>6</td>
</tr>
<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 33

Mason Core and Elective Credits

In order to meet a minimum of 120 credits, this degree requires additional credits (specific credit counts by concentration are shown below), which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor's Degrees (p. 86), College Requirements for the BA Degree (outlined below), and elective courses.

Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

- Without concentration: 82 credits
- With concentration: 61 credits

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
</tbody>
</table>

Core Requirements

Arts (p. 137) 3
Global Understanding (p. 139) 3
Literature (p. 140) 3
Natural Science (p. 141) 7
Social and Behavioral Sciences (p. 142) 3
Western Civilization/World History (p. 143) 3

Synthesis/Capstone Requirement 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 40

1 minimum 3 credits

College Requirements for the BA Degree

In addition to the program requirements and the Mason Core (p. 135) requirements, students pursuing a BA degree must complete the coursework below. Except where expressly prohibited, a course used to fulfill this college-level requirement may also be used simultaneously to satisfy other requirements such as Mason Core (p. 135) requirements, other college-level requirements, or requirements for the major. In some cases, the requirements listed below may be superseded by requirements of the degree program and the Mason Core (p. 135).

Philosophy or Religious Studies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 3 credits from the following:</td>
<td>3</td>
</tr>
<tr>
<td>PHIL (p. 1818)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>RELI (p. 1904)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

1. PHIL 323 Classical Western Political Theory and PHIL 324 Modern Western Political Theory may not be used to fulfill this requirement.

Social and Behavioral Sciences

Choose one approved Mason Core: Social and Behavioral Sciences (p. 142) course in addition to the Mason Core (p. 135) required course for a total of 6 credits. The two courses used to fulfill the combined college-level and university requirements must be from different disciplines.

This requirement may be fulfilled by completing any course in ANTH (p. 1119), CRIM (p. 1372), ECON (p. 1413), GOVT (p. 1588), HIST...
Select any course from the disciplines above or select from the following GGS courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td></td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 303</td>
<td>Geography of Resource Conservation (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 304</td>
<td>Population Geography (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 305</td>
<td>Economic Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 306</td>
<td>Urban Geography</td>
<td></td>
</tr>
<tr>
<td>GGS 315</td>
<td>Geography of the United States</td>
<td></td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td></td>
</tr>
<tr>
<td>GGS 320</td>
<td>Geography of Europe</td>
<td></td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td></td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
<td></td>
</tr>
<tr>
<td>GGS 357</td>
<td>Structures in Urban Governance and Planning</td>
<td></td>
</tr>
<tr>
<td>GGS 380</td>
<td>Geography of Virginia</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3

1 HIST 100 History of Western Civilization (Mason Core) (p. 135) and HIST 125 Introduction to World History (Mason Core) (p. 135) may not be used to fulfill this requirement.

**Natural Science**

Choose one credit in addition to the Mason Core: Natural Science (p. 141) requirement for a total of 8 credits. This combined college-level and university requirement must be fulfilled by completing two of any approved Mason Core: Natural Science (p. 141) courses that include a laboratory experience. 

Select an additional Mason Core Natural Science course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

1 BIOL 124 Human Anatomy and Physiology and BIOL 125 Human Anatomy and Physiology may not be used to fulfill this requirement.

**Foreign Language**

Intermediate-level proficiency in one foreign language is required. This requirement may be fulfilled by completing a course in a foreign language numbered 202, 209, or 210 (or higher-level courses taught in the language).

Select a foreign language course numbered 202, 209, 210, or higher if a waiver isn’t applicable

1 Students may be eligible for a waiver of this requirement if they are already proficient in a second language or if they have received a satisfactory score on an approved proficiency test. Additional information on waivers can be found via the college’s Office of Academic and Student Affairs (https://cos.gmu.edu/uaa).

**Non-Western Culture**

Choose one approved Non-Western Culture Requirement course in addition to the course used to fulfill the Mason Core: Global Understanding (p. 139) requirement. A course used to fulfill the Mason Core: Global Understanding (p. 139) requirement may not be simultaneously used to satisfy this college-level requirement. However, a course used to fulfill this requirement may be used simultaneously to fulfill any other requirements (Mason Core (p. 135) requirements, college-level requirements, or requirements for the major).

Select 3 credits from approved Non-Western Culture courses if a waiver isn’t applicable:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

1 ANTH 114 Introduction to Cultural Anthropology (Mason Core) (p. 135) 3

1 ANTH 300 Civilizations 3

ANTH 301 Native North Americans 3

ANTH 302 Peoples and Cultures of Latin America (Mason Core) (p. 135) 3

ANTH 303 Peoples and Cultures of the Andes 3

ANTH 306 Peoples and Cultures of Island Asia (Mason Core) (p. 135) 3

ANTH 307 Ancient Mesoamerica (Mason Core) (p. 135) 3

ANTH 308 Peoples and Cultures of the Middle East (Mason Core) (p. 135) 3

ANTH 309 Peoples and Cultures of India (Mason Core) (p. 135) 3

ANTH 313 Myth, Magic, and Mind (Mason Core) (p. 135) 3

ANTH 314 Zombies 3

ANTH 316 Peoples and Cultures of the Caribbean (Mason Core) (p. 135) 3

ANTH 323 Digging and Dealing in the Dead: Ethics in Archaeology 3

ANTH 330 Peoples and Cultures of Selected Regions: Non-Western 3

ANTH 332 Cross-Cultural Perspectives on Globalization (Mason Core) (p. 135) 3

ANTH 381 Medical Anthropology 3

ANTH 383 Cities of the Global South 3

ANTH 396 Issues in Anthropology: Social Sciences (Mason Core) (p. 135) 3

ARAB 360 Topics in Arabic Cultural Production 3

ARAB 420 Survey of Arabic Literature 3

ARAB 440 Topics in Arabic Religious Thought and Texts (Mason Core) (p. 135) 3

ARTH 203 Survey of Asian Art (Mason Core) (p. 135) 3

ARTH 204 Survey of Latin American Art (Mason Core) (p. 135) 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 206</td>
<td>Survey of African Art (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 318</td>
<td>Art and Archaeology of Ancient Egypt</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 319</td>
<td>Art and Archaeology of the Ancient Near East (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 320</td>
<td>Art of the Islamic World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 382</td>
<td>Arts of India (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 383</td>
<td>Arts of Southeast Asia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 384</td>
<td>Arts of China (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 385</td>
<td>Arts of Japan (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 386</td>
<td>The Silk Road (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 482</td>
<td>RS: Advanced Studies in Asian Art</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 318</td>
<td>Introduction to Classical Chinese (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 320</td>
<td>Contemporary Chinese Film</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 325</td>
<td>Major Chinese Writers (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>FREN 451</td>
<td>Topics in Sub-Saharan Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>FREN 454</td>
<td>Topics in Caribbean Francophone Literature and Culture</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 316</td>
<td>Geography of Latin America</td>
<td>3</td>
</tr>
<tr>
<td>GGS 325</td>
<td>Geography of North Africa and the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>GGS 330</td>
<td>Geography of the Soviet Succession States</td>
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<tr>
<td>GGS 399</td>
<td>Select Topics in GGS</td>
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<tr>
<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
<td>3</td>
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<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
<td>3</td>
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<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
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<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
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<tr>
<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
<td>3</td>
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<tr>
<td>HIST 251</td>
<td>Survey of East Asian History (Mason Core)</td>
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</tr>
<tr>
<td>HIST 252</td>
<td>Survey of East Asian History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 261</td>
<td>Survey of African History (Mason Core)</td>
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<tr>
<td>HIST 262</td>
<td>Survey of African History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 271</td>
<td>Survey of Latin American History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 272</td>
<td>Survey of Latin American History (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 281</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
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<tr>
<td>HIST 282</td>
<td>Survey of Middle Eastern Civilization (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 326</td>
<td>Stalinism</td>
<td>3</td>
</tr>
<tr>
<td>HIST 327</td>
<td>The Soviet Union and Russia Since World War II</td>
<td>3</td>
</tr>
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<td>HIST 328</td>
<td>Rise of Russia (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 329</td>
<td>Modern Russia and the Soviet Union (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 353</td>
<td>History of Traditional China</td>
<td>3</td>
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<tr>
<td>HIST 354</td>
<td>Modern China</td>
<td>3</td>
</tr>
<tr>
<td>HIST 356</td>
<td>Modern Japan (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 357</td>
<td>Postwar Japan (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 358</td>
<td>Post-1949 China (Mason Core)</td>
<td>3</td>
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<td>HIST 360</td>
<td>History of South Africa (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 364</td>
<td>Revolution and Radical Politics in Latin America (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 365</td>
<td>Conquest and Colonization in Latin America (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>HIST 366</td>
<td>Comparative Slavery</td>
<td>3</td>
</tr>
<tr>
<td>HIST 367</td>
<td>History, Fiction, and Film in Latin America</td>
<td>3</td>
</tr>
<tr>
<td>HIST 387</td>
<td>Topics in Global History (Mason Core)</td>
<td>3-6</td>
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<tr>
<td>HIST 426</td>
<td>The Russian Revolution</td>
<td>3</td>
</tr>
<tr>
<td>HIST 460</td>
<td>Modern Iran (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 461</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
</tr>
<tr>
<td>HIST 462</td>
<td>Women in Islamic Society (Mason Core)</td>
<td>3</td>
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<tr>
<td>HIST 465</td>
<td>The Middle East in the 20th Century</td>
<td>3</td>
</tr>
<tr>
<td>JAPA 310</td>
<td>Japanese Culture in a Global World (Mason Core)</td>
<td>3</td>
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<tr>
<td>JAPA 340</td>
<td>Topics in Japanese Literature (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>KORE 320</td>
<td>Korean Popular Culture in a Global World</td>
<td>3</td>
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<td>MUSI 103</td>
<td>Musics of the World (Mason Core)</td>
<td>3</td>
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<tr>
<td>RELI 211</td>
<td>Religions of the West (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 212</td>
<td>Religions of Asia (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 240</td>
<td>Death and the Afterlife in World Religions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 272</td>
<td>Islam</td>
<td>3</td>
</tr>
<tr>
<td>RELI 313</td>
<td>Hinduism (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 314</td>
<td>Chinese Philosophies and Religious Traditions</td>
<td>3</td>
</tr>
<tr>
<td>RELI 315</td>
<td>Buddhism (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 337</td>
<td>Mysticism: East and West</td>
<td>3</td>
</tr>
<tr>
<td>RELI 365</td>
<td>Muhammad: Life and Legacy</td>
<td>3</td>
</tr>
<tr>
<td>RELI 374</td>
<td>Islamic Thought (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>RELI 375</td>
<td>Qur’an and Hadith</td>
<td>3</td>
</tr>
</tbody>
</table>
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). For information specific to this accelerated master’s program, see AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

Successful applicants will have an overall undergraduate GPA of at least 3.00. Additionally, they will have completed the following courses with a GPA of 3.00 or higher: MATH 315 Advanced Calculus I, MATH 321 Abstract Algebra, and MATH 322 Advanced Linear Algebra.

Accelerated Option Requirements

At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (available from the Office of the University Registrar (http://registrar.gmu.edu)) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor’s degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework.

Reserve Graduate Credit

While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Mathematics, BA or BS/Curriculum and Instruction, Accelerated MEd, (Secondary Education Mathematics concentration)

Overview

Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s program and obtain a BA (p. 711) or BS in Mathematics (p. 716) and an MEd in Curriculum and Instruction (p. 161) (concentration in secondary education mathematics) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Mathematical Sciences (p. 707) and the Graduate School of Education (p. 155). Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Application information for this accelerated master’s program can be found on the Department of Mathematical Sciences website (http://math.gmu.edu).

Accelerated Option Requirements

Students complete the following courses in their senior year:

**Honors in the Major**

Eligibility

Mathematics majors who have maintained a GPA of at least 3.50 in mathematics courses and a GPA of 3.50 in all courses taken at George Mason University may apply to the departmental honors program upon completion of two MATH courses at the 300+ level (excluding MATH 400 History of Math (Topic Varies) (Mason Core) (p. 135)), at least one of which has MATH 290 Introduction to Advanced Mathematics as a prerequisite. Admission to the program will be monitored by the undergraduate committee.

Honors Requirements

To graduate with honors in mathematics, a student is required to maintain a minimum GPA of 3.50 in mathematics courses and successfully complete MATH 405 Honors Thesis in Mathematics I and MATH 406 RS: Honors Thesis in Mathematics II with an average GPA of at least 3.50 in these two courses.

Accelerated Master’s

Mathematics, BA or BS/Mathematics, Accelerated MS

Overview

This degree program allows academically strong Mathematics, BA (p. 711) and Mathematics, BS (p. 716) students to obtain their bachelor’s and a Mathematics, MS (p. 721) by successfully completing 144 credits. Well-prepared students may be admitted to this program after the completion of 90 undergraduate credits. Upon completion and conferral of the bachelor’s degree and with satisfactory graduate-level performance (3.00 GPA) in graduate courses, students are given advanced standing in the Mathematics, MS (p. 721) program and complete an additional 24 credits to receive the master’s degree.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Application
Senior

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credits</th>
<th>Spring Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 572</td>
<td>3</td>
<td>EDCI 672</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
<td>EDRD 619</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 12

Alternative course options are available for students who begin their program in the spring. Students should contact the coordinator for the Bachelor’s/Accelerated Master’s Degree program in the College of Education and Human Development.

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

Mathematics, BS

Banner Code: SC-BS-MATH

Academic Advising

Exploratory Hall, Room 4411
Fairfax Campus

Phone: 703-993-1482
Email: danders1@gmu.edu
Website: math.gmu.edu/degree-programs.php

Students may select an optional concentration in Actuarial Mathematics (ACTM), Applied Mathematics (AMT), Mathematics Education (MTHE) or Mathematical Statistics (MTHS). Students who do not select a concentration study traditional mathematics.

Teacher Licensure

Students who wish to become teachers and plan to seek teacher licensure should consider the following options:

- Secondary Education – Mathematics (6-12) Undergraduate Certificate (p. 205)
- Mathematics, BA or BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Mathematics concentration) (p. 719)

Interested students should attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education’s website (http://gse.gmu.edu).

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

MATH 290 Introduction to Advanced Mathematics meets the writing intensive requirement for this major.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Language Proficiency

The department recommends proficiency in French, German, or Russian.

Course Recommendations and Policies

A maximum of 6 credits of grades below 2.00 in coursework designated MATH may be applied toward the major.

Students intending to enter graduate school in mathematics are strongly advised to take MATH 315 Advanced Calculus I and MATH 321 Abstract Algebra.

Students may not receive credit for both MATH 214 Elementary Differential Equations and MATH 216 Theory of Differential Equations; both MATH 213 Analytic Geometry and Calculus III and MATH 215 Analytic Geometry and Calculus III (Honors); both MATH 351 Probability and STAT 344 Probability and Statistics for Engineers and Scientists I; and both MATH 352 Statistics and STAT 354 Probability and Statistics for Engineers and Scientists II.

After receiving a grade of ‘C’ or better in one of the courses listed below on the left, students may not receive credit for the corresponding course on the right:

<table>
<thead>
<tr>
<th>Course</th>
<th>May Not Receive Credit for</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113 or MATH 123</td>
<td>MATH 105 or MATH 108</td>
</tr>
<tr>
<td>MATH 351 or STAT 344</td>
<td>MATH 110</td>
</tr>
<tr>
<td>MATH 441</td>
<td>MATH 111</td>
</tr>
<tr>
<td>MATH 125</td>
<td>MATH 112</td>
</tr>
</tbody>
</table>

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 716) tab for specific policies related to this program.

In addition to the mathematics core, science, and computational skills requirements, students may select an optional concentration in Actuarial
Mathematics (ACTM), Applied Mathematics (AMT), Mathematics Education (MTHE) or Mathematical Statistics (MTHS).

**Mathematics Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 215</td>
<td>Analytic Geometry and Calculus III (Honors)</td>
<td></td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 216</td>
<td>Theory of Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH 290</td>
<td>Introduction to Advanced Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 322</td>
<td>Advanced Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 23

1. Fulfills the writing intensive requirement.

**Science**

Select a one-year sequence of a laboratory science from the following Mason Core Natural Science courses:

**Chemistry Sequence:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>General Chemistry I (Mason Core) (p. 135) &amp; General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>8</td>
</tr>
</tbody>
</table>

**Geology Sequence:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 101</td>
<td>Introductory Geology I (Mason Core)</td>
<td>8</td>
</tr>
<tr>
<td>GEOL 102</td>
<td>Introductory Geology II (Mason Core)</td>
<td>8</td>
</tr>
</tbody>
</table>

**Physics Sequence:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160 &amp; PHYS 161</td>
<td>University Physics I (Mason Core) (p. 135) &amp; University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>8</td>
</tr>
<tr>
<td>PHYS 260 &amp; PHYS 261</td>
<td>University Physics II (Mason Core) (p. 135) &amp; University Physics II Laboratory (Mason Core) (p. 135)</td>
<td>8</td>
</tr>
</tbody>
</table>

**Total Credits** 8

**Computational Skills**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total Credits** 4

**BS without Concentration**

In addition to the mathematics core, science, and computational skills requirements listed above, students who are not choosing a concentration must complete the following coursework:

**Traditional Mathematics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentration in Actuarial Mathematics (ACTM)**

**ACTM Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 351</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>MATH 352</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 551</td>
<td>Regression and Time Series</td>
<td>3</td>
</tr>
<tr>
<td>MATH 554</td>
<td>Financial Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 555</td>
<td>Actuarial Modeling I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 556</td>
<td>Actuarial Modeling II</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
<td>3</td>
</tr>
<tr>
<td>or ECON 310</td>
<td>Money and Banking</td>
<td></td>
</tr>
<tr>
<td>or FNAN 321</td>
<td>Financial Institutions</td>
<td></td>
</tr>
<tr>
<td>STAT 362</td>
<td>Introduction to Computer Statistical Packages</td>
<td></td>
</tr>
</tbody>
</table>

Select two from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 441</td>
<td>Deterministic Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>MATH 442</td>
<td>Stochastic Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>MATH 446</td>
<td>Numerical Analysis I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 36

1. For mathematics majors, the Department of Economics has agreed to waive the ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135) prerequisite.

**Concentration in Applied Mathematics (AMT)**

**AMT Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 315</td>
<td>Advanced Calculus I</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 36
MATH 351 Probability 3
MATH 413 Modern Applied Mathematics I 3
MATH 414 Modern Applied Mathematics II 3
MATH 446 Numerical Analysis I 3
Select 6 credits of MATH courses numbered above 300 (p. 1717) 6

**Additional Science Courses**
Select additional science credits from one of the following three options:
- A second sequence from the choices under "Science" above
- 6 credits from more advanced courses in chemistry, geology, or physics
- The 4-credit option of PHYS 262 and PHYS 263

Total Credits 28-32

---

**Concentration in Mathematical Statistics (MTHS)**

<table>
<thead>
<tr>
<th>MTHS Courses</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>MATH 315</td>
<td>Advanced Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 351</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>MATH 352</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 453</td>
<td>Advanced Mathematical Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 551</td>
<td>Regression and Time Series</td>
<td>3</td>
</tr>
<tr>
<td>STAT 362</td>
<td>Introduction to Computer Statistical Packages</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two from the following:

- STAT 455 Experimental Design
- STAT 463 Introduction to Exploratory Data Analysis
- STAT 474 Introduction to Survey Sampling

**Additional Science Courses**
Select additional science credits from one of the following three options:
- A second sequence from the choices under "Science" above
- 6 credits from more advanced courses in chemistry, geology, or physics
- The 4-credit option of PHYS 262 and PHYS 263

Total Credits 31-35

---

**Concentration in Mathematics Education (MTHE)**
The following coursework is required for this concentration. A grade of 'C' or better is required for all licensure coursework.

<table>
<thead>
<tr>
<th>MTHE Courses</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>MATH 302</td>
<td>Foundations of Geometry</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 312</td>
<td>Geometry</td>
<td></td>
</tr>
<tr>
<td>MATH 315</td>
<td>Advanced Calculus I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 321</td>
<td>Abstract Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 351</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 372</td>
<td>Teaching Mathematics in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 472</td>
<td>Advanced Methods for Teaching Mathematics in the Secondary School</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 490</td>
<td>Student Teaching in Education (Mason Core) (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>EDRD 419</td>
<td>Literacy in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 372</td>
<td>Human Development, Learning, and Teaching (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 422</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one 3-credit MATH course numbered above 300 (p. 1717) 3

**Additional Science Courses**
Select additional science credits from one of the following three options:
- A second sequence from the choices under "Science" above
- 6 credits from more advanced courses in chemistry, geology, or physics
- The 4-credit option of PHYS 262 and PHYS 263

Total Credits 43-47

---

**Mason Core and Elective Credits**
In order to meet a minimum of 120 credits, this degree requires additional credits (specific credit counts by concentration are shown below), which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor's Degrees (p. 86), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

- Without concentration: 53-57 credits
- ACTM concentration: 49 credits
- AMT concentration: 53-57 credits
- MTHS concentration: 50-54 credits
- MTHE concentration: 38-42 credits
**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundation Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Synthesis/Capstone Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

Honors

**Honors in the Major**

**Eligibility**
Mathematics majors who have maintained a GPA of at least 3.50 in mathematics courses and a GPA of 3.50 in all courses taken at George Mason University may apply to the departmental honors program upon completion of two MATH courses at the 300+ level (excluding MATH 400 History of Math (Topic Varies) (Mason Core) (p. 135)), at least one of which has MATH 290 Introduction to Advanced Mathematics as a prerequisite. Admission to the program will be monitored by the undergraduate committee.

**Honors Requirements**
To graduate with honors in mathematics, a student is required to maintain a minimum GPA of 3.50 in mathematics courses and successfully complete MATH 405 Honors Thesis in Mathematics I and MATH 406 RS: Honors Thesis in Mathematics II with an average GPA of at least 3.50 in these two courses.

**Accelerated Master's**

**Mathematics, BA or BS/Mathematics, Accelerated MS**

**Overview**
This degree program allows academically strong Mathematics, BA (p. 711) and Mathematics, BS (p. 716) students to obtain their bachelor’s and a Mathematics, MS (p. 721) by successfully completing 144 credits. Well-prepared students may be admitted to this program after the completion of 90 undergraduate credits. Upon completion and conferral of the bachelor’s degree and with satisfactory graduate-level performance (3.00 GPA) in graduate courses, students are given (p. 161) (concentration in secondary education mathematics) in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degree (p. 89) for policies related to this program.

This accelerated option is offered jointly by the Department of Mathematical Sciences (p. 707) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

**Accelerated Option Requirements**
Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 572</td>
<td>3</td>
</tr>
<tr>
<td>EDCI 672</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 672</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 619</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Alternative course options are available for students who begin their program in the spring. Students should contact the coordinator for the Bachelor’s/Accelerated Master’s Degree program in the College of Education and Human Development.

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor’s and master’s degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.
advanced standing in the Mathematics, MS (p. 721) program and complete an additional 24 credits to receive the master’s degree.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Application information for this accelerated master’s program can be found on the Department of Mathematical Sciences website (http://math.gmu.edu).

Successful applicants will have an overall undergraduate GPA of at least 3.00. Additionally, they will have completed the following courses with a GPA of 3.00 or higher: MATH 315 Advanced Calculus I, MATH 321 Abstract Algebra, and MATH 322 Advanced Linear Algebra.

**Accelerated Option Requirements**

At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (available from the Office of the University Registrar (http://registrar.gmu.edu)) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor’s degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework.

**Reserve Graduate Credit**

While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**BS (selected)/Statistical Science, Accelerated MS**

**Overview**

Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Statistical Science, MS (p. 1064). Students in an accelerated degree program must fulfill all university requirements for the master’s degree.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students enrolled in a BS degree in any one of the Volgenau School (p. 953) major areas, in the Mathematics, BS (p. 716) program from the College of Science (p. 593), or in the Economics, BS (p. 342) program from the College of Humanities and Social Sciences (p. 295) may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.00. Criteria for admission are identical to criteria for admission to the Statistical Science, MS (p. 1064) program, which include successful completion of the following Mason courses each with a grade of C or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 321</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 351</td>
<td>Probability</td>
<td></td>
</tr>
</tbody>
</table>

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with grades of B or better in two 500-level STAT courses selected from STAT 544 Applied Probability, STAT 554 Applied Statistics I, and STAT 574 Survey Sampling I.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and Graduate Recruitment and Enrollment Services. At the completion of MS requirements, a master’s degree is conferred.

**BS (selected)/Data Analytics Engineering, Accelerated MS**

**Overview**

Qualified undergraduate students have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959) with a concentration in predictive analytics.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

While no specific undergraduate degree is required, Mason undergraduate students majoring in systems engineering or any other engineering, business, computer science, statistics, mathematics, or information technology may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30.

For the predictive analytics concentration, students must submit evidence of:

- Satisfactory completion of courses in calculus, applied probability and statistics, and a scientific programming language.
- Familiarity with analytical modeling software, such as spreadsheets or math packages.

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for the BS and MS programs, with six credits overlap chosen from the courses in the following table. For BS candidates, these graduate courses replace the
corresponding undergraduate courses listed. The undergraduate version of these courses may not be applied toward the MS degree.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 473</td>
<td>SYST 573</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 541</td>
</tr>
</tbody>
</table>

Credit may not be received for both courses.

For the predictive analytics concentration, any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

OR 541 Operations Research: Deterministic Models will substitute for the OR 531 Analytics and Decision Analysis core requirement in the MS DAE program.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Mathematics, MS
Banner Code: SC-MS-MATH

Flavia Colonna, Graduate Coordinator
Exploratory Hall, Room 4215
Fairfax Campus
Phone: 703-993-1465
Email: fcolonna@gmu.edu
Website: math.gmu.edu/graduate/ms-in-mathematics.php

Pure and applied mathematics courses lead to this degree.

Assistantships
A limited number of merit-based teaching assistantships are available for students taking at least 6 graduate credits each semester. Other sources of support, such as research assistantships, are available as funding permits. Graduate students also have the opportunity to work in the Math Tutoring Center (http://math.gmu.edu/tutor-center.php) and the Math Learning Center (http://math.gmu.edu/math-learning-center.php).

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants interested in this program must submit three letters of recommendation. GRE scores are not required.

Students must have taken an upper-division course in advanced calculus (equivalent to MATH 315 Advanced Calculus I), an abstract algebra course (equivalent to MATH 321 Abstract Algebra) and an upper-division course in linear algebra (equivalent to MATH 322 Advanced Linear Algebra). Students should have some computer knowledge.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

MATH 500 through MATH 614 cannot be used for credit, with the exception of MATH 555 Actuarial Modeling I and MATH 556 Actuarial Modeling II.

Requirements

Degree Requirements
Total credits: 30

Students should refer to the Admissions & Policies (p. 721) tab for specific policies related to this program.

Coursework

Required Courses
MATH 675 Linear Analysis 3

Coursework Options
Select three from the following: 9
- MATH 621 Algebra I
- MATH 631 Topology I: Topology of Metric Spaces
- MATH 677 Ordinary Differential Equations
- MATH 685 Numerical Analysis

Additional Approved Coursework
Select four approved graduate courses, at least two of which are MATH courses. 1 12

Total Credits 24

1. All four courses must be approved by the student’s advisor. Courses not listed as MATH courses must be approved by the graduate committee. Different rules apply if the student wishes to count graduate actuarial courses toward his or her degree (consult the graduate coordinator).

Research and Creative Component

A student may fulfill the research and creative component in one of three ways: Thesis Option (p. 721), Paper Presentation Option (p. 722), or Preliminary Exams for the PhD (p. 722).

Select one of the Research and Creative Component options 6 outlined below

Total Credits 6

Thesis Option

In preparation for this option, the student must form a committee comprising a chair and two other faculty members. The chair and at
least one other member must be from the Department of Mathematical Sciences (p. 707), one member may be from a related field.

The student completes a thesis under the direction of the committee chair. The thesis work is typically completed while students are registered for 6 credits of MATH 799 MS Thesis. A thesis proposal and thesis are submitted in accordance with AP.6 Graduate Policies (p. 87). The student must give an oral defense of the thesis to the committee and the George Mason community at large. Students are expected to respond to questions on the thesis and related material. The committee determines whether the defense is satisfactory.

<table>
<thead>
<tr>
<th>Thesis Option</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MATH 799</td>
<td>MS Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 6

**Paper Presentation Option**

In preparation for this option, the student must form a committee comprising a chair and two other faculty members. The chair and at least one other member must be from the Department of Mathematical Sciences (p. 707), one member may be from a related field. The student gives an oral presentation of a paper (or series of papers or book chapter) chosen in consultation with the chair of the committee and approved by the full committee. The chosen material must be distinct from work completed in fulfillment of course requirements. The oral presentation is given to the committee and the Mason community at large. Students are expected to respond to questions on the paper and related material. The committee determines whether the defense is satisfactory.

Select 6 additional credits of electives | 6

Total Credits: 6

**Preliminary Exams for the PhD**

The research and creative component can also be fulfilled by passing three preliminary written examinations, as required for the Mathematics, PhD (p. 723) degree.

**Dual Degree Options**

Mathematics and Statistical Science Dual-Degree MS

This program allows students to earn an MS in Mathematics (p. 721) and an MS in (p. 1064) Statistical Science (p. 1064) by completing 48 credits of coursework in both areas instead of the 60 that would be required if the degrees were sought independently.

**Admission Requirements**

Applicants must satisfy admission requirements for both the MS in Mathematics (p. 721) and the MS in Statistical Science (p. 1064) programs. A joint faculty committee from the Department of Mathematical Sciences (p. 707) and the Department of Statistics (p. 1060) make final admission decisions into the dual-degree program.

**MS-MATH/STAT Dual-Degree Requirements**

Total credits: 48

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 621</td>
<td>Algebra I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 675</td>
<td>Linear Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select 12 elective credits in MATH courses numbered 615 or higher (p. 1717)

Select any STAT courses numbered 540-775 (p. 1968)

Total Credits: 24

**Notes:**

- Students in either the BS/Accelerated MS in Mathematics (p. 722) program or the BS(selected)/Accelerated MS in Statistical Science (p. 1067) program cannot get a reduction of 6 credits toward this dual degree. Students who want to proceed to a PhD degree will only be able to waive the number of credits specified in the associated PhD degree requirements, even though they will have 48 credits at the MS level.

- If a student decides not to complete the required 48 credits, a single MS degree will not be granted unless the student fulfills the requirements for either the MS in Mathematics (p. 721) or the MS in Statistical Science (p. 1064).

- Once a student receives one of the MS degrees from either department, the student will no longer be eligible for the reduction in credit (i.e., will need to complete 30 credits) if the student later decides to earn the other MS degree.

**Accelerated Master's**

Mathematics, BA or BS/Mathematics, Accelerated MS

**Overview**

This degree program allows academically strong Mathematics, BA (p. 711) and Mathematics, BS (p. 716) students to obtain their bachelor's and a Mathematics, MS (p. 721) by successfully completing 144 credits. Well-prepared students may be admitted to this program after the completion of 90 undergraduate credits. Upon completion and conferral of the bachelor's degree and with satisfactory graduate-level performance (3.00 GPA) in graduate courses, students are given advanced standing in the Mathematics, MS (p. 721) program and complete an additional 24 credits to receive the master's degree.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).
**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Application information for this accelerated master’s program can be found on the Department of Mathematical Sciences website (http://math.gmu.edu).

Successful applicants will have an overall undergraduate GPA of at least 3.00. Additionally, they will have completed the following courses with a GPA of 3.00 or higher: MATH 315 Advanced Calculus I, MATH 321 Abstract Algebra, and MATH 322 Advanced Linear Algebra.

**Accelerated Option Requirements**

At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (available from the Office of the University Registrar (http://registrar.gmu.edu)) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor’s degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework.

**Reserve Graduate Credit**

While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Mathematics, PhD**

Banner Code: SC-PHD-MATH

Flavia Colonna, Graduate Coordinator

Exploratory Hall, Room 4215
Fairfax Campus

Phone: 703-993-1465
Email: fcolonna@gmu.edu
Website: math.gmu.edu/graduate/phd-in-mathematics.php

The doctoral program begins with graduate coursework and advanced seminars and culminates in a dissertation consisting of original research in mathematics. The PhD is designed to train students as research mathematicians for careers in academia, government, and private industry.

**Fellowships and Assistantships**

The Department of Mathematical Sciences (p. 707) offers a limited number of merit-based teaching assistantships. Other sources of support, such as research fellowships and assistantships, are available as funding permits. Graduate students also have the opportunity to work in the Math Tutoring Center (http://math.gmu.edu/tutor-center.php) and the Math Learning Center (http://math.gmu.edu/math-learning-center.php).

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Eligibility**

It is expected that all applicants have a recent bachelor’s degree in mathematics or an equivalent amount of undergraduate mathematics preparation, with a GPA of at least 3.00 in their last 60 credits of study. Students without this background who have had an upper-division course in linear algebra (equivalent to MATH 322 Advanced Linear Algebra), an upper-division course in advanced calculus (equivalent to MATH 315 Advanced Calculus I), and an upper-division course in group theory (equivalent to MATH 321 Abstract Algebra) are encouraged to apply to the Mathematics, MS (p. 721). Such students may subsequently apply to the PhD when all background issues have been addressed. It is recommended that all applicants have some familiarity with mathematical software.

**Application Requirements**

To apply, prospective students should provide the completed George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), two copies of official transcripts from each college and graduate institution attended, three letters of recommendation, and a goals statement. GRE scores are recommended but not required.

TOEFL scores are required for all international applicants; find additional information in the Admission of International Students (p. 68) section of this catalog.

**Policies**

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Reduction of Credits**

For students entering the doctoral program with a master’s degree in a related field from a regionally accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of the program faculty and the college’s associate dean for student affairs. See AP.6.5.2 Reduction of Credits (p. 88) for more information.

**Transfer of Credit**

Graduate mathematics courses taken elsewhere without being applied to degree conferral may be counted toward the degree as transfer credit. See AP 6.5.3 Transfer of Credit (p. 88) for additional information.

**Requirements**

**Degree Requirements**

Total credits: 72
Students should refer to the Admissions & Policies (p. 723) tab for specific policies related to this program.

Core Courses
Students must earn a grade of 'B' or better in each core course that counts towards the core requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 675</td>
<td>Linear Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Select any three of the following:</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>MATH 621</td>
<td>Algebra I</td>
<td></td>
</tr>
<tr>
<td>MATH 631</td>
<td>Topology I: Topology of Metric Spaces</td>
<td></td>
</tr>
<tr>
<td>MATH 677</td>
<td>Ordinary Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH 685</td>
<td>Numerical Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Preliminary Written Exam
Students are required to pass preliminary written exams after completing the core courses, usually by the end of their second year. These exams are based on material presented in three of the five core courses (the student may choose which topics to exclude). These exams are offered twice a year and students may take each exam up to three times. A grade of "pass" on three preliminary written exams is sufficient to satisfy the creative component of the master's degree in mathematics.

Dissertation Advisor and Examination Committee
After passing the preliminary written exam, the student chooses a dissertation advisor and a three person examination committee. In consultation with the advisor and committee, the student chooses a major and a minor area of study (the major and minor areas are presumed to be in two different branches of mathematics).

Seminar
Students must register for a 1 credit seminar each semester until they advance to candidacy or have acquired at least 6 credits.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 795</td>
<td>Graduate Seminar</td>
<td></td>
</tr>
</tbody>
</table>

Electives
Students complete 27-42 credits of approved MATH electives.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 998</td>
<td>Doctoral Dissertation Proposal</td>
<td></td>
</tr>
<tr>
<td>MATH 999</td>
<td>Doctoral Dissertation</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12-24

Doctoral Dissertation Proposal and Advancement to Candidacy
Approximately one semester after passing the qualifying exam, each doctoral student prepares a written dissertation proposal while taking MATH 998 Doctoral Dissertation Proposal. The proposal must be approved by the dissertation committee, which consists of the three qualifying exam committee members, plus a fourth member from outside the Department of Mathematical Sciences (p. 707). After successfully completing this requirement, the student advances to doctoral candidacy.

Dissertation Research
Select 12-24 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 998</td>
<td>Doctoral Dissertation Proposal</td>
<td></td>
</tr>
<tr>
<td>MATH 999</td>
<td>Doctoral Dissertation</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12-24

Department of Physics and Astronomy
Phone: 703-993-1280
Email: physics@gmu.edu
Website: physics.gmu.edu

The Department of Physics and Astronomy is dedicated to the dissemination and advancement of physics and astronomy through instruction, research, and outreach.

The department provides rigorous training for physics and astronomy students and prepares them to be successful, confident, and versatile in their ability to apply physics and astronomy principles within any chosen field. The department also aims to deliver and instill a broad-based understanding of general physics and astronomy principles and practices to the wider university community through our Mason Core (p. 135) (general education) courses. Our student-centric curriculum and instruction use a mixture of traditional and current pedagogical techniques informed by on-going educational research. It is our goal to help students to develop versatility and creativity through repeated analytical practices and problem-solving training in their coursework and faculty-led research projects.

Research in the department focuses on pushing the frontiers of physics and astronomy in a broad range of topics using theoretical, experimental, observational, and computational approaches. The department maintains many active collaborations with scientists across different disciplines.
within the university community and with other national and international institutions. The department believes strongly in incorporating both graduate as well as undergraduate students in our research programs. It is our goal to see students arriving with an enthusiasm and curiosity for physics and astronomy and leaving as true scientists ready to conduct their own scientific investigations.

Undergraduate Programs
The department offers the Physics, BS (p. 731) and the Astronomy, BS (p. 729). Also available are the Physics Minor (p. 730), the Astronomy Minor (p. 728), and the Renewable Energy Interdisciplinary Minor (p. 736).

Undergraduate Research Opportunities
The department offers many opportunities for undergraduate students to get involved with research. Students should consult with faculty working on research topics of interest to them, based on their exploration of the department’s website (http://physics.gmu.edu).

Bachelor’s/Accelerated Master’s Degree
Information regarding this program can be found in the Physics, BS/ Accelerated Masters section of this catalog.

Physics for Non-majors
PHYS 243 College Physics (Mason Core) (p. 135), PHYS 244 College Physics Lab (Mason Core) (p. 135), PHYS 245 College Physics (Mason Core) (p. 135), and PHYS 246 College Physics Lab (Mason Core) (p. 135) are recommended for biology, geology, and premedical students, and mathematics students who seek a BA degree. PHYS 101 Light and Sound in Our World, PHYS 102 Sports Physics, PHYS 103 Physics and Everyday Phenomena I (Mason Core) (p. 135), and PHYS 104 Physics and Everyday Phenomena II (Mason Core) (p. 135) are intended for non-science majors. PHYS 160 University Physics I (Mason Core) (p. 135), PHYS 161 University Physics I Laboratory (Mason Core) (p. 135), PHYS 260 University Physics II (Mason Core) (p. 135), PHYS 261 University Physics II Laboratory (Mason Core) (p. 135) or PHYS 265 Advanced University Physics II Laboratory, PHYS 262 University Physics III (Mason Core) (p. 135), and PHYS 263 University Physics III Laboratory (Mason Core) (p. 135) constitute a calculus-based sequence in general physics to be taken by physics and engineering majors, and chemistry, computer science, and mathematics students who are pursuing a BS degree. Students may receive credit for only one of the following three sequences:

- PHYS 243 & PHYS 244 & PHYS 245 & PHYS 246
- College Physics (Mason Core) (p. 135) and College Physics Lab (Mason Core) (p. 135) and College Physics (Mason Core) (p. 135) and College Physics Lab (Mason Core) (p. 135)
- PHYS 103 & PHYS 104
- Physics and Everyday Phenomena I (Mason Core) (p. 135) and Physics and Everyday Phenomena II (Mason Core) (p. 135)

PHYS 160 & PHYS 161 & PHYS 260 & PHYS 262 & PHYS 263
- University Physics I (Mason Core) (p. 135) and University Physics I Laboratory (Mason Core) (p. 135) and University Physics II (Mason Core) (p. 135) and University Physics III (Mason Core) (p. 135) and University Physics III Laboratory (Mason Core) (p. 135)

Graduate Programs
This department offers the Applied and Engineering Physics, MS (p. 726). The department also supports the Energy and Sustainability concentration in the Interdisciplinary Studies, MAIS (p. 534). Additionally, the department offers a Physics, PhD (p. 735). These graduate programs are strongly supported by the extensive research activities of the faculty, including many collaborations with scientists and engineers at regional government laboratories.

Faculty

Department Faculty
Professors
Barreto, Becker, Dworzecka, Kan, Lohner, Mishin, Rubin, Satija, Satyapal, Sauer, So, Summers, Trefil, Yang, Zhang

Associate Professors
Camelli, Cressman, Marzougui, Nikolic, Rosenberg, Sheng, Tian, Weigel, Weingartner, Zhao

Assistant Professors
Yigit, Vora

Term Associate Professor
Djordjevic, Geller, Gliozzi, Oerter, Wyczalkowski

Term Assistant Professors
Belle, Dreyfus, Ericson

Emeriti
Ceperley, Ehrlich, Ellsworth, Evans, Lieb, Mielczarek

Research Faculty
Bilitza, Dere, Duxbury, Huang, Mariska, Meier, Odstrcil, Poland, Purja Pun, Richards

Requirements & Policies

Requirements
Writing Intensive Requirement
George Mason requires all undergraduate students to complete at least one course designated as “writing intensive” in their majors at the 300-level or above. Students majoring in physics fulfill this requirement by successfully completing PHYS 407 Senior Laboratory in Modern Physics (Mason Core) (p. 135). Astronomy majors fulfill the requirement by
completing ASTR 402 RS: Methods of Observational Astronomy (Mason Core) (p. 135).

**Teacher Licensure**
Students who wish to become teachers should consult the College of Education and Human Development (p. 154) section of this catalog and attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education’s website (https://gse.gmu.edu).

**Programs**
- Applied and Engineering Physics, MS
- Astronomy Minor
- Astronomy, BS
- Physics Minor
- Physics, BS
- Physics, PhD
- Renewable Energy Interdisciplinary Minor

**Applied and Engineering Physics, MS**
Banner Code: SC-MS-PHAE

Robert Weigel, Associate Professor
Planetary Hall, Room 259
Fairfax Campus
Phone: 703-993-1361
Email: rweigel@gmu.edu
Website: physics.gmu.edu/applied-and-engineering-physics-ms/

This degree contains elements of traditional physics programs and the application of physics to a diversity of critical societal problems. The program is divided into three areas of emphasis; see Requirements (p. 726) for details.

Many courses are offered during late afternoon or evening hours to allow students with full-time employment to easily attend. Students employed at area high-technology organizations may take up to 6 credits (out of 30) for work done on the job under the guidance of a faculty member. This employment-related research may be conducted under an optional 3-credit research project or an optional 6-credit master’s thesis. Master’s students who are not employed full time may apply for financial aid or a limited number of research assistantships.

**Admissions & Policies**

**Admissions**
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Individuals holding a baccalaureate degree in physics or a related field from a regionally accredited institution and who have earned a GPA of 3.00 (out of 4.00) in their last 60 credits are invited to apply for admission. If the baccalaureate degree is in a field other than physics, applicants should have taken several courses beyond the introductory physics courses, such as junior-level classical mechanics, electricity and magnetism, or electronics. Applicants may be required to make up one or two deficiencies, based on a graduate physics advisor’s assessment, and be provisionally admitted into the program. Three letters of recommendation must be submitted, preferably from former professors. The general GRE and the GRE subject test in physics are recommended for applicants who received their baccalaureate degrees within the past five years.

**Policies**
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Requirements**

**Degree Requirements**
Total credits: 30

Students should refer to the Admissions & Policies (p. 726) tab for specific policies related to this program.

**Emphasis Requirement**
Select one emphasis and complete all the requirements therein.

**Standard Emphasis**
This emphasis is intended for students who may wish to pursue further graduate study in physics leading to a PhD degree in preparation for a career in basic research.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 684</td>
<td>Quantum Mechanics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 685</td>
<td>Classical Electrodynamics I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 705</td>
<td>Classical Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 711</td>
<td>Statistical Mechanics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 9 credits from the following:</td>
<td>9</td>
</tr>
<tr>
<td>ASTR 532</td>
<td>Phys Interplanetary Med</td>
<td></td>
</tr>
<tr>
<td>ASTR 602</td>
<td>Methods of Observational Astronomy</td>
<td></td>
</tr>
<tr>
<td>ASTR 603</td>
<td>Planetary Sciences</td>
<td></td>
</tr>
<tr>
<td>ASTR 604</td>
<td>Galaxies and Cosmology</td>
<td></td>
</tr>
<tr>
<td>ASTR 660</td>
<td>Plasma Physics for Space and Astrophysics</td>
<td></td>
</tr>
<tr>
<td>ASTR 680</td>
<td>Physics of Interstellar Media</td>
<td></td>
</tr>
<tr>
<td>ASTR 730</td>
<td>Stellar Astrophysics</td>
<td></td>
</tr>
<tr>
<td>ASTR 764</td>
<td>Computational Astrophysics</td>
<td></td>
</tr>
<tr>
<td>ASTR 765</td>
<td>High-Energy and Accretion Astrophysics</td>
<td></td>
</tr>
<tr>
<td>ASTR 790</td>
<td>Topics in Astronomy and Astrophysics</td>
<td></td>
</tr>
<tr>
<td>PHYS 510</td>
<td>Computational Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 512</td>
<td>Solid State Physics and Applications</td>
<td></td>
</tr>
<tr>
<td>PHYS 533</td>
<td>Modern Instrumentation</td>
<td></td>
</tr>
<tr>
<td>PHYS 540</td>
<td>Nuclear and Particle Physics</td>
<td></td>
</tr>
<tr>
<td>PHYS 575</td>
<td>Atmospheric Physics I</td>
<td></td>
</tr>
<tr>
<td>PHYS 611</td>
<td>Electro-optics</td>
<td></td>
</tr>
<tr>
<td>PHYS 612</td>
<td>Physics of Modern Imaging</td>
<td></td>
</tr>
<tr>
<td>PHYS 613</td>
<td>Computational Physics II</td>
<td></td>
</tr>
</tbody>
</table>
PHYS 614 Thermodynamics and Kinetics of Materials
PHYS 615 Fundamentals of Materials Science
PHYS 620 Continuum Mechanics
PHYS 628 Relativity
PHYS 630 Introduction to Biophysics
PHYS 660 Space Weather
PHYS 684 Quantum Mechanics I
PHYS 685 Classical Electrodynamics I
PHYS 701 Theoretical Physics
PHYS 736 Computational Quantum Mechanics
PHYS 760 Space Plasma Physics
PHYS 780 Advanced Selected Topics in Physics
PHYS 784 Quantum Mechanics II
PHYS 785 Classical Electrodynamics II
CSI 720 Fluid Mechanics
CSI 721 Computational Fluid Dynamics I
CSI 722 Computational Fluid Dynamics II
CSI 786 Molecular Dynamics Modeling
CSI 787 Computational Materials Science
CSI 788 Simulation of Large Scale Systems

Total Credits 21

Engineering Physics Emphasis
This emphasis allows students to select a larger number of courses from electrical engineering and other areas.

Choose one of the following: 3
PHYS 684 Quantum Mechanics I
PHYS 502 Introduction to Quantum Mechanics and Atomic Physics
PHYS 690 Engineering Thermodynamics

Choose one of the following: 3
PHYS 685 Classical Electrodynamics I
PHYS 513 Applied Electromagnetic Theory
PHYS 620 Continuum Mechanics
PHYS 510 Computational Physics I 3
PHYS 533 Modern Instrumentation 3
PHYS 613 Computational Physics II
or PHYS 502 Introduction to Quantum Mechanics and Atomic Physics

Select 9 credits of graduate-level PHYS, ECE, CEIE, or MATH courses 9

Total Credits 21

1 Advisor approval required

Applied Physics Emphasis
This emphasis is intended for those who wish to apply the techniques and subject areas of physics to multifaceted problems encountered in the workplace, particularly in physics, engineering, computational science, and other related areas.

PHYS 510 Computational Physics I 3
PHYS 533 Modern Instrumentation 3
PHYS 684 Quantum Mechanics I 3
or PHYS 502 Introduction to Quantum Mechanics and Atomic Physics

PHYS 685 Classical Electrodynamics I 3
or PHYS 513 Applied Electromagnetic Theory
Select 9 credits from the following: 9
PHYS 581 Topics in Renewable Energy
BINF 731 Protein Structure Analysis
BINF 741 Introduction to Computer Simulations of Biomolecules
CLIM 710 Introduction to Physical Climate System
CLIM 711 Introduction to Atmospheric Dynamics
CLIM 712 Physical and Dynamical Oceanography
CLIM 713 Atmosphere-Ocean Interactions
CLIM 714 Land-Climate Interactions
CLIM 715 Numerical Methods for Climate Modeling
CLIM 750 Geophysical Fluid Dynamics
CSI 742 The Mathematics of the Finite Element Method
CSI 763 Statistical Methods in Space Sciences
CSI 782 Statistical Mechanics for Modeling and Simulation
CSI 783 Computational Quantum Mechanics
ECE 521 Modern Systems Theory
ECE 548 Introduction to Random Processes in Electrical and Computer Engineering
ECE 556 Introduction to Optical Electronics
ECE 584 Semiconductor Device Fundamentals
ECE 699 Advanced Topics in Electrical and Computer Engineering

Or any course listed in the Standard Emphasis

Total Credits 21

Electives
Select nine elective credits from the following: 9
PHYS (p. 1828)
CHEM (p. 1244)
MATH (p. 1717)
ECE (p. 1456)
CSI (p. 1302)
PHYS 798 Research Project
PHYS 799 Master’s Thesis
ECE 798 Research Project
ECE 799 Master’s Thesis

Total Credits 9

1 No more than 6 credits may be chosen from areas outside ASTR, CSI, ECE, NANO, and PHYS.

Notes:
- Students may choose to take either PHYS 798 Research Project/ECE 798 Research Project or PHYS 799 Master’s Thesis/ECE 799 Master’s Thesis (6 credits), but not both. The research project may be conducted at a student’s place of employment with the concurrence of a faculty advisor.
- The thesis is a more substantial piece of work performed under the supervision of a faculty member and requires students to make
an oral defense. PHYS 798 Research Project/ECE 798 Research Project may be taken only once. No more than 6 credits of PHYS 799 Master’s Thesis may be applied to the degree.

- Students in the master’s degree program can earn the Data Science Graduate Certificate (p. 659) from the Department of Computational and Data Sciences (p. 650) by choosing an approved sequence of courses.

## Accelerated Master's

### Physics, BS/Applied and Engineering Physics, Accelerated MS

**Overview**

This program allows academically strong undergraduates with a demonstrable commitment to research to obtain the Physics, BS (p. 731) and Applied and Engineering Physics, MS (p. 726) degrees by successfully completing 144 credits. Upon completion, students are well-prepared for entry into a professional school or a PhD program in physics or a related discipline.

Admitted students take selected graduate courses during their senior year and are able to use up to 6 graduate credits in partial satisfaction of requirements for the undergraduate degree. Upon completion and conferral of the bachelor's degree and with satisfactory performance (grade of 'B' or better) in each of the graduate courses, students are given advanced standing in the master's program and complete an additional 24 credits to receive the master's degree.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

### Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog.

Successful applicants will have completed at least 90 credits toward their undergraduate degree and 45 credits in physics major coursework. The physics major GPA must be at least 3.50. One or more recommendation letters from one or more research supervisors are also required. Interested applicants should submit a letter to the undergraduate physics coordinator requesting admission along with the aforementioned recommendation letter(s). Contact the physics undergraduate or graduate coordinator for further details.

### Accelerated Option Requirements

At the beginning of the student’s final undergraduate semester, students must submit a bachelor's/accelerated master's transition form (http://registrar.gmu.edu/forms) to the College of Science's Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master's program in the semester immediately following conferral of the bachelor's degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework.

---

### Reserve Graduate Credit

While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master's program. Reserve graduate credits do not apply to the undergraduate degree.

### Astronomy Minor

**Banner Code:** ASTR

**Joseph Weingartner, Undergraduate Astronomy Advisor**

Planetary Hall, Room 231
Fairfax Campus

Phone: 703-993-4596
Email: jweinga1@gmu.edu
Website: physics.gmu.edu/minor-in-astronomy/

### Admissions & Policies

**Policies**

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

### Requirements

#### Minor Requirements

Total credits: 18 or 20

Students should refer to the Admissions & Policies (p. 728) tab for specific policies related to this program.

The minor requires completion of all coursework with a minimum GPA of 2.00.

#### Core Courses

Select one from the following sequences:

<table>
<thead>
<tr>
<th>Sequence One:</th>
<th>12-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 243 &amp; PHYS 245</td>
<td>College Physics (Mason Core) (p. 135) and College Physics (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>or PHYS 160 &amp; PHYS 260</td>
<td>University Physics I (Mason Core) (p. 135) and University Physics II (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ASTR 111</td>
<td>Introductory Astronomy: The Solar System (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ASTR 112</td>
<td>Introductory Astronomy Lab: The Solar System (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ASTR 113</td>
<td>Introductory Astronomy: Stars, Galaxies, and the Universe (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ASTR 114</td>
<td>Introductory Astronomy Lab: Stars, Galaxies, and the Universe (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sequence Two:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
</tr>
<tr>
<td>PHYS 260</td>
</tr>
</tbody>
</table>
ASTR 210 Introduction to Astrophysics

Total Credits 12-14

Astronomy Electives
Select 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 301</td>
<td>Astrobiology</td>
</tr>
<tr>
<td>ASTR 302</td>
<td>Foundations of Cosmological Thought (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ASTR 328</td>
<td>Stars and Interstellar Medium</td>
</tr>
<tr>
<td>ASTR 402</td>
<td>RS: Methods of Observational Astronomy (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ASTR 403</td>
<td>Planetary Sciences</td>
</tr>
<tr>
<td>ASTR 404</td>
<td>Galaxies and Cosmology</td>
</tr>
<tr>
<td>PHYS 428</td>
<td>Relativity</td>
</tr>
</tbody>
</table>

The program prepares students for graduate school, a career in research or teaching, or employment in industry, business, or education fields where analytical skills and a scientific background are advantageous. Students who are considering a double major should talk to the undergraduate coordinator.
Physics Minor

**MATH 214**  
Elementary Differential Equations  
3

**Total Credits**  
14

### Astronomy and Physics Courses
Select 15 credits from the following (at least 12 credits must be from upper-level courses):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 301</td>
<td>Astrobiology</td>
</tr>
<tr>
<td>ASTR 408</td>
<td>Senior Research</td>
</tr>
<tr>
<td>PHYS 306</td>
<td>Wave Motion and Electromagnetic Radiation</td>
</tr>
<tr>
<td>PHYS 307</td>
<td>Thermal Physics</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Quantum Mechanics and Atomic Physics</td>
</tr>
<tr>
<td>ASTR 403</td>
<td>Planetary Sciences ¹</td>
</tr>
<tr>
<td>or ASTR 404</td>
<td>Galaxies and Cosmology</td>
</tr>
<tr>
<td>or PHYS 428</td>
<td>Relativity</td>
</tr>
</tbody>
</table>

Other ASTR course with the permission of the department (p. 1179)  
Other PHYS course with the permission of the department (p. 1828)

**Total Credits**  
15

¹ PHYS 428 Relativity, if not taken as part of additional astronomy course requirement above, may be used here.

### Mason Core and Elective Credits
In order to meet a minimum of 120 credits, this degree requires an additional 54 credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor’s Degrees (p. 86), and electives. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult with their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Foundation Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td><strong>Core Requirements</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Synthesis/Capstone Requirement</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**  
40

### Honors

#### Honors in the Major

**Eligibility**
Astronomy majors who have completed the prerequisites for ASTR 405 Honors Thesis in Astronomy I, have a GPA of at least 3.50 in ASTR and PHYS courses taken at Mason, and have a GPA of at least 3.50 in all courses taken at Mason may apply for admission to the astronomy honors program.

#### Honors Requirements
To graduate with honors in astronomy, a student must maintain a GPA of at least 3.50 in their ASTR/PHYS courses. Students accepted into the honors program must complete ASTR 405 Honors Thesis in Astronomy I and ASTR 406 Honors Thesis in Astronomy II with a GPA of at least 3.50 and a grade of ‘A-’ or better in ASTR 406 Honors Thesis in Astronomy II. Students in ASTR 405 Honors Thesis in Astronomy I/ASTR 406 Honors Thesis in Astronomy II will complete a research project and write a thesis working under the supervision of a faculty member. At the end of ASTR 406 Honors Thesis in Astronomy II, the student will write a substantial thesis paper and make a presentation of results to their honors committee.

### Physics Minor

**Banner Code:** PHYS

**Stephanie Kuhta, Academic Administrative Specialist**

203 Planetary Hall  
Fairfax Campus  
Phone: 703-993-5356  
Email: smonk@gmu.edu  
Website: physics.gmu.edu/minor-in-physics/

### Admissions & Policies

#### Policies

Eight credits of coursework must be unique to the minor with a minimum GPA of 2.00. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

#### Requirements

**Minor Requirements**

Total credits: 18

Students should refer to the Admissions & Policies (p. 730) tab for specific policies related to this program.

#### Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>
The Physics, BS prepares students for graduate school and careers in education, business, or industry.

Teacher Licensure
Students who wish to become teachers and plan to seek teacher licensure should consider the following options:

- Secondary Education – Physics (6-12) Undergraduate Certificate (p. 206)
- Physics, BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Physics concentration) (p. 734)

Interested students should attend an information session early in their undergraduate career. For more information, visit the Graduate School of Education’s website (http://gse.gmu.edu).

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies
Students must fulfill all Requirements for Bachelor’s Degrees (p. 86) including the Mason Core (p. 135).

The intensive writing requirement is fulfilled by taking PHYS 407 Senior Laboratory in Modern Physics (Mason Core) (p. 135) or ASTR 402 RS: Methods of Observational Astronomy (Mason Core) (p. 135), which are also capstone courses for the major.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Double Majors
Students in the fields of mathematics, science, and engineering who are considering a double major in physics should discuss this option with the respective undergraduate coordinators.

Note that at least 18 credits used to fulfill the Physics, BS cannot be used to fulfill another major or minor. Some course substitutions are allowed for double majors, but these should be discussed in advance.

Alternative Introductory Sequence
Normally, students who intend to major in physics should take the physics introductory sequence:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

Students who decide to major in physics after completing PHYS 243 College Physics (Mason Core) (p. 135), PHYS 244 College Physics Lab (Mason Core) (p. 135), PHYS 245 College Physics (Mason Core) (p. 135), and PHYS 246 College Physics Lab (Mason Core) (p. 135) are welcome, but are required to obtain written permission from the Department of Physics and Astronomy (p. 724).

Requirements

Degree Requirements
Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 731) tab for specific policies related to this program.

Students must complete a total of 75 credits in the major (69 credits if completing a second major), including at least 11 credits in mathematics, with a minimum GPA of 2.00.

Students must complete the coursework described below and either select a concentration or select the "BS without Concentration" option:

Physics Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 251</td>
<td>Introduction to Computer Techniques in Physics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 301</td>
<td>Analytical Methods of Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 303</td>
<td>Classical Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 305</td>
<td>Electromagnetic Theory</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 307</td>
<td>Thermal Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 308</td>
<td>Modern Physics with Applications</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 402</td>
<td>Introduction to Quantum Mechanics and Atomic Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 416</td>
<td>Special Topics in Modern Physics</td>
<td>1</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

Students double majoring in engineering and physics may substitute ECE 305 Electromagnetic Theory for PHYS 305 Electromagnetic Theory.

### Applied and Engineering Physics Concentration (PHAE)

**Mathematics/Computational Physics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>

**Intermediate Laboratory**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 311</td>
<td>Instrumentation</td>
<td>6</td>
</tr>
<tr>
<td>PHYS 312</td>
<td>Wave and Optics</td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**Research, Internship, or Independent Study**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 326</td>
<td>Problems in Physics II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 405</td>
<td>Honors Thesis in Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 406</td>
<td>Honors Thesis in Physics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 407</td>
<td>Senior Research</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 409</td>
<td>Physics Internship</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**Capstone**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 407</td>
<td>Senior Laboratory in Modern Physics (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

### Astrophysics Concentration (PHAP)

**Mathematics/Computational Physics**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 306</td>
<td>Wave Motion and Electromagnetic Radiation</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 403</td>
<td>Quantum Mechanics II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 428</td>
<td>Relativity</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9-15</td>
</tr>
</tbody>
</table>

### Total Credits

- **30**
- **30**
- **11**
- **12**
- **12**
- **4**
- **4**

1  Fulfills the writing intensive requirement.
## Intermediate Laboratory
- **PHYS 311** Instrumentation 3

## Research, Internship, or Independent Study
- Select 3 credits from the following:
  - PHYS 326 Problems in Physics II
  - PHYS 405 Honors Thesis in Physics
  - PHYS 406 Honors Thesis in Physics
  - PHYS 408 Senior Research
  - PHYS 409 Physics Internship

## Capstone
- Select 4 credits from the following:
  - ASTR 402 RS: Methods of Observational Astronomy (Mason Core) (p. 135) 1
  - PHYS 407 Senior Laboratory in Modern Physics (Mason Core) (p. 135) 1

## Physics and Astronomy Theory
- 3-9

Students who are completing a second major must select 3 credits from the following:
- ASTR 210 Introduction to Astrophysics
- ASTR 328 Stars and Interstellar Medium
- ASTR 403 Planetary Sciences
- PHYS 306 Wave Motion and Electromagnetic Radiation
- PHYS 412 Solid State Physics and Applications

Total Credits: 28-34

1. Fulfills the writing intensive requirement.

### Mason Core and Elective Credits

In order to meet a minimum of 120 credits, this degree requires 45 (or 51 if completing a second major) additional credits, which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor’s Degrees (p. 86), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

## Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

### Code | Title | Credits
--- | --- | ---

#### Foundation Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication (p. 135)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Oral Communication (p. 136)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
<td></td>
</tr>
</tbody>
</table>

#### Core Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
</tbody>
</table>
Students complete the following courses in their senior year:

**Accelerated Option Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Synthesis/Capstone Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
</tr>
<tr>
<td>Total Credits</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

Honors

**Honors in the Major**

Physics majors who have maintained an overall GPA of at least 3.50 in physics courses and a GPA of 3.50 in all courses taken at George Mason University may apply to the physics honors program when they complete the first semester of their junior year.

To graduate with honors in physics, a student is required to maintain a minimum GPA of 3.00 in physics courses and successfully complete PHYS 405 Honors Thesis in Physics and PHYS 406 Honors Thesis in Physics with a GPA of at least 3.50 and a grade of at least ‘A’ in PHYS 406 Honors Thesis in Physics.

**Accelerated Master’s**

**Physics, BS/Curriculum and Instruction, Accelerated MEd (Secondary Education Physics concentration)**

**Overview**

Highly-qualified undergraduates may be admitted to the bachelor’s/accelerated master’s program and obtain both a BS in Physics (p. 731) and an MEd in Curriculum and Instruction (p. 161), Secondary Education Physics Concentration in an accelerated time-frame after satisfactory completion of 149 credits. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89) for policies related to this program.

This accelerated option is offered jointly by the department of Physics and Astronomy (p. 724) and the Graduate School of Education (p. 155).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66). For information specific to this accelerated master’s program, see Application Requirements and Deadlines (https://cehd.gmu.edu/bachelors-accelerated-masters-program).

**Accelerated Option Requirements**

Students complete the following courses in their senior year:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Credits</th>
<th>Course Code</th>
<th>Credits</th>
<th>Course Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>3</td>
<td>EDCI 573</td>
<td>3</td>
<td>EDCI 673</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>6</th>
<th>EDUC 672</th>
<th>3</th>
<th>EDRD 619</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

While undergraduate students, accelerated master’s students are able to apply two of the courses listed above to both the bachelor's and master's degrees. These courses are considered advanced standing for the MEd. A minimum grade of B must be earned to be eligible to count as advanced standing. The other two courses are taken as reserve graduate credit and do not apply to the undergraduate degree. Early in their final undergraduate semester, students must submit the Bachelor’s/Accelerated Master’s Transition Form to the CEHD Admissions Office and specify which of the four courses are to be designated as advanced standing and reserve graduate credit.

**Physics, BS/Applied and Engineering Physics, Accelerated MS**

**Overview**

This program allows academically strong undergraduates with a demonstrable commitment to research to obtain the Physics, BS (p. 731) and Applied and Engineering Physics, MS (p. 726) degrees by successfully completing 144 credits. Upon completion, students are well-prepared for entry into a professional school or a PhD program in physics or a related discipline.

Admitted students take selected graduate courses during their senior year and are able to use up to 6 graduate credits in partial satisfaction of requirements for the undergraduate degree. Upon completion and conferral of the bachelor’s degree and with satisfactory performance (grade of 'B' or better) in each of the graduate courses, students are given advanced standing in the master’s program and complete an additional 24 credits to receive the master’s degree.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog.

Successful applicants will have completed at least 90 credits toward their undergraduate degree and 45 credits in physics major coursework. The physics major GPA must be at least 3.50. One or more recommendation letters from one or more research supervisors are also required. Interested applicants should submit a letter to the undergraduate physics coordinator requesting admission along with the aforementioned recommendation letter(s). Contact the physics undergraduate or graduate coordinator for further details.

**Accelerated Option Requirements**

At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (http://registrar.gmu.edu/forms) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor's degree.
Students must maintain an overall GPA of 3.00 or higher in graduate coursework.

**Reserve Graduate Credit**
While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree.

**Physics, PhD**

**Banner Code:** SC-PHD-PHYS

**Robert Weigel, Associate Professor**
259 Planetary Hall
Fairfax Campus
Phone: 703-993-1361
Email: rweigel@gmu.edu
Website: physics.gmu.edu/phd-in-physics/

The degree program contains a Standard Concentration for traditional physics programs that focus on Astrophysics, Condensed Matter Theory, Dynamical Systems/Biological Physics, High Energy Physics, Materials Physics, Space Sciences, and an Engineering Physics Concentration that combines the disciplines of physics, mathematics, and engineering. The doctoral students accepted into each concentration of the physics PhD program take a required set of core courses for the given concentration (see Requirements tab).

By working with the dissertation committee, a student in the Standard Concentration may choose to specialize in an emphasis area such as Astrophysics, Condensed Matter Theory, Dynamical Systems/Biological Physics, High Energy Physics, Materials Physics, Space Sciences, or others according to his or her particular interests. A student in the Engineering Physics Concentration may choose to specialize in Applied Mechanics, or other applied and engineering physics areas. By the end of their first year, all students should pair with a faculty advisor who will guide them toward doctoral candidacy.

**Admissions**
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Those holding a baccalaureate degree in physics, astronomy, or engineering from a regionally accredited institution, who earned a GPA of 3.00 (out of 4.00) or higher in their last 60 credits, and received acceptable scores on the GRE-GEN are invited to apply for admission. Three letters of recommendation must be submitted, preferably from former professors. The GRE subject test in physics is highly recommended for all interested applicants in the standard concentration who received their baccalaureate degrees within the past five years. A degree-seeking graduate applicant with a baccalaureate degree who has not met all admission requirements may be offered provisional admission if sufficient evidence is presented to suggest that the applicant has the ability to pursue graduate work. For more details concerning admission requirements to George Mason University please refer to Graduate Admission Policies (p. 66).

**Policies**
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Reduction of Credits**
For students entering the doctoral program with a master’s degree in a related field from a regionally accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of the program faculty and the college’s associate dean. See AP.6.5.2 Reduction of Credits (p. 88) for more information.

**Requirements**

**Degree Requirements**
Total credits: 72

Students should refer to the Admissions & Policies (p. 735) tab for specific policies related to this program.

Students must first choose one concentration, then continue with the additional sections:

### Standard Concentration (STND)

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 684</td>
<td>Quantum Mechanics I</td>
</tr>
<tr>
<td>PHYS 685</td>
<td>Classical Electrodynamics I</td>
</tr>
<tr>
<td>PHYS 705</td>
<td>Classical Mechanics</td>
</tr>
<tr>
<td>PHYS 711</td>
<td>Statistical Mechanics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialty Science Courses</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTR 680</td>
<td>Physics of Interstellar Media</td>
</tr>
<tr>
<td>ASTR 730</td>
<td>Stellar Astrophysics</td>
</tr>
<tr>
<td>PHYS 784</td>
<td>Quantum Mechanics II</td>
</tr>
<tr>
<td>PHYS 785</td>
<td>Classical Electrodynamics II</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seminar Course</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 703</td>
<td>Seminar in Physics (must be taken three times)</td>
</tr>
</tbody>
</table>

Total Credits: 21

### Engineering Physics Concentration (ENGP)

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 510</td>
<td>Computational Physics I</td>
</tr>
<tr>
<td>PHYS 613</td>
<td>Computational Physics II</td>
</tr>
<tr>
<td>PHYS 620</td>
<td>Continuum Mechanics</td>
</tr>
<tr>
<td>PHYS 690</td>
<td>Engineering Thermodynamics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specialty Science Courses</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 640</td>
<td>Finite Element Analysis of Solids and Fluids</td>
</tr>
<tr>
<td>PHYS 694</td>
<td>Applied Mechanics of Solids</td>
</tr>
<tr>
<td>PHYS 695</td>
<td>Applied Fluid Mechanics</td>
</tr>
</tbody>
</table>

Select two of the following courses:
At the beginning of each academic year, the program director will appoint members to the qualifying examination committee. This committee is responsible for creating, administering, and grading the qualifying exams offered that year. Additional information and previous qualifying exams can be found on the departmental web page.

**Dissertation Committee and Program of Study**

Upon successful completion of the qualifying examinations, a dissertation committee should be formed by the student as soon as possible. The chair of this committee must be a graduate faculty member from the Department of Physics and Astronomy. The committee must include at least two additional members from the graduate faculty, one of whom must be from outside the Department of Physics and Astronomy. The composition of the committee must be approved by the program director. The dissertation committee is responsible for directing the student in their chosen field of research. The student should work closely with their committee to select specialty courses and electives that form a cohesive program of study. The student's program of study must be approved by the dean before advancement to candidacy.

**Advancement to Candidacy**

Before a student may be advanced to doctoral candidacy, he/she needs to complete all required coursework, pass the qualifying examination, have the program of study and dissertation proposal approved by the dean, and be recommended by the dissertation committee. Advancement to doctoral candidacy implies that the student has demonstrated adequate breadth and depth of knowledge in the field of study and is capable of conducting research on the boundaries of knowledge.

**Dissertation Research**

Note: No more than 24 combined credits from PHYS 998 Doctoral Dissertation Proposal/ASTR 998 Doctoral Dissertation Proposal and PHYS 999 Doctoral Dissertation/ASTR 999 Doctoral Dissertation may be applied toward satisfying the doctoral degree requirements, with no more than 12 credits of PHYS 998 Doctoral Dissertation Proposal/ASTR 998 Doctoral Dissertation Proposal.

**Doctoral Dissertation**

After advancing to doctoral candidacy, the student works with their dissertation committee to develop their preliminary research into a doctoral dissertation. The dissertation research should represent a significant contribution to its scientific field and should be deemed publishable in a refereed scientific journal. The dissertation must be defended in a public forum before the dissertation committee and other interested faculty.

**Renewable Energy Interdisciplinary Minor**

Banner Code: RNRG

Harold Geller, Associate Professor and Observatory Director
This college-wide interdisciplinary minor is designed for students considering a career in the field of renewable energy, or as preparation for graduate work in a wide range of academic disciplines.

Renewable energy, as normally understood, includes a variety of methods of energy generation, such as solar, wind, hydro, tidal, and geothermal, as well as energy storage methods and energy conservation. Jobs related to renewable energy lie in a wide range of areas including engineering, business, marketing, finance, installation, software, legal affairs, and research. Projections suggest that employment opportunities in the renewable energy field will increase dramatically in the near future. The Renewable Energy Interdisciplinary Minor is therefore ideally suited for students with majors in engineering, business, and basic science.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 17-20

Students should refer to the Admissions & Policies (p. 737) tab for specific policies related to this program.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 331</td>
<td>Fundamentals of Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 385</td>
<td>Materials Science with Applications to Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 10

Physics

Select one from the following: 1-3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 262</td>
<td>University Physics III (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 266</td>
<td>Introduction to Thermodynamics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 1-3

Other Science or Engineering Course

Select 3-4 credits from the following in consultation with minor advisor: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 332</td>
<td>Solar Cells</td>
</tr>
</tbody>
</table>

Forensic Science Program

Administration

- Mary Ellen O'Toole, Director

The Forensic Science Program is an interdisciplinary academic program with its own dedicated teaching faculty. The program is administered by the forensic science program director, and is governed by the Forensic Science Program committee.

Faculty

Program Faculty Director

O'Toole

Assistant Professors

Burmeister, DiZinno, Knight, Rancourt, Rule

Adjunct Faculty

Buhrow, Christensen, Clay, Crucitti, Eckenrode, Hutchinson, Mullins, O'Neal, Pruitt, Ramage, Rodway, Stanley

Programs

- Forensic Science Minor
- Forensic Science, BS
- Forensic Science, MS
- Forensics Graduate Certificate
Forensic Science Minor

Banner Code: FRSC

Kimberly Rule, Undergraduate Program Coordinator

Exploratory Hall, Room 3400
Fairfax Campus

Phone: 703-993-5338
Email: kcarisi@gmu.edu
Website: cos.gmu.edu/forensic-science/

This minor addresses the growing national and regional interest in forensic science by introducing students to the technical, scientific, and legal aspects of the field. The minor provides an attractive option for students with majors in the natural sciences, criminology, psychology, or computer science, and the curriculum structure makes it particularly suitable for students with majors in biology and chemistry.

Admissions & Policies

Policies

At least 8 credits must be applied only to this minor and may not be used to fulfill requirements of the student's major, concentration, or another minor or undergraduate certificate.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 20-21

Students should refer to the Admissions & Policies (p. 738) tab for specific policies related to this program.

Students must complete at least 6 credits in their minor at George Mason University and achieve a minimum GPA of 2.00 in courses applied to the minor.

Foundation Science Courses

Select two courses or course/lab pairings from the courses below. Please pay attention to the prerequisites for each course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL 306</td>
<td>and Biology of Microorganisms Laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>and General Chemistry Laboratory I</td>
<td></td>
<td>Mason Core</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>&amp; CHEM 214</td>
<td>and General Chemistry Laboratory II</td>
<td></td>
<td>Mason Core</td>
</tr>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>&amp; PHYS 161</td>
<td>and University Physics I Laboratory (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>&amp; PHYS 244</td>
<td>and College Physics Lab (Mason Core)</td>
<td></td>
<td>Mason Core</td>
</tr>
<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>&amp; PHYS 246</td>
<td>and College Physics Lab (Mason Core)</td>
<td></td>
<td>Mason Core</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
<tr>
<td>&amp; PHYS 261</td>
<td>and University Physics II Laboratory (Mason Core)</td>
<td>3</td>
<td>Mason Core</td>
</tr>
</tbody>
</table>

Total Credits: 8

Forensic Science Core Courses

FRSC 200 | Survey of Forensic Science | 3
FRSC 201 | Introduction to Criminalistics | 3

Total Credits: 6

Forensic Science Electives

Select one course from the following. Please pay attention to prerequisites for each course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 302</td>
<td>Forensic Trace Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 303</td>
<td>Forensic Evidence and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 304</td>
<td>Forensic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 460</td>
<td>Forensic DNA Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

Supporting Courses

Select one course from the following. Please pay attention to prerequisites for each course:

Select one FRSC course if not chosen above:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 302</td>
<td>Forensic Trace Analysis</td>
<td>3</td>
</tr>
<tr>
<td>or FRSC 303</td>
<td>Forensic Evidence and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>or FRSC 304</td>
<td>Forensic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>or FRSC 460</td>
<td>Forensic DNA Sciences</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 302</td>
<td>Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 306</td>
<td>Soil Science</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 400</td>
<td>Applied Criminal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 410</td>
<td>Criminal Investigations</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 380</td>
<td>Introduction to Forensic Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 441</td>
<td>Criminal Behavior: Psychological and Neurological Aspects</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3-4

Forensic Science, BS

Banner Code: SC-BS-FRSC

Kimberly Rule, Undergraduate Program Coordinator

3400 Exploratory Hall
Fairfax Campus
Phone: 703-993-5338
Email: kcarisi@gmu.edu
The Bachelor of Science, Forensic Science degree is a general forensic science degree that covers various fields within forensic science including field and laboratory applications. These topics include areas such as, crime scene investigation, forensic DNA, forensic chemistry, trace evidence, firearms examination, questioned document, fingerprints, arson, and drug analysis.

This degree is intended to provide students with a well-rounded, hands-on forensic science education in order to prepare students for entrance into a graduate level educational program, and/or entry-level professional careers in public and private forensic laboratories, federal, state, or local government/law enforcement, defense, homeland security and intelligence agencies.

Unique features of this program include innovative curriculum that offers hands-on training within crime scene techniques and crime laboratory methodologies, an outdoor forensic excavation research and training facility, and courses taught by professional and distinguished faculty from various forensic agencies and laboratories.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

FRSC 302 Forensic Trace Analysis and FRSC 304 Forensic Chemistry will satisfy the writing intensive requirement.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 739) tab for specific policies related to this program.

Students majoring in forensic science must complete their coursework with a minimum GPA of 2.30. No more than three courses with a grade of ‘D’ (1.00) may be applied to the major.

Students are advised to be aware of prerequisites that may be required for each course in the curriculum.

Forensic Science Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 200</td>
<td>Survey of Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 201</td>
<td>Introduction to Criminalistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Natural Science Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 430</td>
<td>Advanced Human Anatomy and Physiology I</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>General Chemistry I (Mason Core) (p. 135) and General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 212 &amp; CHEM 214</td>
<td>General Chemistry II (Mason Core) (p. 135) and General Chemistry Laboratory II (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Organic Chemistry Lab II</td>
<td>2</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135) (Quantitative Reasoning course)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 244</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td>1</td>
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<tr>
<td>PHYS 245</td>
<td>College Physics (Mason Core) (p. 135)</td>
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<tr>
<td>PHYS 246</td>
<td>College Physics Lab (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 45-46

Additional Courses

Select 14 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 401</td>
<td>Bioinformatics and Computational Biology I</td>
</tr>
<tr>
<td>BINF 402</td>
<td>Bioinformatics and Computational Biology II</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>Biology of Microorganisms</td>
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<td>Biology of Microorganisms Laboratory</td>
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<td>BIOL 404</td>
<td>Medical Microbiology</td>
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<td>BIOL 405</td>
<td>Microbial Genetics</td>
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<tr>
<td>BIOL 431</td>
<td>Advanced Human Anatomy and Physiology II</td>
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<tr>
<td>BIOL 452</td>
<td>Immunology</td>
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<td>BIOL 453</td>
<td>Immunology Laboratory</td>
</tr>
<tr>
<td>BIOL 482</td>
<td>Introduction to Molecular Genetics</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
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<td>CHEM 331</td>
<td>Physical Chemistry I</td>
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<tr>
<td>CHEM 332</td>
<td>Physical Chemistry II</td>
</tr>
<tr>
<td>CHEM 336</td>
<td>Physical Chemistry Lab I</td>
</tr>
<tr>
<td>CHEM 337</td>
<td>Physical Chemistry Lab II</td>
</tr>
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<td>CHEM 422</td>
<td>Instrumental Methods of Chemical Analysis</td>
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<tr>
<td>CHEM 423</td>
<td>Instrumental Methods of Chemical Analysis</td>
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<tr>
<td>CHEM 427</td>
<td>Aquatic Environmental Chemistry</td>
</tr>
<tr>
<td>CHEM 441</td>
<td>Properties and Bonding of Inorganic Compounds</td>
</tr>
<tr>
<td>CHEM 446</td>
<td>Bioinorganic Chemistry</td>
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<tr>
<td>CHEM 463</td>
<td>General Biochemistry I</td>
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<tr>
<td>CHEM 464</td>
<td>General Biochemistry II</td>
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<tr>
<td>CHEM 465</td>
<td>Biochemistry Lab</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
</tr>
</tbody>
</table>

### Mason Core and Electives

In order to meet a minimum of 120 credits, this degree requires an additional 33-34 credits, which may be applied toward any remaining Mason Core (p. 135) requirements, Requirements for Bachelor’s Degrees (p. 84), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

### Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

#### Admissions & Policies

**Admissions**

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants should submit a completed George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), three letters of recommendation, two copies of official transcripts from each institution of higher learning attended, a current resume, a Virginia Domicile Classification form, and an official report of TOEFL scores (foreign nationals only). Additionally:

- **Forensic Biology Analysis and Forensic Chemistry Analysis Concentrations**
  A bachelor’s degree in a forensic or natural science.

- **Forensic/Biometric Identity Analysis Concentration**
  A bachelor of science or bachelor of arts degree in a forensic or natural science, computer science, computer electronic or electrical engineering.
information systems or information technology (or its equivalent coursework in a relevant field).

**Crime Scene Investigation Concentration**
A bachelor of science or bachelor of arts degree in a related field.

**Policies**
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Premium Tuition**
Students enrolled in this professional MS program are charged at a differential (premium) tuition rate, and therefore they may not enroll concurrently in any other graduate degree program or certificate program offered by the College of Science (p. 593), with the exception of the Forensics Graduate Certificate (p. 742).

**Concentration Declaration**
Students must declare their intended concentration upon application. In the event that a student wishes to change their concentration, students may request to change their concentration by submitting a letter to the Forensic Science Program Director detailing the request and justification. These requests will be considered on a case-by-case basis and only when the appropriate admissions requirements are met. However, if a student chooses to change concentrations, course substitutions/waivers will not be accepted.

**Criminal Background Check**
The successful passing of a Virginia Department of Forensic Sciences (http://www.dfs.virginia.gov) background check is required prior to gaining access to FRSC 541 Forensic Chemistry Laboratory and FRSC 561 Forensic DNA Laboratory.

**FRSC 560 Forensic Science DNA Sciences Course Note**
Students shall have completed undergraduate coursework in molecular and/or cell biology, as well as genetics, or students must obtain permission of the instructor prior to taking FRSC 560 Forensic DNA Sciences.

**Requirements**

**Degree Requirements**

Total credits: 36

Students should refer to the Admissions & Policies (p. 740) tab for specific policies related to this program.

Select one concentration from the following:

**Concentration in Crime Scene Investigation (CSIN)**
This concentration educates students for a career as a crime scene investigator.

The successful passing of a Virginia Department of Forensic Sciences background check is required prior to gaining access to FRSC 541 Forensic Chemistry Laboratory and FRSC 561 Forensic DNA Laboratory.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 500</td>
<td>Introduction to Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 510</td>
<td>Basic Crime Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**FRSC 511** Advanced Crime Scene Analysis 3

FRSC 530 Law and Forensic Science 3

FRSC 570 Introduction to Biochemical Forensics 3

FRSC 600 Forensics Seminar 1

FRSC 610 Forensics Research Project 4

**Electives**

Select 16 credits from the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FRSC 512</td>
<td>Physical Evidence Analysis</td>
<td></td>
</tr>
<tr>
<td>FRSC 513</td>
<td>Forensic Photography</td>
<td></td>
</tr>
<tr>
<td>FRSC 515</td>
<td>Selected Topics in Forensic Science</td>
<td></td>
</tr>
<tr>
<td>FRSC 517</td>
<td>Questioned Document Examination</td>
<td></td>
</tr>
<tr>
<td>FRSC 520</td>
<td>Toxicology</td>
<td></td>
</tr>
<tr>
<td>FRSC 540</td>
<td>Forensic Chemistry</td>
<td></td>
</tr>
<tr>
<td>FRSC 541</td>
<td>Forensic Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>FRSC 550</td>
<td>Issues in Forensic Anthropology</td>
<td></td>
</tr>
<tr>
<td>FRSC 560</td>
<td>Forensic DNA Sciences</td>
<td></td>
</tr>
<tr>
<td>FRSC 561</td>
<td>Forensic DNA Laboratory</td>
<td></td>
</tr>
<tr>
<td>FRSC 570</td>
<td>Introduction to Biochemical Forensics</td>
<td></td>
</tr>
<tr>
<td>FRSC 600</td>
<td>Forensics Seminar</td>
<td></td>
</tr>
<tr>
<td>FRSC 610</td>
<td>Forensics Research Project</td>
<td></td>
</tr>
<tr>
<td>FRSC 620</td>
<td>Face and Biometric Pattern Analysis</td>
<td></td>
</tr>
<tr>
<td>FRSC 630</td>
<td>Fingerprint Identification</td>
<td></td>
</tr>
<tr>
<td>FRSC 640</td>
<td>Legal, Privacy and Ethical Issues in</td>
<td></td>
</tr>
<tr>
<td>FRSC 645</td>
<td>Medicolegal Death Investigation and Pathology</td>
<td></td>
</tr>
<tr>
<td>FRSC 650</td>
<td>Forensic Chemistry</td>
<td></td>
</tr>
<tr>
<td>FRSC 660</td>
<td>Forensics Capstone Course</td>
<td></td>
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<tr>
<td>FRSC 670</td>
<td>Internship in Forensic Science (Credits:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-6</td>
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</tbody>
</table>

Total Credits 36

**Concentration in Forensic Biology Analysis (FRSB)**
This concentration educates students for a career as a forensic biology laboratory analyst.

The successful passing of a Virginia Department of Forensic Sciences background check is required prior to gaining access to FRSC 561 Forensic DNA Laboratory.

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 500</td>
<td>Introduction to Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 510</td>
<td>Basic Crime Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 512</td>
<td>Physical Evidence Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or FRSC 630 Fingerprint Identification</td>
<td></td>
</tr>
<tr>
<td>FRSC 530</td>
<td>Law and Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 540</td>
<td>Forensic Chemistry</td>
<td>3</td>
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<tr>
<td>FRSC 560</td>
<td>Forensic DNA Sciences</td>
<td>4</td>
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<tr>
<td>FRSC 561</td>
<td>Forensic DNA Laboratory</td>
<td></td>
</tr>
<tr>
<td>FRSC 570</td>
<td>Introduction to Biochemical Forensics</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 600</td>
<td>Forensics Seminar</td>
<td>1</td>
</tr>
<tr>
<td>FRSC 610</td>
<td>Forensics Research Project</td>
<td>4</td>
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</table>

**Electives**

Select 9 credits from the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FRSC 511</td>
<td>Advanced Crime Scene Analysis</td>
<td></td>
</tr>
<tr>
<td>FRSC 512</td>
<td>Physical Evidence Analysis</td>
<td></td>
</tr>
</tbody>
</table>
FRSC 515  Selected Topics in Forensic Science  
FRSC 517  Questioned Document Examination  
FRSC 550  Issues in Forensic Anthropology  
FRSC 580  Image Analysis in Forensic Science  
FRSC 590  Medicolegal Death Investigation and Pathology  
FRSC 600  Forensics Seminar  
FRSC 620  Face and Biometric Pattern Analysis  
FRSC 630  Fingerprint Identification  
FRSC 640  Legal, Privacy and Ethical Issues in Identity Analysis  
FRSC 650  Identity Analysis Applications  
FRSC 690  Forensics Capstone Course  
FRSC 790  Internship in Forensic Science (Credits: 1-6)  
CHEM 563  General Biochemistry I  
CHEM 564  General Biochemistry II  
CHEM 624  Principles of Chemical Separation  

Total Credits 36

**Concentration in Forensic Chemistry Analysis (FRCA)**

This concentration educates students for a career as a forensic chemistry laboratory analyst.

The successful passing of a Virginia Department of Forensic Sciences background check is required prior to gaining access to FRSC 541 Forensic Chemistry Laboratory.

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 500</td>
<td>Introduction to Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 510</td>
<td>Basic Crime Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 512</td>
<td>Physical Evidence Analysis</td>
<td>3</td>
</tr>
<tr>
<td>or FRSC 630</td>
<td>Fingerprint Identification</td>
<td></td>
</tr>
<tr>
<td>FRSC 520</td>
<td>Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 530</td>
<td>Law and Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 540</td>
<td>Forensic Chemistry</td>
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<tr>
<td>&amp; FRSC 541</td>
<td>Forensic Chemistry Laboratory</td>
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<tr>
<td>FRSC 560</td>
<td>Forensic DNA Sciences</td>
<td>3</td>
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<tr>
<td>FRSC 570</td>
<td>Introduction to Biochemical Forensics</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 600</td>
<td>Forensics Seminar</td>
<td>1</td>
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<tr>
<td>FRSC 610</td>
<td>Forensics Research Project</td>
<td>4</td>
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**Electives**

Select 6 credits from the following courses: 6

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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>FRSC 511</td>
<td>Advanced Crime Scene Analysis</td>
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<tr>
<td>FRSC 512</td>
<td>Physical Evidence Analysis</td>
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</tr>
<tr>
<td>FRSC 515</td>
<td>Selected Topics in Forensic Science</td>
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<tr>
<td>FRSC 517</td>
<td>Questioned Document Examination</td>
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</tr>
<tr>
<td>FRSC 550</td>
<td>Issues in Forensic Anthropology</td>
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<tr>
<td>FRSC 580</td>
<td>Image Analysis in Forensic Science</td>
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<tr>
<td>FRSC 590</td>
<td>Medicolegal Death Investigation and Pathology</td>
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<tr>
<td>FRSC 600</td>
<td>Forensics Seminar</td>
<td></td>
</tr>
<tr>
<td>FRSC 620</td>
<td>Face and Biometric Pattern Analysis</td>
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</tr>
<tr>
<td>FRSC 630</td>
<td>Fingerprint Identification</td>
<td></td>
</tr>
<tr>
<td>FRSC 640</td>
<td>Legal, Privacy and Ethical Issues in Identity Analysis</td>
<td></td>
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</tbody>
</table>

Total Credits 36

**Concentration in Forensic/Biometric Identity Analysis (FRBI)**

This concentration educates students for a career as an identity intelligence analyst.

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 500</td>
<td>Introduction to Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 510</td>
<td>Basic Crime Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 530</td>
<td>Law and Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 560</td>
<td>Forensic DNA Sciences</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 600</td>
<td>Forensics Seminar</td>
<td>1</td>
</tr>
<tr>
<td>FRSC 610</td>
<td>Forensics Research Project</td>
<td>4</td>
</tr>
<tr>
<td>FRSC 620</td>
<td>Face and Biometric Pattern Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 630</td>
<td>Fingerprint Identification</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 640</td>
<td>Legal, Privacy and Ethical Issues in Identity Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 650</td>
<td>Identity Analysis Applications</td>
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<tr>
<td>AIT 675</td>
<td>Overview of the National Intelligence Community</td>
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<td>AIT 678</td>
<td>National Security Challenges</td>
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**Electives**

Select 3 credits from the following courses: 3

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<tr>
<td>FRSC 511</td>
<td>Advanced Crime Scene Analysis</td>
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<tr>
<td>FRSC 512</td>
<td>Physical Evidence Analysis</td>
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<tr>
<td>FRSC 513</td>
<td>Forensic Photography</td>
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<tr>
<td>FRSC 515</td>
<td>Selected Topics in Forensic Science</td>
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</tr>
<tr>
<td>FRSC 517</td>
<td>Questioned Document Examination</td>
<td></td>
</tr>
<tr>
<td>FRSC 550</td>
<td>Issues in Forensic Anthropology</td>
<td></td>
</tr>
<tr>
<td>FRSC 570</td>
<td>Introduction to Biochemical Forensics</td>
<td></td>
</tr>
<tr>
<td>FRSC 590</td>
<td>Medicolegal Death Investigation and Pathology</td>
<td></td>
</tr>
<tr>
<td>FRSC 690</td>
<td>Forensics Capstone Course</td>
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</tr>
<tr>
<td>FRSC 790</td>
<td>Internship in Forensic Science (Credits: 1-6)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 36

**Forensics Graduate Certificate**

Banner Code: SC-CERG-FORS

Emily Rancourt, Assistant Director

Exploratory Hall, Room 3400
Fairfax Campus

Phone: 703-993-5234
Email: erancour@gmu.edu
This interdisciplinary graduate certificate program is designed for students seeking training in forensic science, as well as for current professionals employed by the federal government, local law enforcement, and private security corporations. Forensics refers to the application of scientific methodologies to the analysis of crime scenes, the collection of evidence, and the laboratory analysis of that evidence in support of criminal investigations. Related legal aspects are also considered as part of a comprehensive approach to forensics.

At the time of completion, depending on the concentration, students will be able to understand the basic principles of forensics and perform a general crime scene analysis. Available concentrations include: Crime Scene, Forensic Science, and General Forensics; curriculum requirements for each concentration are listed in the Requirements tab.

This certificate may be pursued on a part-time or full-time basis.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure information page (https://irr2.gmu.edu/gedt/Forensics/Gedt.html).

### Requirements

#### Certificate Requirements

Total credits: 18

Students should refer to the Admissions & Policies (p. 743) tab for specific policies related to this program.

Students must complete all core courses and select one concentration.

#### Forensic Core Courses

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 500</td>
<td>Introduction to Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 510</td>
<td>Basic Crime Analysis</td>
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<tr>
<td>Total Credits</td>
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</table>

#### Concentration in Crime Scene (CSCN)

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 511</td>
<td>Advanced Crime Scene Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 512</td>
<td>Physical Evidence Analysis</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 513</td>
<td>Forensic Photography</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 530</td>
<td>Law and Forensic Science</td>
<td>3</td>
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<td>Total Credits</td>
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</tr>
</tbody>
</table>

#### Concentration in Forensic Science (FRSC)

Students enrolled in this concentration obtain the specific scientific skills necessary for laboratory employment in the field.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 520</td>
<td>Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 540</td>
<td>Forensic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 560</td>
<td>Forensic DNA Sciences</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 690</td>
<td>Forensics Capstone Course</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

#### Concentration in General Forensics (FRSG)

Students enrolled in this concentration obtain a more general background in the field with a focus on criminal law and anthropology.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRSC 530</td>
<td>Law and Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 550</td>
<td>Issues in Forensic Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 570</td>
<td>Introduction to Biochemical Forensics</td>
<td>3</td>
</tr>
<tr>
<td>FRSC 690</td>
<td>Forensics Capstone Course</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
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</tbody>
</table>

### Interdisciplinary Neuroscience Program

Phone: 703-993-4333  
Website: neuroscience.gmu.edu

### Administration

- Saleet Jafri, Director
Neuroscience Minor

Banner Code: NEUR

Academic Advising

David King Hall, Room 2086
Fairfax Campus
Phone: 703-993-4333
Email: neuosci@gmu.edu
Website: neuroscience.gmu.edu

Neuroscience is one of the most rapidly growing disciplines in science and society today. Due to its interdisciplinary nature, it draws on skills from anatomy, chemistry, electrical engineering, genetics, math, psychology, economics, and philosophy among others. Students in diverse fields can benefit from neuroscience through this minor.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Minor Requirements

Total credits: 20-21

Students should refer to the Admissions & Policies (p. 744) tab for specific policies related to this program.

Students must complete at least 20 credits of coursework with a minimum GPA of 2.00.

Biology Courses

Required Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>4</td>
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</tbody>
</table>

Elective Course

Select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
</tr>
<tr>
<td>BIOL 320</td>
<td>Comparative Chordate Anatomy</td>
</tr>
<tr>
<td>BIOL 322</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL 326</td>
<td>Animal Physiology</td>
</tr>
<tr>
<td>BIOL 425</td>
<td>Human Physiology</td>
</tr>
</tbody>
</table>

Total Credits 7-8

Psychology Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 373</td>
<td>Physiological Psychology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>PSYC 375</td>
<td>Brain and Sensory Processes</td>
<td>3</td>
</tr>
</tbody>
</table>
## Neuroscience, BS

Banner Code: SC-BS-NEUR

### Academic Advising

David King Hall, Room 2086  
Fairfax Campus  
Phone: 703-993-1358  
Email: neurosci@gmu.edu  
Website: neuroscience.gmu.edu

The bachelor of science in neuroscience is an interdisciplinary program emphasizing the relationship between the biology and chemistry of the nervous system and behavior of an organism. The BS in neuroscience prepares students for graduate-level study in both medical school and doctoral and master’s-level programs in neuroscience and other health-related fields, and work in the neuroscience field.

### Admissions & Policies

#### Admissions

University-wide admissions policies can be found in the Undergraduate Admissions Policies (p. 63) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

#### Policies

Students must fulfill all Requirements for Bachelor’s Degrees (p. 86), including the Mason Core (p. 135).

NEUR 410 Current Topics in Neuroscience or NEUR 411 Seminar in Neuroscience fulfill the writing intensive requirement.

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

### Requirements

#### Degree Requirements

Total credits: minimum 120

Students should refer to the Admissions & Policies (p. 745) tab for specific policies related to this program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>3-4</td>
</tr>
<tr>
<td>BIOL 326</td>
<td>Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 425</td>
<td>Human Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 430</td>
<td>Advanced Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>BIOL 431</td>
<td>Advanced Human Anatomy and Physiology II</td>
<td></td>
</tr>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>3-4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td></td>
</tr>
<tr>
<td>PHYS 243</td>
<td>College Physics (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PHYS 244</td>
<td>and College Physics Lab (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PHYS 245</td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 246</td>
<td>and College Physics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MATH 352</td>
<td>Statistics</td>
<td></td>
</tr>
<tr>
<td>PSYC 300</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PHYS 260</td>
<td>and University Physics II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PHYS 261</td>
<td>and University Physics II Laboratory (Mason Core)</td>
<td></td>
</tr>
</tbody>
</table>

### Foundation Courses

#### Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 327</td>
<td>Cellular, Neurophysiological, and Pharmacological Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 335</td>
<td>Molecular, Developmental, and Systems Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 375</td>
<td>Brain and Sensory Processes</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 376</td>
<td>Brain and Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>
**Core Courses in Neuroscience**

- **NEUR 327**: Cellular, Neurophysiological, and Pharmacological Neuroscience (3 credits)
- **NEUR 335**: Molecular, Developmental, and Systems Neuroscience (3 credits)

**Technical Writing**

- **NEUR 410**: Current Topics in Neuroscience (3 credits)
- **NEUR 411**: Seminar in Neuroscience (1 credit)

**Required Psychology Lab Course**

- **PSYC 373**: Physiological Psychology Laboratory (1 credit)

**Electives**

Students should consult with an advisor to choose appropriate elective courses, which must be approved by the director of the program. A sample of possible electives is given below. Students may apply no more than 6 credits of courses with a grade of D to this requirement.

Students intending to pursue a doctorate in neuroscience or a medical degree are advised to take CHEM 313 Organic Chemistry I and CHEM 315 Organic Chemistry Lab I.

Select 24 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 101</td>
<td>Introduction to Bioengineering</td>
<td></td>
</tr>
<tr>
<td>BENG 313</td>
<td>Physiology for Engineers</td>
<td></td>
</tr>
<tr>
<td>BIOL 305 &amp; BIOL 306</td>
<td>Biology of Microorganisms and Biology of Microorganisms Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td></td>
</tr>
<tr>
<td>BIOL 326</td>
<td>Animal Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 417</td>
<td>Selected Topics in Molecular and Cellular Biology (when topic is Foundations of the Mammalian Brain)</td>
<td></td>
</tr>
<tr>
<td>BIOL 420</td>
<td>Vaccines</td>
<td></td>
</tr>
<tr>
<td>BIOL 425</td>
<td>Human Physiology</td>
<td></td>
</tr>
<tr>
<td>BIOL 430</td>
<td>Advanced Human Anatomy and Physiology I</td>
<td></td>
</tr>
<tr>
<td>BIOL 431</td>
<td>Advanced Human Anatomy and Physiology II</td>
<td></td>
</tr>
<tr>
<td>BIOL 452</td>
<td>Immunology</td>
<td></td>
</tr>
<tr>
<td>BIOL 453</td>
<td>Immunology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL 471</td>
<td>Evolution</td>
<td></td>
</tr>
<tr>
<td>BIOL 483</td>
<td>General Biochemistry</td>
<td></td>
</tr>
<tr>
<td>BIOL 484</td>
<td>Eukaryotic Cell Biology</td>
<td></td>
</tr>
<tr>
<td>BIOL 515</td>
<td>Developmental Neurobiology</td>
<td></td>
</tr>
<tr>
<td>CDS 301</td>
<td>Scientific Information and Data Visualization</td>
<td></td>
</tr>
<tr>
<td>CHEM 313 &amp; CHEM 315</td>
<td>Organic Chemistry I and Organic Chemistry Lab I</td>
<td></td>
</tr>
<tr>
<td>CHEM 314 &amp; CHEM 318</td>
<td>Organic Chemistry II and Organic Chemistry Lab II</td>
<td></td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Quantitative Chemical Analysis</td>
<td></td>
</tr>
<tr>
<td>CHEM 333</td>
<td>Physical Chemistry for the Life Sciences I</td>
<td></td>
</tr>
<tr>
<td>CHEM 334</td>
<td>Physical Chemistry for the Life Sciences II</td>
<td></td>
</tr>
<tr>
<td>CHEM 463 &amp; CHEM 465</td>
<td>General Biochemistry I and Biochemistry Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 464</td>
<td>General Biochemistry II</td>
<td></td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td></td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td></td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td></td>
</tr>
<tr>
<td>NEUR 405</td>
<td>RS: Laboratory Methods in Behavioral Neuroscience</td>
<td></td>
</tr>
<tr>
<td>NEUR 410</td>
<td>Current Topics in Neuroscience (when not used to fulfill the technical writing requirement)</td>
<td></td>
</tr>
<tr>
<td>NEUR 411</td>
<td>Seminar in Neuroscience</td>
<td></td>
</tr>
<tr>
<td>NEUR 440</td>
<td>Independent Study in Neuroscience</td>
<td></td>
</tr>
<tr>
<td>NEUR 450</td>
<td>Honors Thesis Proposal</td>
<td></td>
</tr>
<tr>
<td>NEUR 451</td>
<td>Honors Thesis</td>
<td></td>
</tr>
<tr>
<td>PHYS 262</td>
<td>University Physics III (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PHYS 263</td>
<td>University Physics III Laboratory (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PSYC 304</td>
<td>Principles of Learning</td>
<td></td>
</tr>
<tr>
<td>PSYC 309</td>
<td>Sensation, Perception, and Information Processing</td>
<td></td>
</tr>
<tr>
<td>PSYC 317</td>
<td>Cognitive Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 472</td>
<td>Current Topics in Brain and Behavior</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 51-54

1. Students must earn a minimum grade of 1.67 (C-) in these courses. Either course fulfills the writing intensive requirement.
2. The course chosen to fulfill this requirement cannot be applied to the 24 credits of approved neuroscience electives.
3. Students intending to pursue a doctorate in neuroscience or a medical degree are advised to take MATH 114 Analytic Geometry and Calculus II.
4. Transfer students who have earned transfer credit for PSYC 372 Physiological Psychology may substitute this course for PSYC 375 Brain and Sensory Processes.

**Mason Core and Elective Credits**

In order to meet a minimum of 120 credits, this degree requires an additional 42-45 credits which may be applied toward any remaining Mason Core (p. 135) requirements (outlined below), Requirements for Bachelor’s Degrees (p. 86), and elective courses. Students are strongly encouraged to consult with their advisors to ensure that they fulfill all requirements.

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 304</td>
<td>Principles of Learning</td>
<td>6</td>
</tr>
<tr>
<td>PSYC 309</td>
<td>Sensation, Perception, and Information Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

**Foundation Requirements**

- Written Communication (p. 135): 6 credits
- Oral Communication (p. 136): 3 credits
### Honors

**Honors in the Major**

Highly-qualified students may apply to graduate with honors in the major.

**Eligibility**

To be eligible for admission, neuroscience majors must have completed at least 60 credits and have a minimum cumulative GPA of 3.25 and a minimum GPA of 3.25 in neuroscience courses.

**Honors Requirements**

If accepted, students must take a sequence of three courses, which culminates in the successful completion and presentation of an independent honors thesis.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUR 410</td>
<td>Current Topics in Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>or NEUR 411</td>
<td>Seminar in Neuroscience</td>
<td></td>
</tr>
<tr>
<td>NEUR 450</td>
<td>Honors Thesis Proposal</td>
<td>2-3</td>
</tr>
<tr>
<td>NEUR 451</td>
<td>Honors Thesis</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Total Credits: 8-10

To graduate with honors, students must earn a minimum GPA of 3.50 in their honors courses, maintain a minimum cumulative GPA of 3.25, and complete an honors thesis.

### Neuroscience, PhD

**Banner Code: SC-PHD-NEUR**

**Nadine Kabbani**

Phone: 703-993-4406  
Email: nkabbani@gmu.edu

The program focuses on the study of the brain and addresses the challenge of developing an integrative understanding of cognition and higher brain function. In response to this challenge, the rapidly developing field of neuroscience has produced an exponential increase in the amount of data available to investigators as they develop new theories of brain function and new hypotheses to test. The main objective of the program is to prepare students to participate at the cutting edge of this exciting field in academia, industry, and government. The program provides students with a rich interdisciplinary intellectual environment that fosters the development of the skills they will need to successfully pursue research careers.

Current faculty research focuses on the broad areas of behavior, anatomy, physiology, neuropharmacology, molecular biology, computational modeling, and informatics. External research collaborations exist with federal agencies, private and not-for-profit corporations, and other universities. The scope of research ranges from the subcellular and molecular level (in the context of such phenomena as drug addiction and the biological basis of schizophrenia) to the systems and behavioral level.

Current research projects include plasticity mechanisms supporting development, network formation and information processing, cellular and subcellular models of associative learning, biochemical dynamics in disorders of the basal ganglia, computational methods for simulation of complex biological systems, role of metals in memory and Alzheimer's disease, and dynamical behavior of neurons and networks of neurons, and identifying and characterizing protein interactions for the dopamine and nicotinic acetylcholine receptors in the brain.

### Admissions & Policies

**Admissions**

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants should have a bachelor’s degree in a relevant field and undergraduate courses in organic chemistry, cell biology, and calculus. Coursework in biochemistry (e.g. BIOL 483 General Biochemistry) cell biology (e.g. BIOL 484 Eukaryotic Cell Biology) and molecular genetics (e.g. BIOL 482 Introduction to Molecular Genetics) is highly recommended. Admission requires a minimum GPA of 3.25 in undergraduate work and acceptable GRE scores. In addition, the applicant’s goals statement should relate to the research interests of at least one faculty member in the program and include the names of two faculty members who may be suitable as advisors or supervisory committee members.

To apply, complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), supply a goals statement, two copies of official transcripts from each college and graduate institution attended, three letters of recommendation from faculty members or individuals who have firsthand knowledge of the applicant's academic or research capabilities, and an official report of scores obtained on the GRE-GEN. The GRE-SUB is optional. TOEFL scores are required of all international applicants.

**Policies**

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

**Reduction of Credits**

For students entering the doctoral program with a master’s degree in a related field from a regionally accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of...
the program faculty and the college’s associate dean for student affairs. See AP.6.5.2 Reduction of Credits (p. 88) for more information.

**Transfer of Credit**
An alternative to the reduction of credit is a transfer of credit. With this option, up to 24 credits of previous, relevant graduate coursework may be transferred into the program, provided those credits have not been applied toward a previous degree.

## Requirements

### Degree Requirements

Total credits: 72

Students should refer to the Admissions & Policies (p. 747) tab for specific policies related to this program.

### Doctoral Coursework

#### Core Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUR 702</td>
<td>Research Methods</td>
<td>3</td>
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</table>

Select one statistics course from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
</tr>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
</tr>
<tr>
<td>STAT 535</td>
<td>Analysis of Experimental Data</td>
</tr>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
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</tbody>
</table>

#### Core Neuroscience

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUR 601</td>
<td>Developmental Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 602</td>
<td>Cellular Neuroscience</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 603</td>
<td>Mammalian Neuroanatomy</td>
<td>3</td>
</tr>
<tr>
<td>NEUR 701</td>
<td>Neurophysiology Laboratory</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Rotations and Readings

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUR 703</td>
<td>Laboratory Rotation and Readings (This course will be taken three times)</td>
</tr>
</tbody>
</table>

#### Electives

Select 20-21 credits of electives 20-21

Total Credits 47-49

### Publication

An additional requirement for graduation calls for students to have at least one publication (in print or in press) in a refereed journal.

### Doctoral Committee and Proposal

When coursework is nearing completion, the student should form a doctoral committee and start preparing their dissertation proposal. Students in consultation with their advisor identify which faculty are appropriate to be a part of their committee. The dissertation committee administers the qualifying exam and evaluates the dissertation proposal as well as the dissertation itself. At least one of the committee members must be outside of the dissertation advisor’s department.

### Candidacy Examination and Advancement to Candidacy

The doctoral candidacy examination includes written and oral components. After passing the candidacy exam and receiving committee approval for the dissertation proposal, the student is advanced to doctoral candidacy.

### Dissertation Research

Note: No more than 24 combined credits from NEUR 998 Dissertation Proposal and NEUR 999 Doctoral Dissertation may be applied toward satisfying doctoral degree requirements, with no more than 12 credits of NEUR 998 Dissertation Proposal.

Select 24 credits from the following: 24

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEUR 998</td>
<td>Dissertation Proposal</td>
</tr>
<tr>
<td>NEUR 999</td>
<td>Doctoral Dissertation</td>
</tr>
</tbody>
</table>

Total Credits 24

---

## School of Systems Biology

**Monique Sweeney, Administrative Assistant**

Phone: 703-993-8400  
Email: binf@gmu.edu  
Website: ssb.gmu.edu

### Administration

- Iosif Vaisman, Acting Director, BCB PhD Program Director  
- Kylene Kehn-Hall, BIOS PhD Program Director  
- Don Seto, BCB MS Program Director  
- Ancha Baranova, Biology MS Program Director  
- Vikas Chandhoke, PSM Program Director  
- Diane St. Germain, Graduate Coordinator  
- Andrea Nikoi, Director of HR and Finance

The School of Systems Biology offers undergraduate and graduate degree programs in bioinformatics and computational biology, and graduate degree programs in biology and biosciences. The school also offers research opportunities at the graduate and undergraduate levels. For additional details about current faculty research activities, please visit the school’s website.

The School of Systems Biology works closely with and provides faculty and administrative support to the Department of Biology (p. 617), through which the Biology, BA (p. 619) and Biology, BS (p. 624) degrees are offered. An accelerated master’s option is also available.

### Faculty

#### School Faculty

**Professors**

- Bailey (distinguished), Chandhoke, Jafri, Kashanchi, Klimov, Liotta, Petricoin, Popov, Seto, Vaisman (acting director), Willett, Wu

**Associate Professors**

- Baranova, Fryxell, Kabbani, Kehn-Hall, Luchini, van Hoek

**Assistant Professors**

- Hakami, Narayanan
Adjunct Faculty
Solka

Affiliate Faculty
Ali, Arold, Bokhari, Born, Campbell, Cao, Carneiro de Silva, Casey, Cheadle, Cooper, Cox, Cunningham, Dabisch, Dasgupta, Gutting, Jessup, Kim, Manyam, Masso, Mehta, Morozov, Moskalev, Nierman, Nikolsky, Pleet, Rajasimha, Rao, Stepanova, Tang, Tatarinova, Taylor, Turell, Voss, Ward, Weller, Zhao

Emeritus
Isbister, Soyfer, Royt

Requirements & Policies

Policies
Students are governed by the university’s policies (p. 74).

Using Laboratories
Only authorized experiments and exercises may be carried out in the school’s research and teaching laboratories and must be done under the supervision of a university faculty or staff member. No unauthorized work is allowed in any laboratory.

Using Organisms in Classes
Direct observations of actual organisms are considered an essential part of learning biology at all levels. Direct observations of organisms may involve the use of living or preserved specimens, dissections of organisms or parts of organisms, and microscopic examination of organisms or parts of organisms. All use of live animals conforms to National Institutes of Health guidelines for the use and care of laboratory animals. Activities specified above may be a required part of a course and thus serve as a basis for grading in the course. Any questions about the administration of this policy should be directed to the course coordinator or instructor.

Programs

• Bioinformatics Management, MS
• Bioinformatics Management, Professional Science Master’s
• Bioinformatics Minor
• Bioinformatics and Computational Biology Graduate Certificate
• Bioinformatics and Computational Biology, MS
• Bioinformatics and Computational Biology, PhD
• Biology, MS
• Biosciences, PhD
• Personalized Medicine Graduate Certificate

Bioinformatics Management, MS
Banner Code: SC-MS-BNFM

Academic Advising
Colgan Hall, Room 312
Science and Technology Campus
Phone: 703-993-8400

Email: binfpsm@gmu.edu
Website: ssb.gmu.edu

This degree addresses the regional and national need for technically trained managers who will be able to lead teams of bioinformaticians in both the public and private sectors. The degree combines a solid foundation in bioinformatics research, tools, and techniques, with the management skills needed to address the associated legal, ethical, managerial, and business issues. The degree is intended for:

• Students seeking advancement in their current bioinformatics careers that requires an advanced degree in bioinformatics combined with management expertise.
• Students with a general background in biological science or computational methods who are planning to enter the field of bioinformatics as managers and would like to strengthen their bioinformatics and managerial expertise.

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility
Applicants should have a bachelor’s degree in biology, computer science, or a related field, with a GPA of at least 3.00 in their last 60 credits of study. Applicants should have taken courses in molecular biology, computer science, calculus, physical chemistry, and statistics. Students with deficiencies in one or more of these areas may be required to take additional courses from the undergraduate curriculum.

Application Requirements
To apply, prospective students should submit the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), supply two copies of official transcripts from each college and graduate institution attended, a current résumé, and an expanded goals statement. Applicants should also include three letters of recommendation and official scores obtained on the GRE general exam. The GRE requirement will be waived if the student holds a master’s degree from a U.S. institution. TOEFL or IELTS scores are required of all international applicants.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 30

Students should refer to the Admissions & Policies (p. 749) tab for specific policies related to this program.
Bioinformatics Core Courses
Foundational courses in modern biotechnology, tools and methods for bioinformatics analysis, and methods for creating customized bioinformatics tools.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 630</td>
<td>Bioinformatics Methods</td>
<td>3</td>
</tr>
<tr>
<td>BINF 631</td>
<td>Molecular Cell Biology for Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>BINF 634</td>
<td>Bioinformatics Programming</td>
<td>3</td>
</tr>
<tr>
<td>BINF 730</td>
<td>Biological Sequence and Genome Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 633</td>
<td>Molecular Biotechnology</td>
</tr>
<tr>
<td>BINF 636</td>
<td>Microarray Methodology and Analysis</td>
</tr>
<tr>
<td>BINF 650</td>
<td>Introduction to Bioinformatics Database Design</td>
</tr>
</tbody>
</table>

Total Credits: 15

Management Core Courses
Foundational courses in management theory related directly to the management of scientific programs and personnel.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA 638</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>MBA 712</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>TECM 615</td>
<td>Decision Making Using Accounting and Financial Data</td>
<td>3</td>
</tr>
<tr>
<td>TECM 640</td>
<td>Management of Consulting and Technical Professionals</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

Capstone Research Project
Focusing on bioinformatics management issues and techniques.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 798</td>
<td>Research Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

Bioinformatics Management, Professional Science Master’s

Banner Code: SC-MSP-BNFM

Vikas Chandhoke, Program Director
Colgan Hall, Room 312
Science and Technology Campus
Phone: 703-993-8400
Email: binfpsm@gmu.edu
Website: ssb.gmu.edu

This Professional Science Master’s (https://www.professionalsciencemasters.org) (PSM) degree addresses the growing demand for trained bioinformatics professionals with solid management skills able to assume leadership roles in biotechnology, pharmaceutical and health care sectors. The flexible degree structure allows students to custom design a curriculum that best suits their needs and allows a focus on the biological big data analysis, genomics, or bioinformatics software development and management. Students will receive advanced training in bioinformatics and management through coursework and an external internship. The curriculum was developed with active input from the Program Advisory Board consisting of recognized leaders in the field. Many courses are offered in a distance-learning format, allowing students to participate in class without having to travel to campus.

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants should have a bachelor’s degree in biology, computer science, or a related field with a GPA of at least 3.00 in their last 60 credits of study. Applicants should have taken courses in molecular biology, computer science, calculus, physical chemistry, and statistics. Students with deficiencies in one or more of these areas may be required to take additional courses from the undergraduate curriculum. To apply, prospective students should submit the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), supply two copies of official transcripts from each college and graduate institution attended, a current résumé, and an expanded goals statement. Applicants should also include three letters of recommendation and official scores obtained on the GRE general exam. The GRE requirement will be waived if the student holds a master’s degree from a U.S. institution. TOEFL or IELTS scores are required of all international applicants.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 31

Students should refer to the Admissions & Policies (p. 750) tab for specific policies related to this program.

Due to the varied course options and their associated prerequisites, students are encouraged to create a program of study with their faculty advisor by the end of their first semester of studies.

Bioinformatics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 630</td>
<td>Bioinformatics Methods</td>
<td>3</td>
</tr>
<tr>
<td>BINF 631</td>
<td>Molecular Cell Biology for Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>BINF 702</td>
<td>Biological Data Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two from the following or other BINF-prefixed courses in consultation with the faculty advisor:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 633</td>
<td>Molecular Biotechnology</td>
</tr>
<tr>
<td>BINF 634</td>
<td>Bioinformatics Programming</td>
</tr>
<tr>
<td>BINF 650</td>
<td>Introduction to Bioinformatics Database Design</td>
</tr>
</tbody>
</table>
Professional Skills Courses

Please note: MBA-prefixed courses are offered on an alternative semester schedule (view the Schedule of Classes (https://patriotweb.gmu.edu/pls/prod/bwckschd.p_disp_dyn_sched) for details). Considering this, it may be advisable to take these courses in one semester rather than over several.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 705</td>
<td>Research Ethics</td>
<td>1</td>
</tr>
<tr>
<td>MBA 712</td>
<td>Project Management</td>
<td>3</td>
</tr>
<tr>
<td>or MBA 715</td>
<td>Advanced Project and Program Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one course from the following that hasn't previously been taken:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 508</td>
<td>Selected Topics in Animal Biology (when the topic is Research &amp; Development in Biotechnology Companies)</td>
</tr>
<tr>
<td>AIT 671</td>
<td>Information System Infrastructure Lifecycle Management</td>
</tr>
<tr>
<td>COMM 641</td>
<td>Advanced Communication Skills for STEM</td>
</tr>
<tr>
<td>GBUS 540</td>
<td>Analysis of Financial Decisions</td>
</tr>
<tr>
<td>GBUS 550</td>
<td>Strategic Thinking</td>
</tr>
<tr>
<td>MBA 712</td>
<td>Project Management</td>
</tr>
<tr>
<td>MBA 715</td>
<td>Advanced Project and Program Management</td>
</tr>
<tr>
<td>MBA 725</td>
<td>Leadership</td>
</tr>
<tr>
<td>or GBUS 551</td>
<td>Leadership</td>
</tr>
<tr>
<td>MBA 726</td>
<td>Negotiations</td>
</tr>
<tr>
<td>MBA 730</td>
<td>Management of Technology and Innovation Processes</td>
</tr>
<tr>
<td>MBA 738</td>
<td>Data Mining for Business Analytics</td>
</tr>
<tr>
<td>PUAD 781</td>
<td>Information Management: Technology and Policy</td>
</tr>
</tbody>
</table>

Or other courses in consultation with the faculty advisor

Scientific Electives

Close attention should be paid to each course's prerequisites.

Select 6 credits in courses that haven't previously been taken, tailored to suit interests and goals in consultation with the faculty advisor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 731</td>
<td>Protein Structure Analysis</td>
</tr>
<tr>
<td>BINF 732</td>
<td>Genomics</td>
</tr>
<tr>
<td>BINF 740</td>
<td>Introduction to Biophysics</td>
</tr>
<tr>
<td>CHEM 665</td>
<td>Protein-Protein Interactions: Methods and Applications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 740</td>
<td>Laboratory Methods in Functional Genomics and Biotechnology</td>
</tr>
<tr>
<td>BIOS 741</td>
<td>Genomics</td>
</tr>
</tbody>
</table>

Human Health and Personal Genomics:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 732</td>
<td>Genomics</td>
</tr>
<tr>
<td>BIOL 562</td>
<td>Personalized Medicine</td>
</tr>
<tr>
<td>BIOL 566</td>
<td>Cancer Genomics</td>
</tr>
<tr>
<td>BIOL 665</td>
<td>Environmental Hazards to Human Health</td>
</tr>
<tr>
<td>BIOS 740</td>
<td>Laboratory Methods in Functional Genomics and Biotechnology</td>
</tr>
<tr>
<td>BIOS 741</td>
<td>Genomics</td>
</tr>
</tbody>
</table>

Software Development and Analysis:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 634</td>
<td>Bioinformatics Programming</td>
</tr>
<tr>
<td>SWE 510</td>
<td>Object-Oriented Programming in Java</td>
</tr>
<tr>
<td>SWE 619</td>
<td>Object-Oriented Software Specification and Construction</td>
</tr>
<tr>
<td>SWE 621</td>
<td>Software Modeling and Architectural Design</td>
</tr>
<tr>
<td>SWE 626</td>
<td>Software Project Laboratory</td>
</tr>
<tr>
<td>SWE 637</td>
<td>Software Testing</td>
</tr>
<tr>
<td>SWE 645</td>
<td>Component-Based Software Development</td>
</tr>
<tr>
<td>SWE 760</td>
<td>Software Analysis and Design of Real-Time Systems</td>
</tr>
</tbody>
</table>

Colloquium:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 704</td>
<td>Colloquium in Bioinformatics (may be repeated for up to 3 credits)</td>
</tr>
</tbody>
</table>

Additional Internship Experience

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 795</td>
<td>Bioinformatics Internship</td>
</tr>
</tbody>
</table>

Internship

The internship component is intended to provide students with the opportunity to put into practice all of the skills and knowledge accumulated throughout their studies in this program. Students must arrange an internship with a private company, a governmental agency, a non-governmental organization, or some other entity with an interest in bioinformatics and management. Students must identify a specific person within that outside entity who will be the contact and manager of the internship.

Internship credit is never given for work previously done, or for work that would have been done in any case due to an existing employment relationship.

The internship work must produce one or more products such as: a comprehensive report, a departmental presentation, a research project, or an article. Internship placement and product type must be approved by the student's faculty advisor.

Further details and procedures for completing the internship can be found with the faculty advisor.

Three credits of internship
Bioinformatics Minor

Banner Code: BNF

Academic Advising
Colgan Hall, Room 312
Science and Technology Campus
Phone: 703-993-8400
Email: binf@gmu.edu
Website: ssb.gmu.edu

The minor is an interdisciplinary program consisting of required courses in biology, programming, statistics, and bioinformatics.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

For policies governing all undergraduate programs, see AP.5 Undergraduate Policies (p. 84).

Requirements

Minor Requirements
Total credits: 19-20

Students should refer to the Admissions & Policies (p. 752) tab for specific policies related to this program.

Students must complete the following courses with a minimum GPA of 2.00.

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 401</td>
<td>Bioinformatics and Computational Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BINF 402</td>
<td>Bioinformatics and Computational Biology II</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 482</td>
<td>Introduction to Molecular Genetics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
<tr>
<td>or IT 306</td>
<td>Program Design and Data Structures</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 19-20

Bioinformatics and Computational Biology Graduate Certificate

Banner Code: SC-CERG-BCB

Academic Advising
Colgan Hall, Room 312
Science and Technology Campus
Phone: 703-993-8400
Email: binf@gmu.edu
Website: ssb.gmu.edu

This graduate certificate addresses the growing national and regional demand for trained computational biologists by combining a solid foundation in biotechnology with computational skills relevant to bioinformatics. With online and in-classroom courses, the flexibility of this certificate's structure permits students to custom design their curriculum under an advisor's guidance, making the graduate certificate especially relevant for students employed in today's diverse Northern Virginia high-technology workplace. Ideal candidates for this certificate are those who have a background in biological and computer sciences, and are currently working in or planning to enter the fields of biotechnology or bioinformatics. The certificate is also highly relevant for students who are interested in advancing their career goals but may not have adequate time available to undertake a graduate degree program.

All courses are also offered online, allowing students to participate in class without having to travel to campus. Further information can be found with Mason Online (http://masononline.gmu.edu).

The certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Applicants should hold a BA or BS degree in a discipline related to biological or computer science from a regionally accredited university, with a minimum GPA of 3.00. Applicants should have taken courses in molecular biology, computer science, calculus, physical chemistry, or statistics, and should also possess working knowledge of a computer programming language. To apply, prospective students should complete a George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), supply two copies of official transcripts from each college and graduate institution attended, and a current résumé. TOEFL scores are required of all international applicants.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).
Premium Tuition

The certificate is a professional certification program that charges students at a differential (premium) tuition rate, with an additional $100 per credit added to the standard George Mason University graduate tuition rate for students who enroll in this certificate program, regardless of in-state or out-of-state status. The differential tuition is used to fund continuing improvements in the College of Science's (COS) educational facilities used to support the certificate program.

Students may not pursue this certificate concurrently with any other graduate degree program or certificate program offered by COS. In addition, students may not apply previous credit hours from another certificate, degree, or non-degree studies to this certificate program because of the differential (premium) tuition rate.

Requirements

Certificate Requirements

Total credits: 15

Students should refer to the Admissions & Policies (p. 752) tab for specific policies related to this program.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 630</td>
<td>Bioinformatics Methods</td>
<td>3</td>
</tr>
<tr>
<td>BINF 631</td>
<td>Molecular Cell Biology for Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>BINF 634</td>
<td>Bioinformatics Programming</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

Electives

Select two courses from the following courses, or other courses as approved by the coordinator:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 633</td>
<td>Molecular Biotechnology</td>
</tr>
<tr>
<td>BINF 636</td>
<td>Microarray Methodology and Analysis</td>
</tr>
<tr>
<td>BINF 639</td>
<td>Introduction to Biometrics</td>
</tr>
<tr>
<td>BINF 730</td>
<td>Biological Sequence and Genome Analysis</td>
</tr>
<tr>
<td>BINF 731</td>
<td>Protein Structure Analysis</td>
</tr>
<tr>
<td>BINF 732</td>
<td>Genomics</td>
</tr>
<tr>
<td>BINF 733</td>
<td>Gene Expression Analysis</td>
</tr>
<tr>
<td>BINF 734</td>
<td>Advanced Bioinformatics Programming</td>
</tr>
<tr>
<td>BINF 739</td>
<td>Topics in Bioinformatics</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
</tr>
</tbody>
</table>

Bioinformatics and Computational Biology, MS

Banner Code: SC-MS-BCB

Don Seto, Program Director

Colgan Hall, Room 312
Science and Technology Campus

Phone: 703-993-8400
Email: binf@gmu.edu
Website: ssb.gmu.edu

In the field of bioinformatics and computational biology, specialists collect, store, analyze and present complex biological data. Through this work, critical contributions are made to basic biology, disease detection, drug design, modeling biosystems, forensics, agriculture, and environmental sciences through the combination of biological analysis and high-performance computing. This degree addresses the growing national and regional demand for trained computational biologists. It combines a solid foundation in biotechnology with the computational skills required for bioinformatics. The flexibility of the degree structure permits students to custom design their curriculum under an advisor's guidance, making the program especially relevant for students employed in today's diverse biotechnology workplace. Students completing the program are qualified to pursue careers that require knowledge of current bioinformatics methods and applications, and the ability to develop and/or use new bioinformatics software.

Courses are generally offered in the late afternoon or early evening to accommodate students with full-time employment outside the university. Students employed at area biotechnology organizations may take up to 6 credits (out of 31) for bioinformatics work done on the job, under the guidance of a faculty member. This work-related project may be applied as either a 3-credit research project or a 6-credit master's thesis.

All courses are also offered online, allowing students to participate in class without having to travel to campus. Further information can be found on with Mason Online (http://masononline.gmu.edu).

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Applicants should have a bachelor's degree in biology, computer science, or a related field, with a GPA of at least 3.00 in their last 60 credits of study. Applicants should have taken courses in biology, computer science, calculus, physical chemistry, and statistics. Students with deficiencies in one or more of these areas may be required to take additional courses from the undergraduate curriculum.

Application Requirements

To apply, prospective students should complete a George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), supply two copies of official transcripts from each college and graduate institution attended, a current résumé, and an expanded goals statement. Applicants should also include three letters of recommendation and official scores obtained on the GRE general exam. The GRE requirement will be waived if the student holds a master's degree from a regionally accredited U.S. institution. TOEFL scores are required for all international applicants.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).
Requirements

Degree Requirements

Total credits: 31

Students should refer to the Admissions & Policies (p. 753) tab for specific policies related to this program.

Bioinformatics Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 630</td>
<td>Bioinformatics Methods</td>
<td>3</td>
</tr>
<tr>
<td>BINF 631</td>
<td>Molecular Cell Biology for Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>BINF 634</td>
<td>Bioinformatics Programming</td>
<td>3</td>
</tr>
<tr>
<td>BINF 701</td>
<td>Systems Biology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Advanced Bioinformatics

Advanced bioinformatics courses numbered BINF 730 and above

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Bioinformatics Seminar

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 704</td>
<td>Colloquium in Bioinformatics</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>

Research Project or Thesis and Electives

Select either a research project or a master’s thesis and electives courses.

Research Project

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 798</td>
<td>Research Project</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 12 credits of elective in bioinformatics and computational biology, biology and biotechnology, or computational sciences, as approved by the advisor</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Thesis

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 799</td>
<td>Master’s Thesis</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Select 9 credits of elective in bioinformatics and computational biology, biology and biotechnology, or computational sciences, as approved by the advisor</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

In the field of bioinformatics and computational biology, specialists collect, store, analyze, and present complex biological data. Through this work, critical contributions are made to disease detection, drug design, forensics, agriculture, and environmental sciences through the combination of biological analysis and high-performance computing. The main objective of this doctorate is to educate the next generation of computational biologists for careers in academia, industry, and government. The program provides students with interdisciplinary academic training that includes fundamental bioscience courses as well as core and advanced courses in bioinformatics. Courses are designed to be completed in approximately two years. Completion of coursework, the comprehensive exam, and a successful dissertation proposal results in advancement to candidacy status. In the final phase, students focus on research that culminates in a dissertation.

The program is structured to be accessible for full and part-time students. Many of the courses are offered in a distance-learning format, allowing students to participate in class without having to travel to campus; visit Mason Online (http://masononline.gmu.edu) for details.

Admissions & Policies

Admissions

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Eligibility

Applicants should have a bachelor’s degree in biology, computer science, or a related field, with a minimum GPA of 3.25 in the last earned degree. Applicants should have taken courses in molecular biology, cell biology, biochemistry, genetics, calculus, physical chemistry, computer programming and data structures, and probability and statistics. Students with deficiencies in one or more of these areas may be admitted provisionally and required to take additional courses, some of which may not be applicable to the degree’s course total. Students whose undergraduate record does not include basic biochemistry will be required to take a basic course prior to BINF 701 Systems Biology.

Application Requirements

To apply, prospective students should submit the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), two copies of official transcripts from each college and graduate institution attended, a current résumé, and an expanded goals statement. Applicants should also include three letters of recommendation and an official report of scores obtained on the GRE general exam. Scores should be in the 45th percentile or above. The GRE requirement for admission to the doctoral program will be waived if the student holds a master’s degree from a regionally accredited U.S. institution. TOEFL or IELTS scores are required of all international applicants.

Policies

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).
Reduction of Credits
For students entering the doctoral program with a master's degree in a related field from a regionally accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of the program director and the college's associate dean for student affairs. See AP.6.5.2 Reduction of Credits (p. 88) for more information.

Requirements

Degree Requirements
Total credits: 72

Students should refer to the Admissions & Policies (p. 754) tab for specific policies related to this program.

Doctoral Coursework

Fundamental Bioscience Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 701</td>
<td>Systems Biology</td>
<td>3</td>
</tr>
<tr>
<td>BINF 702</td>
<td>Biological Data Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Core Bioinformatics Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 690</td>
<td>Numerical Methods for Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>BINF 705</td>
<td>Research Ethics</td>
<td>1</td>
</tr>
<tr>
<td>BINF 730</td>
<td>Biological Sequence and Genome Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BINF 731</td>
<td>Protein Structure Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BINF 740</td>
<td>Introduction to Biophysics</td>
<td>3</td>
</tr>
</tbody>
</table>

General Electives

Select 23-35 credits of approved general electives or independent research 23-35

Lab Rotation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 703</td>
<td>Bioinformatics Lab Rotation (taken three times)</td>
<td>3</td>
</tr>
</tbody>
</table>

Colloquium

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 704</td>
<td>Colloquium in Bioinformatics (taken three times)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 48-60

Doctoral Committee and Advancement to Candidacy
By the end of the semester when coursework is completed, the student must form a doctoral committee made up of a minimum of three graduate faculty members and take a written comprehensive exam. The exam includes written and oral components. Upon passing the comprehensive exam and submitting an acceptable dissertation proposal, the student is advanced to doctoral candidacy to begin the dissertation writing phase.

Dissertation Research
A minimum of 12 and a maximum of 24 combined credits from BINF 998 Doctoral Dissertation Proposal and BINF 999 Doctoral Dissertation may be applied toward satisfying doctoral degree requirements. Students must take at least 3 credits of BINF 999 Doctoral Dissertation.

Select 12-24 credits from the following: 12-24

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 998</td>
<td>Doctoral Dissertation Proposal</td>
<td></td>
</tr>
<tr>
<td>BINF 999</td>
<td>Doctoral Dissertation</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12-24

Doctoral Dissertation
After advancing to doctoral candidacy, students work on their doctoral dissertation while enrolled in BINF 999 Doctoral Dissertation. The dissertation should represent a significant contribution that is suitable for publication in a refereed scientific journal. The dissertation must be defended in a public forum before the dissertation committee and other interested faculty.

Biology, MS

Banner Code: SC-MS-BIOL

Ancha Baranova, Program Director
Colgan Hall, Room 312
Science and Technology Campus

Phone: 703-993-4263
Email: biologygrad@gmu.edu
Website: ssb.gmu.edu

This program provides advanced training for college graduates or professionals seeking careers in the biomedical research, biotechnology, neuroscience or biodefense, as well as evolutionary and animal biology, animal biology and biology teaching. Master’s level concentrations are available in microbiology and infectious disease, molecular biology, neuroscience, evolutionary biology, and translational and clinical research. Alternatively, students may choose the program in general biological sciences, which allows flexibility to build a degree program tailored to a specific research or career interest.

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

While each applicant’s qualifications are reviewed as a whole, the following are provided: Applicants to the program must have a bachelor’s degree in biology or its equivalent. Additionally, all MS concentrations require a GPA of 3.00 in biology coursework or in the last 60 credits of undergraduate study. Students must also submit three letters of recommendation and scores on the GRE general exam. Exam scores should be in the 45th percentile or above. Admission is contingent on acceptance by a faculty research advisor.

Microbiology and Infectious Disease (MID) Concentration
Students who choose the Microbiology and Infectious Disease Concentration (MID) must have a lecture and lab course in microbiology and a lecture course in biochemistry.

Translational and Clinical Research (TCR) Concentration
Students who choose the Translational and Clinical Research Concentration may submit MCAT scores in place of GRE general exam scores.
Evolutionary Biology (EB) Concentration
Students who choose the Evolutionary Biology Concentration must also submit a personal statement/statement of interest consistent with at least one faculty member’s research program. GRE score should be approximately 303.

Policies
For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 30
Students should refer to the Admissions & Policies (p. 755) tab for specific policies related to this program.

Program of Study
The faculty advisor and the student work together to develop a program of study that best fits the student’s background and interests. The student must submit a program of study to the program director for approval within the first 12 credits of coursework. By the end of the second semester of coursework, students will form a graduate committee made up of three faculty members. At least two committee members must be faculty in the School of Systems Biology (p. 748).

Concentration Options
Candidates for the Biology, MS (p. 755) focus their study in one of five approved concentrations below, or by completing coursework for the program in biological sciences in an area of study chosen in consultation with the student’s advisor and program director.

Research Options
Students have the option to complete a 3-6 credit master’s thesis (BIOL 799 Thesis) or a 1-3 credit research project (BIOL 798 Master’s Research Project). In accordance with AP.6 Graduate Policies (p. 87), the same quality of work is expected of students regardless of which option they choose.

- Thesis: In general, the MS thesis is most appropriate for students planning or considering a research career. Students pursuing the thesis option must write a formal thesis that meets the requirements of the school and must defend their thesis and present their results in a public seminar.
- Research Project: The MS project is most appropriate for students who have scheduling commitments, such as a full-time job, that may preclude performing a complete series of laboratory experiments. Students pursuing the project option must successfully complete written and oral comprehensive exams.

Select a Master’s Thesis or Research Project
BIOL 799 Thesis 3-6
BIOL 798 Master’s Research Project 1-3

MS without Concentration
Program in Biological Sciences
Research Methodology 1-3

MS with Concentration in Microbiology and Infectious Disease (MID)
Research Methodology 1-3
BIOL 690 Introduction to Graduate Studies in Biology or BIOS 702 Research Methods
Seminar 2
BIOL 692 Seminar in Biology or BIOL 695 Seminar in Molecular, Microbial, and Cellular Biology
Research 1-6
Select one from the following:
BIOL 798 Master’s Research Project
BIOL 799 Thesis (3-6 credits)
Electives 1 19-26
Select 19–26 credits of electives in BIOL, BIOS, or related areas as approved by the student’s advisor and the program director.
BIOL 553 Advanced Topics in Immunology
BIOL 568 Advanced Topics in Molecular Genetics
BIOL 575 Selected Topics in Genetics
BIOL 579 Molecular Evolution and Conservation Genetics
BIOL 583 General Biochemistry
BIOL 585 Eukaryotic Cell Biology Laboratory
BIOL 682 Advanced Eukaryotic Cell Biology
BIOL 793 Research in Biology
BIOS 740 Laboratory Methods in Functional Genomics and Biotechnology
BIOS 741 Genomics
BIOS 742 Biotechnology
BIOS 743 Genomics, Proteomics, and Bioinformatics
BIOS 744 Molecular Genetics
BIOS 767 Molecular Evolution
Total Credits: 30

1 These courses are provided as suggestions only; this is not intended to be a comprehensive list of elective options. Note that two courses covering substantially similar topics may not both be counted in the student’s program of study. Students should consult their faculty research advisor or the graduate program coordinator when preparing a program of study.

BIOL 553 Advanced Topics in Immunology
BIOL 563 Virology
BIOL 669 Pathogenic Microbiology
BIOL 715 Microbial Physiology
BIOL 718 Techniques in Microbial Pathogenesis
Seminar 2
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 695</td>
<td>Seminar in Molecular, Microbial, and Cellular Biology</td>
</tr>
<tr>
<td>Research</td>
<td>1-6</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
</tr>
<tr>
<td>BIOL 798</td>
<td>Master’s Research Project</td>
</tr>
<tr>
<td>BIOL 799</td>
<td>Thesis (3-6 credits)</td>
</tr>
<tr>
<td>Electives</td>
<td>7-14</td>
</tr>
<tr>
<td>Select 7-14 credits from the following:</td>
<td></td>
</tr>
<tr>
<td>BIOL 564</td>
<td>Techniques in Virology</td>
</tr>
<tr>
<td>BIOL 553</td>
<td>Advanced Topics in Immunology</td>
</tr>
<tr>
<td>BIOL 682</td>
<td>Advanced Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>BIOS 743</td>
<td>Genomics, Proteomics, and Bioinformatics</td>
</tr>
<tr>
<td>BIOS 710</td>
<td>Current Topics in Bioscience</td>
</tr>
<tr>
<td>Or relevant graduate level coursework selected in consultation with the advisor</td>
<td></td>
</tr>
<tr>
<td>Total Credits:</td>
<td>30</td>
</tr>
</tbody>
</table>

**MS with Concentration in Molecular Biology (MOB)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 690</td>
<td>Introduction to Graduate Studies in Biology</td>
</tr>
<tr>
<td>or BIOS 702</td>
<td>Research Methods</td>
</tr>
<tr>
<td>Research Methodology</td>
<td>1-3</td>
</tr>
<tr>
<td>Core Biology</td>
<td>13</td>
</tr>
<tr>
<td>BIOL 568</td>
<td>Advanced Topics in Molecular Genetics</td>
</tr>
<tr>
<td>or BIOS 744</td>
<td>Molecular Genetics</td>
</tr>
<tr>
<td>BIOL 583</td>
<td>General Biochemistry</td>
</tr>
<tr>
<td>BIOL 682</td>
<td>Advanced Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>BIOL 579</td>
<td>Molecular Evolution and Conservation Genetics</td>
</tr>
<tr>
<td>or BIOS 767</td>
<td>Molecular Evolution</td>
</tr>
<tr>
<td>Bioinformatics</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
</tr>
<tr>
<td>BIOL 580</td>
<td>Computer Applications for the Life Sciences</td>
</tr>
<tr>
<td>BINF 630</td>
<td>Bioinformatics Methods</td>
</tr>
<tr>
<td>BINF 634</td>
<td>Bioinformatics Programming</td>
</tr>
<tr>
<td>Molecular Techniques</td>
<td>2-4</td>
</tr>
<tr>
<td>Select 2-4 credits from the following:</td>
<td></td>
</tr>
<tr>
<td>BIOL 585</td>
<td>Eukaryotic Cell Biology Laboratory</td>
</tr>
<tr>
<td>BIOL 678</td>
<td>Cell-Based Assays</td>
</tr>
<tr>
<td>BIOS 740</td>
<td>Laboratory Methods in Functional Genomics and Biotechnology</td>
</tr>
<tr>
<td>Special topics courses, such as BIOL 575 or BIOL 691, may also be approved for this requirement by the program director, but only in semesters in which they are primarily a laboratory course of at least two credits with substantial content of techniques in molecular biology.</td>
<td></td>
</tr>
<tr>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 695</td>
<td>Seminar in Molecular, Microbial, and Cellular Biology</td>
</tr>
<tr>
<td>Research</td>
<td>1-6</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td></td>
</tr>
<tr>
<td>BIOL 798</td>
<td>Master’s Research Project</td>
</tr>
</tbody>
</table>

**MS with Concentration in Neuroscience (NEUR)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 690</td>
<td>Introduction to Graduate Studies in Biology</td>
</tr>
<tr>
<td>or NEUR 702</td>
<td>Research Methods</td>
</tr>
<tr>
<td>Research Methodology</td>
<td>1-3</td>
</tr>
<tr>
<td>Core Neuroscience</td>
<td>12-13</td>
</tr>
<tr>
<td>Select 12-13 credits from the following:</td>
<td></td>
</tr>
<tr>
<td>NEUR 600</td>
<td>Chemistry and the Brain</td>
</tr>
<tr>
<td>NEUR 601</td>
<td>Developmental Neuroscience</td>
</tr>
<tr>
<td>NEUR 602</td>
<td>Cellular Neuroscience</td>
</tr>
<tr>
<td>NEUR 603</td>
<td>Mammalian Neuroanatomy</td>
</tr>
<tr>
<td>NEUR 604</td>
<td>Ethics in Scientific Research</td>
</tr>
<tr>
<td>or BINF 705</td>
<td>Research Ethics</td>
</tr>
<tr>
<td>NEUR 701</td>
<td>Neurophysiology Laboratory</td>
</tr>
<tr>
<td>Seminar</td>
<td>2</td>
</tr>
<tr>
<td>BIOL 695</td>
<td>Seminar in Molecular, Microbial, and Cellular Biology</td>
</tr>
<tr>
<td>BIOS 704</td>
<td>Topics in Biosciences</td>
</tr>
<tr>
<td>NEUR 709</td>
<td>Neuroscience Seminars</td>
</tr>
<tr>
<td>Statistics</td>
<td>3-4</td>
</tr>
<tr>
<td>Select 3-4 credits from the following:</td>
<td></td>
</tr>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>PSYC 611</td>
<td>Advanced Statistics</td>
</tr>
<tr>
<td>STAT 535</td>
<td>Analysis of Experimental Data</td>
</tr>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
</tr>
</tbody>
</table>

**Research**

1-6 credits

Select one from the following:

- BIOL 798  Master’s Research Project
- BIOL 799  Thesis (3-6 credits)

**Electives**

2-11 credits

Select 2-11 credits, suggested electives include but are not limited to the following:

- BIOL 566  Cancer Genomics
- BIOL 568  Advanced Topics in Molecular Genetics
- BIOL 583  General Biochemistry
- BIOL 666  Human Genetics Concepts for Health Care
- BIOL 682  Advanced Eukaryotic Cell Biology
- BINF 630  Bioinformatics Methods
- BINF 705  Research Ethics
- BIOS 741  Genomics
- BIOS 742  Biotechnology
- BIOS 743  Genomics, Proteomics, and Bioinformatics
- BIOS 744  Molecular Genetics
- NEUR 689  Topics in Neuroscience

**Total Credits:** 30

**MS with Concentration in Evolutionary Biology (EB)**

**Seminar**

3-4 credits

- BIOL 690  Introduction to Graduate Studies in Biology

Select 2 credits from the following:

- BIOL 692  Seminar in Biology
- or BIOL 695  Seminar in Molecular, Microbial, and Cellular Biology
- BIOL 692  Seminar in Biology
- & BIOL 695  and Seminar in Molecular, Microbial, and Cellular Biology

**Core Courses**

6-9 credits

Select at least two courses from the following:

- BIOL 574  Population Genetics
- BIOL 579  Molecular Evolution and Conservation Genetics
- BIOL 648  Population Ecology

**Organismal Biology**

6-8 credits

Select 6-8 credits from the following suggestions in consultation with an advisor and/or committee and the program director:

- BIOL 501  Microbial Diversity: An Organismal Approach
- BIOL 507  Selected Topics in Ecology
- BIOL 508  Selected Topics in Animal Biology
- BIOL 518  Conservation Biology
- BIOL 532  Animal Behavior
- BIOL 533  Selected Topics in Plant Biology

- BIOL 537  Ornithology
- BIOL 538  Mammalogy
- BIOL 539  Herpetology
- BIOL 543  Tropical Ecosystems
- BIOL 559  Fungi and Ecosystems
- BIOL 566  Cancer Genomics
- BIOL 572  Human Genetics
- BIOL 581  Estuarine and Coastal Ecology
- BIOL 582  Estuarine and Coastal Ecology Laboratory
- BIOL 643  Microbial Ecology
- EVPP 536  The Diversity of Fishes

**Molecular Techniques**

4-7 credits

- EVPP 615  Molecular Environmental Biology II
- EVPP 515  Molecular Environmental Biology I

**Research**

1-6 credits

Select one from the following:

- BIOL 798  Master’s Research Project
- BIOL 799  Thesis (3-6 credits)

**Electives**

0-10 credits

Select 0-10 credits of suggested courses from the following, but other courses are allowed if approved by an advisor and/or committee and the program director

- BIOL 508  Selected Topics in Animal Biology
- BIOL 518  Conservation Biology
- BIOL 537  Mammalogy
- BIOL 538  Ornithology
- BIOL 539  Herpetology
- BIOL 543  Tropical Ecosystems
- BIOL 553  Advanced Topics in Immunology
- BIOL 568  Advanced Topics in Molecular Genetics
- BIOL 575  Selected Topics in Genetics
- BIOL 572  Human Genetics
- BIOL 579  Molecular Evolution and Conservation Genetics
- BIOL 581  Estuarine and Coastal Ecology
- & BIOL 582  and Estuarine and Coastal Ecology Laboratory
- BIOL 583  General Biochemistry
- BIOL 585  Eukaryotic Cell Biology Laboratory
- BIOL 666  Human Genetics Concepts for Health Care
- BIOL 682  Advanced Eukaryotic Cell Biology
- BIOL 793  Research in Biology
- BIOS 701  Systems Biology
- BIOS 740  Laboratory Methods in Functional Genomics and Biotechnology
- BIOS 741  Genomics
- BIOS 742  Biotechnology
- BIOS 743  Genomics, Proteomics, and Bioinformatics
- BIOS 744  Molecular Genetics
- BIOS 762  Phylogenetic Analysis
- BIOS 765  Molecular Systematics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 767</td>
<td>Molecular Evolution</td>
</tr>
<tr>
<td>EVPP 536</td>
<td>The Diversity of Fishes</td>
</tr>
<tr>
<td>EVPP 550</td>
<td>Waterscape Ecology and Management</td>
</tr>
<tr>
<td>EVPP 551</td>
<td>Fungi and Ecosystems</td>
</tr>
<tr>
<td>EVPP 555</td>
<td>Lab in Waterscape Ecology</td>
</tr>
<tr>
<td>EVPP 643</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>EVPP 651</td>
<td>Multivariate Data Analysis for Ecology and Environmental Science</td>
</tr>
<tr>
<td>EVPP 681</td>
<td>Introduction to Bioinformatics</td>
</tr>
</tbody>
</table>

**Total Credits:** 30

1 Only required if not previously completed; this course is a prerequisite to EVPP 615.

### MS with Concentration in Translational and Clinical Research (TCR)

#### Research Methodology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 690</td>
<td>Introduction to Graduate Studies in Biology</td>
</tr>
<tr>
<td>or BIOS 702</td>
<td>Research Methods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 692</td>
<td>Advanced Eukaryotic Cell Biology</td>
</tr>
</tbody>
</table>

#### Bioinformatics/Biostatistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 630</td>
<td>Bioinformatics Methods</td>
</tr>
<tr>
<td>or STAT 535</td>
<td>Analysis of Experimental Data</td>
</tr>
</tbody>
</table>

### Human Genes, Cells and Tissues

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 666</td>
<td>Human Genetics Concepts for Health Care</td>
</tr>
<tr>
<td>BIOL 572</td>
<td>Human Genetics</td>
</tr>
<tr>
<td>BIOS 743</td>
<td>Genomics, Proteomics, and Bioinformatics</td>
</tr>
</tbody>
</table>

### Biochemistry

Select 3-4 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 583</td>
<td>General Biochemistry</td>
</tr>
<tr>
<td>CHEM 563</td>
<td>General Biochemistry I</td>
</tr>
<tr>
<td>CHEM 660</td>
<td>Protein Biochemistry</td>
</tr>
</tbody>
</table>

### Research

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 798</td>
<td>Master’s Research Project</td>
</tr>
<tr>
<td>or CHEM 798</td>
<td>Research Project</td>
</tr>
<tr>
<td>BIOL 799</td>
<td>Thesis (3-6 credits)</td>
</tr>
<tr>
<td>or CHEM 799</td>
<td>Master’s Thesis</td>
</tr>
</tbody>
</table>

### Electives

Select 6-14 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 553</td>
<td>Advanced Topics in Immunology</td>
</tr>
</tbody>
</table>

### Advanced Eukaryotic Cell Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 682</td>
<td>Advanced Eukaryotic Cell Biology</td>
</tr>
</tbody>
</table>

### Curriculum Notes

- For students concurrently enrolled in the Advanced Biomedical Sciences Graduate Certificate (p. 597), contact your advisor for details regarding:
  - BMED course credit that may be counted towards this concentration
  - Meeting requirements for graduate certificates and requirements for master’s degrees

### Accelerated Master’s

**Biology, BS/Biology, Accelerated MS Overview**

Qualified undergraduates may be admitted into an accelerated master’s program and to obtain both a Biology, BS (p. 624) and a Biology, MS (p. 755) within an accelerated time frame. Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of graduate work may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 in these classes, they are granted advanced standing in the master’s program and must then complete an additional 24 credits to receive the master’s degree. All other master’s degree requirements must be met, including a minimum of 18 credits taken for the master’s after the bachelor’s degree is complete.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

### Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section.
of this catalog. Application information for this accelerated master's program can be found on the School of Systems Biology's website (http://ssb.gmu.edu/admissions).

Successful applicants will have an overall undergraduate GPA of at least 3.20. Additionally, they will have completed the following courses with a GPA of 3.00 or higher:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>5</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>Biodiversity</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
<td>2</td>
</tr>
</tbody>
</table>

Three letters of recommendation, including one from a prospective thesis or project advisor, are required.

**Accelerated Option Requirements**

At the beginning of the student’s final undergraduate semester, students must submit a bachelor’s/accelerated master’s transition form (available from the Office of the University Registrar (http://registrar.gmu.edu)) to the College of Science’s Office of Academic and Student Affairs (https://cos.gmu.edu/about/contact-us). Students must begin their master’s program in the semester immediately following conferral of the bachelor’s degree.

Students must maintain an overall GPA of 3.00 or higher in graduate coursework and should consult with their faculty advisor to coordinate their academic goals.

After completing 120 credits and all requirements for the bachelor’s degree and filing the Graduation Intent Form, students are awarded a bachelor’s degree. Accelerated master’s students must then submit scores on the GRE to have the provisional qualifier removed. Ordinarily, students should receive a minimum combined score of 303 on the verbal and quantitative portions of the general test.

**Reserve Graduate Credit**

While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree.

**Biosciences, PhD**

**Banner Code: SC-PHD-BIOS**

**Kylene Kehn-Hall, Program Director**

Colgan Hall, Room 312
Science and Technology Campus

Phone: 703-993-4263
Email: biologygrad@gmu.edu
Website: ssb.gmu.edu

This program is a research-oriented field of study that prepares students for significant contributions in academic or industrial settings. It is broken down into three concentrations: Cell and Molecular Biology, Microbiology and Infectious Disease, and Biocomplexity and Evolutionary Biology.

The academic component is a three-tiered structure. The first tier provides a set of core courses designed to advance research skills across all disciplines. The second tier comprises additional core courses and elective courses. The first two tiers are designed to be completed in approximately two years, including the comprehensive qualifying exam. Only on completion of these requirements, the qualifying exam, and a successful dissertation proposal can the students advance to candidacy status. The third tier focuses on research and culminates in a dissertation.

**Admissions & Policies**

**Admissions**

University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

**Application Requirements**

The following are required of applicants to this program:

- Minimum 3.25 GPA in previous coursework with significant training in the biological sciences.
- Three letters of recommendation from faculty members or individuals who have firsthand knowledge of the applicant's academic or professional capabilities.
- Statement of purpose consistent with the research interests of at least one faculty member in the program.
- Scores on GRE general exam (required) and biology or biochemistry subject exam (recommended) taken within the past five years prior to date of application submission. The GRE exam is waived if applicants hold a master's Degree from a fully-accredited U.S. university at the time of their application.
- A TOEFL score of 795 on the paper-based exam or 230 on the computer-based exam is required of international students.

An interview may also be required. Applications should be submitted by January 1st for fall admission. Under unusual circumstances, applications may be considered for spring admission if they are received by October 1st. Applications will be considered until positions are filled. Students are encouraged to meet application deadlines to be considered for scholarships and stipends.

Strong candidates who lack several prerequisites may be admitted to provisional status. Removal from provisional status and continuation in the program is contingent on earning a GPA of 3.25 in the program's fundamental courses, plus completion of missing prerequisites.

Students who have not taken a course in basic biochemistry will be required to complete one prior to BIOS 701 Systems Biology.

**Policies**

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).
Reduction of Credits
For students entering the doctoral program with a master's degree in a related field from a regionally accredited institution, the number of required credits may be reduced up to 30 credits, subject to approval of the program faculty and the college's associate dean for student affairs.

Transfer of Credit
Graduate credits taken previously and not used toward another degree may be transferred, subject to the approval of the advisor, the program director, and the associate dean. See AP.6.5 Credit by Exam, Reduction or Transfer (p. 88) for more information.

Requirements

Degree Requirements
Total credits: 72
Students should refer to the Admissions & Policies (p. 760) tab for specific policies related to this program.

Students in the doctoral program are required to present two research papers at a meeting or conference any time before graduation.

Doctoral Coursework

Bioscience Core
BIOL 682 Advanced Eukaryotic Cell Biology 3
Six credits or two instances of
BIOS 703 Laboratory Rotation 6
Three credits of
BIOS 704 Topics in Biosciences 3
Total Credits 12

Concentration in Cell and Molecular Biology (CMB)
This concentration prepares students for significant contributions in an academic or industrial research career. Coursework covers microarray analysis of gene expression, proteome analysis, sequencing and analysis of gene polymorphisms, gene and genome evolution, molecular studies of disease mechanisms, mechanisms of toxicology and mutagenesis, developmental neuroscience, and biotechnological applications.

Select 12 credits from the following: 12
BIOS 740 Laboratory Methods in Functional Genomics and Biotechnology
BIOS 741 Genomics
BIOS 742 Biotechnology
BIOS 743 Genomics, Proteomics, and Bioinformatics
BIOS 744 Molecular Genetics
Total Credits 12

Concentration in Biocomplexity and Evolutionary Biology (BEB)
This concentration prepares students for careers in academia, government or industry. Through this concentration students will learn laboratory and quantitative skills that will enable them to investigate evolutionary relationships among organisms at the population, species or ecosystem level. Students will be encouraged to explore a wide range of coursework in order to develop a broad background in evolutionary biology and a deep knowledge of relevant methodologies necessary to keep abreast in this rapidly changing field.

The science of evolutionary biology is fundamentally concerned with documenting not only genetic change, but also the processes that cause it. Evolutionary biology includes paleobiology, population genetics, evolutionary ecology and phylogenetics. Biocomplexity is the study of living organisms, including their unique structural, chemical and genetic properties, their distribution and abundance in nature, and their evolutionary relationships to all other organisms. Given the fact that most of the earth's biodiversity is unknown, collecting, cataloging and studying organisms have always been and will continue to be one of the most challenging aspects of biology.

Select 12 credits from the following: 12
BIOL 574 Population Genetics
BIOL 585 Eukaryotic Cell Biology Laboratory
BIOS 716 Methods in Evolutionary Biology
BIOS 767 Molecular Evolution
Total Credits 12

Electives
Select 24-36 credits from the following lists associated with the chosen concentration:

Cell and Molecular Biology & Microbiology and Infectious Disease Concentrations
BIOL 564 Techniques in Virology
BIOL 568 Advanced Topics in Molecular Genetics
BIOL 579 Molecular Evolution and Conservation Genetics
BIOL 580 Computer Applications for the Life Sciences
BIOL 685 Emerging Infectious Diseases
BIOS 701 Systems Biology
BIOS 702 Research Methods
BIOS 710 Current Topics in Bioscience
BIOS 740 Laboratory Methods in Functional Genomics and Biotechnology
Total Credits 24-36
BIOS 741  Genomics
BIOS 742  Biotechnology
BIOS 743  Genomics, Proteomics, and Bioinformatics
BIOS 744  Molecular Genetics
BIOS 760  Seminar in Molecular Systematics
BIOS 898  Directed Studies in Biosciences
BIOS 899  Directed Research in Biosciences
BINF 633  Molecular Biotechnology
BINF 636  Microarray Methodology and Analysis
BINF 705  Research Ethics

Biocomplexity and Evolutionary Biology Concentration

BIOL 506  Selected Topics in Microbiology
BIOL 507  Selected Topics in Ecology
BIOL 508  Selected Topics in Animal Biology
BIOL 518  Conservation Biology
BIOL 532  Animal Behavior
BIOL 533  Selected Topics in Plant Biology
BIOL 537  Ornithology
BIOL 538  Mammalogy
BIOL 539  Herpetology
BIOL 543  Tropical Ecosystems
BIOL 559  Fungi and Ecosystems
BIOL 561  Comparative Animal Physiology
BIOL 566  Cancer Genomics
BIOL 572  Human Genetics
BIOL 573  Developmental Genetics
BIOL 643  Microbial Ecology
BIOL 715  Microbial Physiology
BIOS 741  Genomics
BIOS 742  Biotechnology
BIOS 743  Genomics, Proteomics, and Bioinformatics
BIOS 744  Molecular Genetics
BIOS 898  Directed Studies in Biosciences
BIOS 899  Directed Research in Biosciences
EVPP 536  The Diversity of Fishes
GEOL 501  Selected Topics in Modern Geology (may be repeated once)
GEOL 534  Vertebrate Paleontology

Total Credits 24-36

1 Students may take other courses related to their research topic if approved by their committee. Courses in Geographic Information Systems or Statistics are encouraged.

Dissertation Committee

Upon admission to the program, each student is assigned an advisor from the bioscience faculty. The advisor may be changed by mutual consent of student and advisor, or petition to the program director and associate dean. With their advisor, students adopt an individual program that focuses on a specific area of research.

By the end of the fourth semester of coursework, students assemble a dissertation committee of four graduate faculty members with representation from at least two academic departments. The faculty advisor and the program director approve the program of study.

Qualifying Examination

On nearing completion of course requirements, students take a qualifying exam with a written and an oral component. At the discretion of the committee, the written qualifying exam may be retaken once if the student’s performance was deemed below satisfaction.

Advancement to Candidacy

Upon successful completion of the qualifying exam, the majority of all coursework, and an accepted dissertation proposal, students will be recommended for advancement to candidacy by the committee and the program director.

The semester after advancement to candidacy, students are eligible to enroll in dissertation research (BIOS 999 Doctoral Dissertation Research). Students must review their progress on the dissertation with their graduate committee on a regular basis until graduation.

Dissertation Research

No more than 24 combined credits from BIOS 998 Doctoral Dissertation Proposal and BIOS 999 Doctoral Dissertation Research may be applied toward satisfying doctoral degree requirements. Students register for a minimum of 3 credits of BIOS 999 Doctoral Dissertation Research in the first semester of advancement.

Select 12-24 credits from the following:

<table>
<thead>
<tr>
<th>BIOS 998</th>
<th>Doctoral Dissertation Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 999</td>
<td>Doctoral Dissertation Research</td>
</tr>
</tbody>
</table>

Total Credits 12-24

Doctoral Dissertation

After advancing to doctoral candidacy, students work with their dissertation committee to develop their dissertation proposal into a completed doctoral dissertation. The dissertation research should represent a significant contribution that is publishable in a refereed scientific journal. When the dissertation is complete, students will present their results to their graduate committee and defend their dissertation in a public forum.

Personalized Medicine Graduate Certificate

Banner Code: SC-CERG-PRSM

Academic Advising

Colgan Hall, Room 312
Science and Technology Campus
Phone: 703-993-8400
Email: biologygrad@gmu.edu
Website: ssb.gmu.edu

This certificate is based upon a set of core courses that currently support the Biology, MS (p. 755); the Biosciences, PhD (p. 760); the Bioinformatics and Computational Biology, MS (p. 749); and the Bioinformatics and Computational Biology, PhD (p. 754) degree programs. Students completing this certificate will receive the most up-to-date advanced education available in the region. Completion of the
Certificate will enhance the careers of those students who are already working in this area, and can also serve as a useful intermediate step towards later enrollment in master’s or doctoral programs.

Courses are generally offered in the late afternoon or in the evening to accommodate students with full-time employment outside of the university.

This certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions
University-wide admissions policies can be found in the Graduate Admissions Policies (p. 66) section of this catalog.

To apply for this program, please complete the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now).

Prospective students should hold an undergraduate GPA of 3.00 or current employment in clinical or translational research, diagnostics lab, or biological data analysis field.

To be considered for admission, applicants must submit the George Mason University Admissions Application (https://www2.gmu.edu/admissions-aid/apply-now), all undergraduate transcript(s), three letters of recommendation, a statement of interest, and GRE general scores or MCAT scores.

Policies
Students may not enroll initially in any College of Science master’s or doctoral program and later transfer into this certificate program.

For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Premium Tuition
This certificate charges students a differential tuition rate of $100 per credit hour, which is added to the standard graduate tuition rate (regardless of in or out of state status).

Requirements

Certificate Requirements
Total credits: 15

Students should refer to the Admissions & Policies (p. 763) tab for specific policies related to this program.

Required Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 562</td>
<td>Personalized Medicine</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 572</td>
<td>Human Genetics</td>
<td>3</td>
</tr>
<tr>
<td>or BIOL 666</td>
<td>Human Genetics Concepts for Health Care</td>
<td></td>
</tr>
<tr>
<td>BIOS 743</td>
<td>Genomics, Proteomics, and Bioinformatics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

Electives
Select 6 credits from any of these electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 553</td>
<td>Advanced Topics in Immunology</td>
</tr>
<tr>
<td>BIOL 566</td>
<td>Cancer Genomics</td>
</tr>
<tr>
<td>BIOL 568</td>
<td>Advanced Topics in Molecular Genetics</td>
</tr>
<tr>
<td>BIOL 575</td>
<td>Selected Topics in Genetics</td>
</tr>
<tr>
<td>BIOL 669</td>
<td>Pathogenic Microbiology</td>
</tr>
<tr>
<td>BIOL 682</td>
<td>Advanced Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>BIOL 695</td>
<td>Seminar in Molecular, Microbial, and Cellular Biology</td>
</tr>
<tr>
<td>BIOS 701</td>
<td>Systems Biology</td>
</tr>
<tr>
<td>BIOS 741</td>
<td>Genomics</td>
</tr>
<tr>
<td>BINF 630</td>
<td>Bioinformatics Methods</td>
</tr>
<tr>
<td>BINF 633</td>
<td>Molecular Biotechnology</td>
</tr>
<tr>
<td>BINF 733</td>
<td>Gene Expression Analysis</td>
</tr>
</tbody>
</table>

Up to 4 credits of BIOL 693 and/or BINF 796. 1

Total Credits 6

1 Credit for these two courses may only be applied toward the certificate's elective courses if the research topic is relevant to personalized or translational medicine.

College of Visual and Performing Arts

C211 College Hall
Fairfax Campus
MSN: 1H4
Phone: 703-993-4551
Website: cvpa.gmu.edu

Administration

• Rick Davis, Dean
• Lisa C. Kahn, Associate Dean
• Nicole Springer, Assistant Dean for Academic Affairs
• Andrew Bursten, Director Finance and Administration, CFO
• Julie Thompson, Executive Director, Center for the Arts

College Code: AR

The mission of the College of Visual and Performing Arts (CVPA) is to advance the study, creation, performance, exhibition, and management of the arts, acting on the strong belief in their transformative influence on individuals and civilizations. Fusing the academic and the professional, the campus and the community, the past and the present, CVPA seeks to engage new art forms, populations, and ways of working to meet the needs of a changing world both inside and beyond the walls of the university. The College strives to ensure that Mason’s entire student population has the opportunity to experience and study the arts as a key component of a well-rounded liberal education.

Studying the arts goes hand in hand with creation, performance, and management. Each major features strong academic preparation in the history and theory of the art form in support of discipline-based technique courses. The college’s faculty of practicing artist-teachers-managers works closely with students in a variety of curricular and co-curricular creative projects. Once basic techniques are established,
students are encouraged to stretch, grow, and experiment within this supportive environment, enhancing their experience as working artists while enriching the cultural life of the campus community.

An education in the arts is deepened by regular contact with the work of distinguished visiting artists. The college is home to the Center for the Arts (http://cfa.gmu.edu) on the Fairfax campus and the Hylton Performing Arts Center (https://hyltoncenter.org) on the Science and Technology campus, both of which present diverse programs of cultural experiences for the entire university community, as well as Northern Virginia and the greater Washington, D.C., area. Artists from across the country and around the world regularly perform, give master classes, work with students during extended residencies, and interact with the community in a variety of other ways. The accessibility and vitality of the Concert Hall, Hylton Center, TheaterSpace, the School of Art Gallery, Johnson Center Cinema, Harris Theater, and other campus and regional venues provide an unparalleled educational experience in the arts.

Requirements & Policies

General Academic Policies
The requirements for each academic program offered by the college are described in the sections below. Students are ultimately responsible for their academic progress towards their degrees. All students are subject to the university’s general academic policies in addition to those specific to each academic unit.

Accommodations for Disabled Students
Students with documented disabilities should contact the Office of Disability Services (http://ods.gmu.edu) (Student Union I, Room 222; 703-993-2474) to open a file and learn more about accommodations that may be available to them.

Auditing
Students who wish to audit a course must obtain written permission from the instructor before registering for the class. Students do not receive grades or credit for audited courses. A student who audits a course does so for the purposes of self-enrichment and academic exploration and are not required to actively participate in class assignments, presentations, or exams. The course is offered only on a space-available basis with the approval of the instructor. It is expected that auditing students will respect all class rules and practices.

The Course Audit Form can be found on the Registrar’s website (http://registrar.gmu.edu). The form must be submitted to the Office of the University Registrar by the last day to drop the course.

Note: A previously audited course may be taken again for credit in a later term. Students may also audit a course previously taken and passed; however, students may not change from credit to audit status nor from audit to credit status after the end of the drop period, as defined above. The usual tuition and fees apply to audit status.

Auditing Courses under the Senior Citizen Waiver Program
Under terms of the Senior Citizen Higher Education Act of 1974, eligible Virginia residents (requires legal domicile for one year) that are 60 years of age or older are entitled to enroll to audit (no academic credit received) up to three academic credit courses per semester and pay no tuition or fees, except fees established for the purpose of paying for course materials or laboratory fees.

For more information on policies and procedures, please refer to the Registrar’s website (https://registrar.gmu.edu/topics/senior-citizen-waiver).

E-mail
George Mason University uses only Mason e-mail accounts to communicate with enrolled students. Students should activate their Mason e-mail, use it to communicate with their school/department/program and other administrative units, and check it regularly for important information.

Registration
Students are personally responsible for correctly registering for courses and paying all tuition and fees by the official university registration and payment deadlines. Instructors do not have the authority to add students to courses. All students should verify the accuracy of their enrollment before the end of the add and drop periods.

Questions about Academic Policies
Students with questions regarding exceptions to academic policies should contact the CVPA Academic Affairs Office (College Hall, C200; 703-993-4551).

Undergraduate Policies and Information

Degree Programs
The undergraduate degree consists of course work in the Mason Core (p. 135), a major area of study, and electives. To earn a bachelor’s degree, students must complete a minimum of 120 credits, of which at least 45 must be upper level courses (numbered 300 and above). At least one course at the 300 or 400 level must be designated “writing intensive.”

Academic Course Load
Undergraduate students earning degrees in CVPA may register for 18 credits per fall and spring semester without the dean’s permission. Students are advised that they will be required to pay additional tuition beyond the 16-credit, university full-time academic load. Students should be cognizant of the time commitment when they register for their courses, especially if they register for high numbers of credits. Students are urged to consult with their advisor and familiarize themselves with Mason guidelines for work and academic load. Students are reminded that employment must not take priority over course work.

Advising
Students are assigned advisors and are strongly encouraged to meet with them periodically, and particularly when they achieve 75 credits or are two semesters before expected graduation. Undeclared CVPA students and undergraduate students in academic difficulty (cumulative GPA under 2.00) are required to see an advisor prior to registration for the semester following registration restriction.

Minimum Cumulative GPA in Major
Undergraduate students earning CVPA degrees must earn a minimum 2.00 cumulative GPA in their major, or higher, if required by their program.

Foreign Language Requirement
Some degrees within CVPA require intermediate-level proficiency in one foreign language or the completion of a minor, double major or double degree. The foreign language requirement may be fulfilled by completing a course in a foreign language numbered 202, 209, or 210 (or higher level courses taught in the language) or achieving a satisfactory score on
an approved proficiency test. International students should consult the CVPA Student Academic Affairs Office about a possible waiver of this requirement.

**Leave of Absence**

All undergraduate students who are planning an absence from George Mason must submit a formal request for Leave of Absence to the Office of the University Registrar. Students do not need to complete the Leave of Absence form if they are participating in a George Mason University sponsored study abroad program or have received permission to study elsewhere. The maximum time allowed for a Leave of Absence is two years. A new admission application will be required if a student is away for more than 2 academic years OR a Leave of Absence form was not submitted. Re-admission is not guaranteed. See AP.1.8 Undergraduate Leave of Absence (p. 78) for full university policy.

**Mason Core Program**

The baccalaureate degree requires students to take a range of courses that provide a broad knowledge of the world, develop the ability to think both conceptually and critically, acquaint them with many different methods of inquiry, and provide the skills to continue intellectual growth throughout their lives. Students select from a range of courses outlined in the Mason Core (p. 135) section. Students accepted into the Honors College fulfill some/all of their Mason Core (p. 135) requirements with completion of that program of study. Students are strongly advised to consult the University Mason Core (p. 135) page.

**Minors**

Some degrees within CVPA require a minor or intermediate-level proficiency in one foreign language. University policy states that students must earn 8 distinct credits toward their minor that are not used for their major. Some programs have more specific criteria for applying credits to a minor.

**Physical Education Courses**

Activity courses offered by the College of Education and Human Development cannot be counted toward credits required for a degree in CVPA. Students may take non-activity RECR courses for elective credit for CVPA degrees.

**Prerequisites**

Undergraduate students must earn a C or better in prerequisite courses to proceed to the next course.

**Study Elsewhere**

Students with fewer than 60 hours of transfer coursework (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education) may take up to 12 hours of coursework in CVPA disciplines at another institution. A student may seek permission for additional hours beyond these limits for summer registration if his/her permanent residence is more than 50 miles from the George Mason University Fairfax campus. Students must advance, written approval from the student’s dean and the course dean’s office. Students who enroll elsewhere without advance written permission while enrolled at Mason will not receive transfer credit for the course work taken at another institution unless they re-apply for admission to Mason as transfer applicants and meet all priority deadlines. Re-admission is not guaranteed and transfer credit is awarded based upon course equivalences in effect at the time of re-admission. Freshmen and transfer students in their first semester at Mason are not permitted to study elsewhere. Courses previously attempted at Mason (including withdrawals) cannot be taken elsewhere. Schools and Colleges have study elsewhere criteria for courses in their disciplines in addition to University policy. Students must be in good standing with a minimum cumulative GPA of 2.00 in their Mason courses. See AP.1.4.2 Permission to Study Elsewhere (p. 76) for additional information.

**Transfer of Credit**

Transfer students must resolve transfer credit issues within the first academic year of enrollment.

Undergraduate students may transfer a maximum of 18 credits earned in nondegree status into a degree program.

**Withdrawals**

Students are responsible for all courses in which they remain officially enrolled once the drop period has ended.

Undergraduates enrolled in degree programs are eligible to withdraw from three classes through the ninth week (of a fifteen week semester) without dean’s approval and at the student’s own discretion during their entire undergraduate career at Mason. See AP.1.5.1 Selective Withdrawal (p. 78) for Undergraduates for further details.

Instructors do not have the authority to withdraw students from classes. Withdrawals other than Selective Withdrawals require the approval of the academic dean and are typically allowed only for full semesters at a time (all enrolled courses) and are only permitted for non-academic reasons. No withdrawals can be approved to avoid an unsatisfactory grade. When submitting a withdrawal request, students must provide original, verifiable, third-party documentation for the reason for the withdrawal. Requests for withdrawals should be submitted as early in the semester as possible, and never after the last day of classes.

**Graduate Policies and Information**

For items not listed below, please refer to the university’s policies: AP.6 Graduate Policies (p. 87).

**Admissions**

CVPA follows university policies for graduate admissions. Some programs ask for additional admissions requirements. Please refer to the program for a listing of all requirements.

All applicants, regardless of admission or not, will have their decision uploaded through their self-service center. Applicants will be notified that their decision is ready for their review via email to the address they provided at the point of application. Applicants will not be told decisions over the phone or in-person. Applicants who do not meet our minimum requirements (e.g., GPA, test scores, pre-screening requirements, portfolio requirements) may be issued a denial decision before their application is completed.

The College of Visual and Performing Arts does not offer an appeal process for admissions decisions. Applicants are welcome to file a new application for a future semester.

**Graduate Programs**

CVPA’s graduate programs offer highly focused study designed to prepare students for professional work in the arts and education. The requirements for each graduate degree are described under the program’s catalog entry.
Transfer of Credit
Graduate credit earned prior to admission to a certificate, master’s, or doctoral program may be eligible to be transferred and applied to a CVPA graduate program, certificate or doctoral degree. Please see AP 6.5.3 Transfer of Credit (p. 88) for more detailed information about the requirements.

Appeals Process

Appeals of Academic Procedures
See Appeals of Academic Procedures (p. 96) for University Policies.

CVPA Procedures for Grade Appeal
Although faculty members are generally the best judges of student performance in their classes, circumstances may cause a student to believe that a professor has made an unfair grade decision. Therefore, a Grade Appeal process has been established to ensure a fair hearing in such cases. Grade appeals are not accepted after the last day of classes for the following semester, as indicated in the Schedule of Classes (spring for fall grades, fall for spring and summer grades). The process for initiating and resolving a Grade Appeal is as follows:

1. The first step to resolve differences between an instructor and student concerning a grade should be a discussion with the instructor; this meeting should occur within two weeks of the student’s written request for a meeting; if the instructor is no longer affiliated with the University, the appeal is made to the Program Director.
2. If the instructor and student cannot resolve the issue, and the student wishes to pursue the matter further, he or she must present to the Program Director, a written appeal including the following:
   • A description of the outcome of the informal discussion process.
   • Any relevant documents the student would like to have reviewed as part of the appeal process.
   • A copy of the course syllabus and assignment descriptions.
   The Program Director will discuss this appeal with the faculty member and will provide the student with written notification of the outcome within 1 week.
3. Failing a satisfactory resolution, the student may appeal the grade by submitting a written appeal to the CVPA Academic Affairs Office. Undergraduate students will submit their request to Assistant Dean Nicole Springer; graduate students will submit their requests to Associate Dean Dr. Lisa Kahn in the Academic Affairs Office.

The decision of the CVPA Assistant or Associate Dean is final.

CVPA Procedures for Appeal of an Academic Action
In exceptional circumstances a student may request a meeting to review the decision of an academic action.

1. The student must state in writing the reasons for requesting further appeal of an academic action, and provide any additional or new information relevant to the appeal.
2. The Assistant Dean (undergraduate)/Associate Dean (graduate) for Academic Affairs reviews all appeals.
3. The dean will conduct a review of the documentation provided by the student, and may request additional information in order to make an informed decision.
4. A nonparticipating observer of the student’s choice may attend the meeting with the dean, and the dean may also have a nonparticipating observer attend.
5. The student may follow University appeal procedures outlined in Appeals of Academic Procedures (p. 96).

CVPA Procedure for Non-Academic Appeals or Grievance
A student who intends to file a non-academic appeal, or intends to file a grievance against a faculty member, another student, or administrator undertakes the following steps:

1. The student meets with the professor and Program Director to discuss the non-academic appeal/grievance; this meeting should occur within two weeks of the student’s written request for a meeting; if the person is no longer affiliated with the University, the request is made to the Department or Program Director only.
2. The professor (Program Director) responds to the student within three days of the meeting.
3. If the student wishes to continue the non-academic appeal/grievance, the student must submit a written explanation to Academic Affairs Office. The Associate Dean reviews all non-academic appeals and grievances, and has the final decision for the college
4. The student may follow additional University appeal procedures outlines in Appeals of Academic Procedures (p. 96).

Academic Termination from an Undergraduate Program
Termination from a major may be imposed as a result of excessive repeating of required courses without achieving the minimum standard, and for other evidence of continued failure to make adequate progress toward completion of the major. Some programs have specific criteria for termination from the major. See the program and AP 5.2.4 Termination from the Major (p. 85).

Academic Dismissal from an Undergraduate Program
A third suspension results in academic dismissal from the university. See AP 5.2.6 Academic Dismissal (p. 85) for details.

Academic Dismissal from a Graduate Program
The Office of the University Registrar contacts students via e-mail if they have earned an academic warning, or dismissal. Students wishing to appeal should contact the CVPA Graduate Programs Office within three days of the e-mail date. A deadline for the appeal documentation is determined, normally two weeks. Students are to submit:

1. A written statement explaining the circumstances that led to the dismissal, along with supporting documentation from employers, physicians, or other sources as necessary;
2. Evidence that the circumstances precipitating the unsatisfactory academic performance have been remedied;
3. Statement from department and program’s graduate coordinator supporting the student’s continued enrollment at the University.

Upon receipt of the above,
1. The Associate Dean of Academic Affairs reviews the appeal.
2. The final decision of the Associate Dean is forwarded to the student and the Office of the University Registrar.
3. The student may follow University appeal procedures outlined in Appeals of Academic Procedures (p. 96).
For these, and any other academic concerns, students are encouraged to contact George Mason University’s Ombudsman for Student Academic Affairs (p. 105). The ombudsman is a neutral, independent, informal, and confidential party who provides assistance to students in resolving university-related concerns. The ombudsman is an advocate for fairness and the equitable treatment of students, operates independently of all formal grievance processes at the university, and considers all sides of an issue in an impartial and objective manner. The ombudsman has no authority to make exceptions or to grant requests but can perform informal investigations and, as a result, may recommend actions that lead to changes in processes and policies at the university. Meetings with the ombudsman are confidential. The ombudsman serves all undergraduate and graduate students at the university.

### Academic Units

- Arts Management Program
- Computer Game Design Program
- Film and Video Studies Program
- School of Art
- School of Dance
- School of Music
- School of Theater

### Programs

- Visual and Performing Arts, MFA

### Visual and Performing Arts, MFA

**Banner Code:** AR-MFA-VPA

**Stevie Otto, Assistant Director of CVPA Graduate Admissions**

C211 College Hall
Fairfax Campus

Phone: 703-993-5576
Email: artsgrad@gmu.edu
Website: cvpa.gmu.edu/program/view/19515

The MFA in Visual and Performing Arts is a terminal degree which prepares students as professional artists and scholars who can work within their specialty and teach at the university level. Creative work and skill building are at the core of the study. The curriculum is designed for serious and talented students who are prepared to examine modes of creative inquiry in an inclusive, unique environment that promotes exploration, analysis, synthesis, and development as artists.

### Admissions & Policies

#### Admissions

**Concentration in Dance**

The MFA in Visual and Performing Arts, concentration in Dance, is a highly selective 60-credit program of study grounded in the modern dance genre that emphasizes mastery in performance, choreography, and teaching in higher education. Applicants must have significant (5 years or more) professional performance experience in modern or ballet at the national or international level. They must also demonstrate professional competence in choreography as exemplified by a significant body of work, and have experience teaching technique at the advanced level.

All MFA applicants are required to submit the following items:

- Online Application and Fee
- Official transcripts from each institution of higher education attended
- 3 letters of recommendation
- Resume
- Goals Statement

The following should be sent directly to the School of Dance via SlideRoom:

- 15-minute video of original choreography
- Artistic Goals Statement
- Resume
- Applicant must satisfy the following prerequisites: advanced dance technique, improvisation, dance composition, history, anatomy/kinesiology, and dance production. Prerequisite courses are usually fulfilled if the applicant has earned a BA or BFA in Dance.

Qualified students will be invited for an audition after review of application materials.

#### Concentration in Graphic Design

All MFA applicants are required to submit the following items:

- Online Application and Fee
- Official transcripts from each institution of higher education attended
- 3 letters of recommendation
- Resume
- Goals Statement

Additional Requirements for Concentration in Graphic Design:

- Portfolio
- Writing Sample: A critical and historical essay or academic paper on a design- (preferred) or art-related topic.

**Portfolio Guidelines**

The applicant’s portfolio is a major selection criterion for graduate admission and should represent the applicant’s most accomplished work.

The portfolio and all other application materials should be submitted to the Office of Graduate Admissions. For more information, contact the School of Art office at 703-993-8898.

Portfolios should include 20 samples of design work submitted through SlideRoom. Samples must be labeled with: name of artist, title, and date. Videos and Flash files (no more than 4 minutes for each section) must be playable through SlideRoom. In the case of collaborative work, the applicant’s role should be clearly stated.

#### Concentration in Theater

Theater MFA students are admitted to a specific emphasis: acting, design & technology, directing, musical theater, or playwriting & dramaturgy. Specific programs of study will be designed for each individual, based on previous experience and expertise.
Admissions Requirements
All MFA applicants are required to submit the following items:

- Online Application and Fee
- Official transcripts from each institution of higher education attended
- 3 letters of recommendation
- Resume
- Goals Statement

Additional requirements for concentration in Theater:

- Portfolio
- Interview or Audition

Portfolio Guidelines
The applicant’s portfolio is a major selection criterion for graduate admission and should represent the applicant’s most accomplished work. The portfolio and all other application materials should be submitted to the Office of Graduate Admissions. For more information, contact the School of Theater office at 703-993-1120.

Portfolio requirements are different for each graduate area of emphasis and are listed below. Incomplete portfolios will not be considered. Applicants’ portfolio items are considered part of the application for admission and, thus, cannot be returned. Please do not send original materials.

Portfolio Requirements by Area of Emphasis

Design & Technology
One fully documented design in your area of emphasis (i.e., lighting, sound, scenery, costume, etc.). This may include: script analysis, research, renderings, paperwork, drafting, diagrams, sound clips and photographs of the production. Additional examples of design work and artistic vision may also be submitted. Guidelines available on School of Theater website.

Playwriting & Dramaturgy
One to three writing samples, totaling no more than 25 pages. Playwrights should submit a one-page synopsis and dialogue sample. Dramaturgs may submit essays, reviews, or articles written for the general public, along with a cover letter addressing key areas of interest in the field. Guidelines available on School of Theater website.

Directing
Applicants for the MFA with an emphasis in Directing must submit both a portfolio of produced work, as well as a directorial analysis of a play or opera. For the latter, include at least six visual images with annotation that support your ideas. Guidelines available on School of Theater website.

Acting and Music Theater Performance
A three page written character analysis of one of the roles to be presented at auditions. Guidelines available on School of Theater website. Please see audition requirements.

Audition Requirements

Acting
Applicants for the MFA with an emphasis in Acting must complete an audition for the program. Applicants should be prepared with three contrasting monologues. Two monologues will be required for the audition, and a third may be requested should additional material be needed. Please prepare both classical and contemporary work. Auditors will be looking for range, transformational potential, and vocal and physical expressiveness.

Musical Theater
Applicants for the MFA with an emphasis in Musical Theater must complete an audition for the program. Applicants should be prepared with two songs and two monologues. Contrast between the pieces is essential. Please prepare both classical and contemporary work. Auditors will be looking for musical ability, range, transformational potential, vocal and physical expressiveness, dance and movement skills, and emotional honesty through text and song. An accompanist may be provided and requires a cash fee on the day of audition. This includes a brief rehearsal prior to appointment time. Those auditioning may provide their own accompanist.

Concentration in Visual Art
All MFA applicants are required to submit the following items:

- Online Application and Fee
- Official transcripts from each institution of higher education attended
- 3 letters of recommendation
- Resume
- Goals Statement

Additional Requirements for Concentration in Visual Arts:

- Portfolio

Portfolio Guidelines
The applicant’s portfolio is a major selection criterion for graduate admission and should represent the applicant’s most accomplished work. The portfolio and all other application materials should be submitted to the Office of Graduate Admissions. For more information, contact the School of Art office at 703-993-8898.

Portfolio requirements are different for each graduate area of emphasis and are listed below. Incomplete portfolios will not be considered.

Portfolio Requirements by Area of Emphasis

Visual and Performing Arts, MFA
- One to three writing samples, totaling no more than 25 pages. Written work should be submitted through SlideRoom. Samples must be labeled with: name of artist, title and date.
- Videos and Flash files (no more than four minutes for each section) must be playable through SlideRoom. Only one video sample is required, although it may be repeated. Videos and Flash files (no more than four minutes for each section) must be playable through SlideRoom. Only one video sample is required, although it may be repeated.
- Please be sure to clearly mark the relevant parts of the video for viewing, with the applicant’s role clearly stated.
- If writing-based materials are submitted, they should be submitted in printed form.

New Media Arts
20 images submitted through SlideRoom. Samples must be labeled with: name of artist, title and date. Videos and Flash files (no more than four minutes for each section) must be playable through SlideRoom. Only the relevant parts of the video should be marked for viewing, with the applicant’s role clearly stated.

Painting and Drawing
20 images submitted through SlideRoom. Samples must be labeled with: name of artist, title and date.
Photography
20 images submitted through SlideRoom. Samples must be labeled with: name of artist, title and date.

Printmaking
20 images submitted through SlideRoom. Samples must be labeled with: name of artist, title and date.

Sculpture
20 images submitted through SlideRoom. Samples must be labeled with: name of artist, title and date.

Policies

Program Requirements
Candidates are required to complete 60 credits, of which 30 are made up from core requirements. An additional 30 credits are based on concentration area and comprehensive experience.

MFA concentrations include:
- Dance
- Graphic Design
- Theater
- Visual Art

While the faculty anticipate that students will work through their coursework as described in this catalog, individuals with extensive professional accomplishment may craft an individualized program that meets curricular requirements. Individualized programs require the recommendation of the Graduate Committee within the student’s respective school as well as the approval of the CVPA Associate Dean.

Requirements

Degree Requirements
Total credits: 60

Students should complete all requirements within the concentration to which they have been admitted. Candidates are required to complete 60 credits, of which 30 are made up from core requirements. An additional 30 credits are based on concentration area and comprehensive experience.

Concentration in Dance (DANC)
The MFA in Visual and Performing Arts, concentration in Dance, is a highly selective 60-credit program of study grounded in the modern dance genre that emphasizes mastery in performance, choreography, and teaching in higher education.

Core Degree Requirements

Research Methods
AVT 600 Research Methodologies 3

Graduate Seminar
Two credits of 2
DANC 501 Graduate Dance Seminar

Writing Seminar
AVT 621 Art Writing Seminar 3

Advanced Aesthetics
DANC 598 Philosophy and Aesthetics of Dance 3

Studies in History/Theory/Contemporary Trend
DANC 615 Contemporary Trends 3

Teaching Practicum
DANC 627 Advanced Teaching Seminar 3

Directed Reading
AVT 796 Directed Reading 1

Project
Six credits of 6
DANC 798 Directed Choreography/Project

Thesis
Six credits of 6
DANC 799 Thesis

Total Credits 30

Concentration Requirements
DANC 510 Contemporary Movement Theories 3
DANC 560 Advanced Choreography 3
Three credits of 3
DANC 570 Advanced Dance Performance
DANC 571 Residency Workshop 3

Three credits of 3
DANC 790 Internship
DANC 672 Dance Production 3
Select 12 credits from the following: 12

DANC 525 Advanced Modern Dance (must be taken for a minimum 6 credits)
DANC 545 Advanced Ballet (must be taken for a minimum 3 credits)

Total Credits 30

Concentration in Graphic Design (GD)
The MFA in Visual and Performing Arts, concentration in Graphic Design offers students a comprehensive study and preparation for the graphic design profession. The program includes courses in typography, web design, image making, and brand design, as well as prepares students for an academic career in Graphic Design. The broad range of study is intended to develop professionals prepared for an ever-expanding graphic design field.

Core Degree Requirements

Research Methods
Four credits of 4
AVT 519 Special Topics in Graphic Design

Graduate Seminar
Five credits of 5
AVT 611 Graduate Design Seminar

Writing Seminar
AVT 617 Advanced Typography 4

Advanced Aesthetics
AVT 613 Experiential Design History 3

Studies in History/Theory/Contemporary Trend
AVT 618 Visual Communication Theories 2

Teaching Practicum
Two credits of 2
AVT 670 Teaching Practicum
Directed Reading
AVT 796 Directed Reading 1 1
Project
Six credits of
AVT 798 Directed Project and Exhibition (6 credits) 6
Thesis
Three credits of
AVT 799 Thesis 1 3
Total Credits 30

1 Involves a study of the historical basis for a studio project; an independent creative production suitable for public viewing; and a written thesis documenting the evolution of the creative problem and exploring the intention, purpose, and relative success of the finished project.

Concentration Requirements
Select 10 - 14 credits from the following: 10-14
AVT 519 Special Topics in Graphic Design
AVT 614 Brand Identity Design
AVT 619 Advanced Web Design
Select 0 - 4 credits from the following: 0-4
AVT 596 Independent Study
AVT 599 Special Topics in Art and Visual Technology
Other graduate studio courses as approved by director
AVT 641 Graduate Graphic Design I 4
AVT 646 Graduate Graphic Design II 4
AVT 647 Advanced Graduate Graphic Design I 4
AVT 648 Advanced Graphic Design II 4
Total Credits 30

Concentration in Theater (THR)
The MFA in Visual and Performing Arts, concentration in Theater, is a terminal degree that prepares students to become professional artists, work in theater or arts-related fields, and teach at the university level.

Core Degree Requirements
Research Methods
AVT 600 Research Methodologies 3
Graduate Seminar
Two credits of 2
THR 591 Graduate Seminar
Writing Seminar
THR 652 Writing Seminar 3
Advanced Aesthetics
AVT 621 Art Writing Seminar 3
Studies in History/Theory/Contemporary Trend
Six credits of 6
THR 651 Advanced Dramatic Theory and Criticism
Teaching Practicum
THR 655 Teaching Practicum 3
Directed Reading
THR 796 Directed Reading 1

Project
THR 797 Project Preparation 6
& THR 798 and Project Practicum
Thesis
THR 799 Thesis (3 credits) 3
Total Credits 30

Concentration Requirements for All Emphases
THR 539 Aesthetics for the Theater 3
THR 551 Advanced Theater Pedagogy 2
THR 560 Advanced Script Analysis 3
THR 691 Professional Development 1
THR 790 Directed Research 3
Total Credits 12

Track Requirements
In each area of emphasis, students must pick either a professional or academic track. Students in the professional track will complete at least three additional credits in practical production experience over and above the core in the following:
Select 3 credits from the following: 3
THR 694 Graduate Field Experience
THR 696 Advanced Acting Practicum
THR 697 Advanced Playwriting and Dramaturgy Practicum
THR 698 Advanced Directing Practicum
THR 699 Advanced Design Practicum
Total Credits 3
Students in the academic track will complete at least three additional credits in practical teaching over and above the core in the following:
THR 755 Academic Track Practicum 3
Total Credits 3

Emphasis Requirements
With the approval of their mentor, students will have the flexibility to select courses from Emphasis areas:
Select 15 credits from the following: 15
Acting Emphasis:
THR 525 Advanced Musical Theater Workshop
THR 590 Special Topics for Graduate Study
THR 599 Independent Study
THR 610 Acting Mentorship
THR 620 Acting Techniques
THR 694 Graduate Field Experience
THR 696 Advanced Acting Practicum
Design & Technology Emphasis:
THR 530 Topics in Theater Design
THR 590 Special Topics for Graduate Study
THR 599 Independent Study
THR 630 Design Mentorship
THR 694 Graduate Field Experience
THR 699 Advanced Design Practicum
AMGT 602 Seminar in Arts Management
AMGT 609 Performing Arts Management
AMGT 706 Festivals and Special Events
AMGT 752 Arts Entrepreneurship
GAME 635 Issues in Interactive Entertainment
GAME 650 Advanced Music and Sound for Games
AVT 682 Experimental 2D Animation
AVT 686 Experimental 3D Animation
AVT 687 Advanced Topics: New Media
AVT 688 Hybrid Animation
FAVS 565 Documentary Filmmaking
FAVS 575 Fiction Film Directing
FAVS 599 Special Topics

**Directing Emphasis:**

THR 540 Directing Techniques
THR 590 Special Topics for Graduate Study
THR 599 Independent Study
THR 640 Directing Mentorship
THR 694 Graduate Field Experience
THR 698 Advanced Directing Practicum
THR 755 Academic Track Practicum
FAVS 565 Documentary Filmmaking
FAVS 575 Fiction Film Directing
FAVS 599 Special Topics

**Musical Theater Emphasis:**

THR 525 Advanced Musical Theater Workshop
THR 590 Special Topics for Graduate Study
THR 599 Independent Study
THR 610 Acting Mentorship
THR 620 Acting Techniques
THR 694 Graduate Field Experience
THR 696 Advanced Acting Practicum
THR 755 Academic Track Practicum
MUSI 621 Graduate Applied Music
MUSI 688 Opera and Musical Theater Ensemble
MUSI 699 Independent Study

**Playwriting & Dramaturgy Emphasis:**

THR 571 Advanced Playwriting Workshop
THR 590 Special Topics for Graduate Study
THR 599 Independent Study
THR 694 Graduate Field Experience
THR 697 Advanced Playwriting and Dramaturgy Practicum
THR 740 Directors and Dramaturg in Collaboration

**Total Credits** 15

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**Concentration in Visual Art (VART)**

The MFA in Visual and Performing Arts, concentration in Visual Arts, is a terminal degree that prepares students to become professional artists, work in technology or arts-related fields, and teach at the university level. Students select an emphasis in one of the following: New Media, Painting and Drawing, Photography, Printmaking, Sculpture, or InterArts. Students have the opportunity to combine art forms in projects that may be installation, performance, publishing, time-based, or writing-based, and combine creative and critical approaches in their work.

**Core Requirements**

**Research Methods**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AVT 600</td>
<td>Research Methodologies</td>
<td>3</td>
</tr>
</tbody>
</table>

**Graduate Seminar**

Six credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AVT 610</td>
<td>Graduate Seminar</td>
<td>6</td>
</tr>
</tbody>
</table>

**Writing Seminar**

AVT 621 Art Writing Seminar 3

**Advanced Aesthetics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 507</td>
<td>Advanced Aesthetics</td>
<td>3</td>
</tr>
<tr>
<td>or AVT 599</td>
<td>Special Topics in Art and Visual Technology</td>
<td>3</td>
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</tbody>
</table>

**Studies in History/Theory/Contemporary Trend**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 620</td>
<td>Theory, Criticism, and the Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

**Teaching Practicum**

Two credits of

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 670</td>
<td>Teaching Practicum</td>
<td>2</td>
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</tbody>
</table>

**Directed Reading**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 796</td>
<td>Directed Reading</td>
<td>1</td>
</tr>
</tbody>
</table>

**Project**

Six credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 798</td>
<td>Directed Project and Exhibition</td>
<td>6</td>
</tr>
</tbody>
</table>

**Thesis**

Three credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 799</td>
<td>Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits** 30

**Note:**

AVT 796 Directed Reading/AVT 798 Directed Project and Exhibition/AVT 799 Thesis involves a study of the historical basis for a studio project; an independent creative production suitable for public viewing; and a written thesis documenting the evolution of the creative problem and exploring the intention, purpose, and relative success of the finished project.

**Concentration Requirements**

Select 8 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>AVT 596</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>AVT 599</td>
<td>Special Topics in Art and Visual Technology</td>
<td></td>
</tr>
<tr>
<td>Other courses as approved by director</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 16

**Total Credits** 30
Areas of Emphasis

InterArts
Select 16 credits of any 500-600 level AVT course as approved by the division director. InterArts graduate students may combine courses from studio areas of emphasis (as indicated below) and work with faculty to design an interdisciplinary thesis project.

Total Credits 16

New Media Art
Select four from the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 616</td>
<td>Advanced Art and Interactivity</td>
</tr>
<tr>
<td>AVT 676</td>
<td>Graduate Sound Art</td>
</tr>
<tr>
<td>AVT 682</td>
<td>Experimental 2D Animation</td>
</tr>
<tr>
<td>AVT 684</td>
<td>Advanced Image Making</td>
</tr>
<tr>
<td>AVT 685</td>
<td>Video Art</td>
</tr>
<tr>
<td>AVT 686</td>
<td>Experimental 3D Animation</td>
</tr>
<tr>
<td>AVT 687</td>
<td>Advanced Topics: New Media</td>
</tr>
<tr>
<td>AVT 688</td>
<td>Hybrid Animation</td>
</tr>
</tbody>
</table>

Total Credits 16

Painting and Drawing
Select four courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 522</td>
<td>Drawing V</td>
</tr>
<tr>
<td>AVT 523</td>
<td>Drawing VI</td>
</tr>
<tr>
<td>AVT 599</td>
<td>Special Topics in Art and Visual Technology (Must be approved by advisor)</td>
</tr>
<tr>
<td>AVT 622</td>
<td>Advanced Drawing</td>
</tr>
<tr>
<td>AVT 632</td>
<td>Graduate Painting I</td>
</tr>
<tr>
<td>AVT 633</td>
<td>Graduate Painting II</td>
</tr>
<tr>
<td>AVT 634</td>
<td>Advanced Graduate Painting I</td>
</tr>
<tr>
<td>AVT 635</td>
<td>Advanced Graduate Painting II</td>
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</tbody>
</table>

Total Credits 16

Photography

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>AVT 652</td>
<td>Graduate Photography I</td>
</tr>
<tr>
<td>AVT 653</td>
<td>Graduate Photography II</td>
</tr>
<tr>
<td>AVT 654</td>
<td>Advanced Graduate Photography I</td>
</tr>
<tr>
<td>AVT 655</td>
<td>Advanced Graduate Photography II</td>
</tr>
</tbody>
</table>

Total Credits 16

Printmaking

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<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 642</td>
<td>Graduate Printmaking I</td>
</tr>
<tr>
<td>AVT 643</td>
<td>Graduate Printmaking II</td>
</tr>
<tr>
<td>AVT 644</td>
<td>Advanced Graduate Printmaking I</td>
</tr>
<tr>
<td>AVT 645</td>
<td>Advanced Graduate Printmaking II</td>
</tr>
</tbody>
</table>

Total Credits 16

Sculpture

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 662</td>
<td>Graduate Sculpture I</td>
</tr>
<tr>
<td>AVT 663</td>
<td>Graduate Sculpture II</td>
</tr>
<tr>
<td>AVT 664</td>
<td>Advanced Graduate Sculpture I</td>
</tr>
<tr>
<td>AVT 665</td>
<td>Advanced Graduate Sculpture II</td>
</tr>
</tbody>
</table>

Total Credits 16

Note:
Mason does not guarantee the availability of these courses every semester; some are offered in alternate years.

Arts Management Program

3434 N. Washington Boulevard
Arlington, VA 22201
Phone: 703-993-8926
Website: artsmanagement.gmu.edu

Undergraduate Program

Arts Management Minor
The field of visual and performing arts offers many career paths that rely on a strong foundation in one or more art forms and require specific knowledge and skills in administration and management. The minor in arts management is open to all CVPA majors as well as art history majors. All other students must complete 9 credits of arts-related course work to be eligible for this minor.

Graduate Program

MA in Arts Management
The MA in arts management responds to a growing demand for graduates who can manage and coordinate the arts, bridging the worlds of performing and visual arts with applied managerial skills. The Washington, D.C., region is home to one of the nation's largest concentrations of arts organizations. The demand for arts managers with skills in financial and budgetary management, strategic management and entrepreneurship, and public relations, including marketing and advertising, has arguably never been more acute. The need for arts managers with skills in philanthropy, fund raising, and ongoing relationship management in the private and public arts sectors also continues to grow at a fast pace.

The MA is a 36-credit program of study that provides a core curriculum in the fundamentals of arts management. Students complete a 24-credit core and then select 9 credits of approved elective courses. Students also take an internship, which affords an in-depth opportunity to work with professionals in the field. The internship provides the opportunity to work at more than 60 different visual and performing arts venues in Washington, D.C., as well as national and international locations.

Faculty

Program Director
Claire Huschle

Assistant Program Director
Nicole Springer

Professor
Reeder
Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor, with a minimum 2.00 GPA earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMGT 405</td>
<td>Seminar in Arts Management</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 410</td>
<td>Arts Advocacy and Community</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 489</td>
<td>Internship in Arts Management</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Total Credits: 9-10

Mini-Courses

Select 2-3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMGT 402</td>
<td>Professional Development</td>
<td>2-3</td>
</tr>
<tr>
<td>AMGT 471</td>
<td>Introduction to Grant Writing</td>
<td></td>
</tr>
<tr>
<td>AMGT 472</td>
<td>Technology in the Arts</td>
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Total Credits: 2-3

Electives

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AVT 307</td>
<td>Aesthetics</td>
<td></td>
</tr>
<tr>
<td>AVT 309</td>
<td>Art as Social Action</td>
<td></td>
</tr>
<tr>
<td>DANC 390</td>
<td>Dance History I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 391</td>
<td>Dance History II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GAME 230</td>
<td>History of Computer Game Design</td>
<td></td>
</tr>
<tr>
<td>THR 201</td>
<td>Stage Management</td>
<td></td>
</tr>
<tr>
<td>THR 202</td>
<td>Literary Management</td>
<td></td>
</tr>
<tr>
<td>THR 203</td>
<td>Production/Company Management</td>
<td></td>
</tr>
<tr>
<td>THR 355</td>
<td>Moral Vision in American Theater</td>
<td></td>
</tr>
<tr>
<td>THR 359</td>
<td>World Stages (Mason Core) (p. 135)</td>
<td></td>
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<tr>
<td>THR 395</td>
<td>Theater as the Life of the Mind (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 392</td>
<td>Gallery Practices</td>
<td></td>
</tr>
<tr>
<td>AVT 395</td>
<td>Writing for Artists</td>
<td></td>
</tr>
<tr>
<td>DANC 270</td>
<td>Dance Production Lab</td>
<td></td>
</tr>
<tr>
<td>DANC 318</td>
<td>Global Perspectives: World Dance Forms (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 372</td>
<td>Advanced Dance Production</td>
<td></td>
</tr>
<tr>
<td>FAVS 352</td>
<td>Ethics of Film and Video (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 331</td>
<td>Music History in Society I</td>
<td></td>
</tr>
<tr>
<td>MUSI 332</td>
<td>Music History in Society II</td>
<td></td>
</tr>
<tr>
<td>MUSI 393</td>
<td>Music Administration and Management</td>
<td></td>
</tr>
<tr>
<td>MUSI 401</td>
<td>Impact of the Arts on Civilization</td>
<td></td>
</tr>
<tr>
<td>ARTH 374</td>
<td>Art Now</td>
<td></td>
</tr>
</tbody>
</table>

Arts Management Minor

Banner Code: AMGT

Nicole Springer, Assistant Dean and Assistant Director

C211 College Hall
Fairfax Campus

Phone: 703-993-5232
Email: nspringe@gmu.edu
Website: http://artsmanagement.gmu.edu/overview/arts-management-minor-2/

The fields of visual and performing arts offer many career paths that rely on a strong foundation in one or more art forms and require specific knowledge and skills in administration and management. The minor is open to all CVPA majors (p. 767) as well as art history majors (p. 384). All other students must complete 9 credits of arts-related course work to be eligible for this minor.

Faculty

Claire Huschle, Program Director

Nicole Springer, Assistant Director, Arts Management Undergraduate Studies
Note
The above courses may have prerequisites that must be met; see individual course descriptions for details.

Arts Management, MA
Banner Code: AR-MA-AMGT

Elizabeth Ricks, Program Coordinator
5064 Metropolitan Building
Arlington Campus
Phone: 703-993-8926
Email: amgtgmu@gmu.edu
Website: http://artsmanagement.gmu.edu/overview/arts-management-ma/

The MA responds to a growing demand for graduates who can manage and coordinate the arts, bridging the worlds of performing and visual arts with applied managerial skills. The Washington, D.C., region is home to one of the nation’s largest concentrations of arts organizations. The demand for arts managers with skills in financial and budgetary management, strategic management and entrepreneurship, and public relations, including marketing and advertising, has arguably never been more acute. The need for arts managers with skills in philanthropy, fund raising, and ongoing relationship management in the private and public arts sectors also continues to grow at a fast pace.

The MA provides a core curriculum in the fundamentals of arts management. Students complete a 24-credit core and then select 9 credits of approved elective courses. Students also take an internship, which affords an in-depth opportunity to work with professionals in the field. The internship provides the opportunity to work at more than 60 different visual and performing arts venues in Washington, D.C., as well as national and international locations.

Admissions & Policies

Admissions

Admissions Requirements
The program is geared toward those with a passion for the arts. Diversity among applicants is anticipated and sought, and candidates are evaluated on a case-by-case basis. Work experience is strongly preferred. It is anticipated that some students will come from the arts community, with experience and training in music, dance, theater, visual and technical arts and wish to add the skills of marketing, finance, strategy, fundraising, entrepreneurship, and management to their repertoire. It is also expected that some students will enter with more developed skills in business and wish to unite these skills with prior experiences in the arts. Completed applications must be received by February 15 for fall and October 1 for spring.

In addition to meeting general requirements for university admission for graduate study, applicants must submit the following items:

- Official undergraduate transcripts listing a four-year bachelor’s degree from an accredited institution with a minimum GPA of 3.00
- Resume
- Two letters of recommendation from faculty members or individuals who have first-hand knowledge of the applicant’s academic or professional capabilities
- A two-page (maximum) statement of intent and goals
- Portfolio that demonstrates work experience (optional)
- Applicants may be interviewed by at least one member of the program faculty or Admissions Committee

Policies
Please see College of Visual and Performing Arts (p. 764) for college academic policies.

Requirements

Degree Requirements
Total credits: 36

Core Requirements
Elective courses at the 600 or higher course level may be taken only after a candidate has completed and/or registered for at least 12 core course credits. Students are required to successfully complete AMGT 602 Seminar in Arts Management within their first 12 credits.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMGT 601</td>
<td>Fund Raising/Development I</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 602</td>
<td>Seminar in Arts Management</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 603</td>
<td>Arts and Society</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 604</td>
<td>Public Relations and Marketing Strategies for the Arts I</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 606</td>
<td>Governance and Leadership</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 704</td>
<td>Finance and Budgeting for Arts I</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 705</td>
<td>Finance and Budgeting for Arts II</td>
<td>2</td>
</tr>
<tr>
<td>AMGT 710</td>
<td>Arts Policy</td>
<td>3</td>
</tr>
<tr>
<td>AMGT 795</td>
<td>Capstone in Arts Management</td>
<td>1</td>
</tr>
<tr>
<td>CVPA 600</td>
<td>CVPA Graduate ProSeminar (must be taken within the student’s first 2 semesters)</td>
<td>0</td>
</tr>
</tbody>
</table>

Total Credits 24

Internship

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>AMGT 742</td>
<td>Internship I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Electives
Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMGT 504</td>
<td>Professional Development Arts Management</td>
</tr>
<tr>
<td>AMGT 511</td>
<td>Introduction to Grant Writing</td>
</tr>
<tr>
<td>AMGT 513</td>
<td>Technology in the Arts</td>
</tr>
<tr>
<td>AMGT 609</td>
<td>Performing Arts Management</td>
</tr>
<tr>
<td>AMGT 610</td>
<td>Visual Arts Management</td>
</tr>
<tr>
<td>AMGT 620</td>
<td>Legal Aspects in Arts Management</td>
</tr>
</tbody>
</table>
As an undergraduate, the accelerated master’s student is required to complete two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in all coursework and in coursework applied to their major. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, candidates submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean’s Office.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition Form.

**Art and Visual Technology, BFA/Arts Management, Accelerated MA**

**Overview**

Undergraduates in Art may apply to the accelerated master’s degree in Arts Management. If accepted, students will be able to earn an Art and Visual Technology, BA (p. 790) and an Arts Management, MA (p. 774) after satisfactory completion of 150 credits.

Students choosing the accelerated option must fulfill all university requirements for the master’s degree. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete all requirements.

This accelerated option is offered through joint cooperation between the School of Art (p. 784) and the Arts Management Program (p. 772).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admissions Requirements**

Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Academic Affairs Office. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

Interested students should contact the Arts Management Program Office for more details about the application process.

**Accelerated Option Requirements**

As an undergraduate, the accelerated master’s student is required to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, candidates submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing and must meet all master’s degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master’s program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.
As graduate students, accelerated master’s students have an advanced standing and must meet all master’s degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master’s program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean’s Office.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition Form.

Music, BA/Arts Management, Accelerated MA
Overview
Students choosing the accelerated option must fulfill all university requirements for the master’s degree. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete all requirements.

This accelerated option is offered through joint cooperation between the School of Music and the Arts Management Program.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see the Academic Policies section of the catalog.

Application Requirements
Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Graduate Studies. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

Interested students should contact the Arts Management Program Office for more details about the application process.

Accelerated Option Requirements
As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Option Requirements.

As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students will begin their master’s program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credits
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Music. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation and must be approved by the Dean’s Office.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition Form.

Music, BM/Arts Management, Accelerated MA
Overview
Students choosing the accelerated option must fulfill all university requirements for the master’s degree. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete all requirements.

This accelerated option is offered through joint cooperation between the School of Music and the Arts Management Program.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see the Academic Policies section of the catalog.

Admissions
Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Graduate Studies. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

Interested students should contact the Arts Management Program Office for more details about the application process.

Accelerated Option Requirements
As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Option Requirements.

As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework
applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students will begin their master's program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credits
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Music. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation and must be approved by the Dean's Office.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Theater, BA/Arts Management, Accelerated MA
Overview
Undergraduates in Theater may apply to the accelerated master's degree in Arts Management. If accepted, students will be able to earn a BA in Theater (p. 840) and an MA in Arts Management (p. 774) after satisfactory completion of 150 credits.

Students choosing the accelerated option must fulfill all university requirements for the master's degree. The regular designed timeframe would be a start in the Fall and the completion in the Summer five years later, but longer time frames may also be available.

See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies related to this program. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Applicants to accelerated master's programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 90 credits. Applicants should submit an Accelerated Master's Program Application, available from the College of Visual and Performing Arts (CVPA) Graduate Studies. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

Interested students should contact the Arts Management Program Office for more details about the application process.

Accelerated Option Requirements
As an undergraduate, the accelerated master's student is to complete the two graduate courses indicated on their Accelerated Master's Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor's/Accelerated Master's Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. The Internal Internship (AMGT 740 Internal Internship) will be within Theater at Mason (generally with the School of Theater). Students will begin their master's program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Theater. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation and must be approved by the Dean's Office.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Computer Game Design Program
Scott Martin, Director
2019 Art and Design Building
Fairfax Campus
Phone: 703-993-5734
Website: game.gmu.edu

Undergraduate Program
The 120-credit Computer Game Design program enables students to focus on the artistic components of computer game design while providing them with the technical skills prerequisite to the field. Required courses include computer science, art and visual technology, music, the humanities, and computer game design. The required internship provides students with practical experience that enhances their employability post-graduation.

Graduate Program
The MA in Computer Game Design prepares graduate students, who may have studied game design at the undergraduate level or who have degrees in a related technology, humanities, or arts discipline, for a career in game development and design. The program's intention is to prepare students for employment and further study in the computer game design and development fields with a curriculum that reflects the gaming industry's demand for an academically rigorous, technical program coupled with an understanding of the artistic and creative elements of the evolving field of study.
Faculty

Program Faculty
Associate Professor
Martin (director), Willis

Assistant Professors
Grimsby, Hudson, Lebowitz, Nam (director, graduate coordinator), Nolan, Piccione (associate director), Stanley, Wren

Administrative Faculty (Instructional)
Casey (associate director, Virginia Serious Game Institute)

Requirements & Policies

Undergraduate Program
Admissions
A writing sample will be reviewed prior to admission into the Game Design Program. Students will either be accepted, provisionally accepted, or denied. Visit the department website (http://game.gmu.edu) for further instruction.

Writing-Intensive Requirement
The university requires all undergraduate students to complete at least one course designated "writing intensive" in their majors at the 300 level or above. Students in the BFA in computer game design fulfill this requirement by successfully completing GAME 332 RS: Story Design for Computer Games.

Upper-Level Credits
All undergraduate students are required to complete a minimum of 45 credits of upper-division courses at the 300-499 level. Fulfilling degree requirements does not guarantee this requirement will be met.

Major GPA
All GAME undergraduate students must earn a minimum 2.00 cumulative GPA in their major.

All GAME courses except GAME 101 Introduction to Game Design (Mason Core) (p. 135), GAME 250 Music for Film and Video and GAME 367 Writing and Editing Music and Sound must be passed with a grade of C or better.

Academic Policies
All GAME majors are required to adhere to the George Mason University Honor code. Failure to do so may result in academic sanctions up to an including dismissal from the University.

Please see College of Visual and Performing Arts (p. 763) for college academic policies.

Graduate Program
Admissions
Admission is competitive. An offer of admission is valid only for the semester for which the student applies. For application requirements and deadlines, applicants should visit the Computer Game Design website (http://game.gmu.edu). Mason encourages early applications from prospective students who wish to be considered for academic scholarships or grants.

Programs

• Computer Game Design Minor
• Computer Game Design, BFA
• Computer Game Design, MA

Computer Game Design Minor

Banner Code: GAME

Jeremy Tuohy, Academic Advisor
2020 Art and Design Building
Fairfax Campus
Phone: 703-993-2041
Email: wtuohy@gmu.edu
Website: game.gmu.edu/project/undergraduate/

The minor embodies the core components discovered in the larger game design field. It offers a core of foundational studies with intermediate and advanced course options in game animation, game sound and music, or game design and development. Students pursuing the minor will be able to participate in game program events, special activities, game design competitions, and in most projects hosted in the Computer Game Design Research Studio.

Requirements

Minor Requirements
Total credits: 18-19

Coursework

GAME 101 Introduction to Game Design (Mason Core) (p. 135) 3
GAME 210 Basic Game Design 3
GAME 230 History of Computer Game Design 3
GAME 400 Game Design Practicum 3
Select a two or three-course sequence from the following: 6-7
GAME 231 & GAME 398 Computer Animation for Games and Advanced Game Design Animation
GAME 232 & GAME 330 Online and Mobile Gaming and Computer Game Platform Analysis
GAME 233 & GAME 331 and Consumer Gaming Platform Analysis Lab
GAME 250 Music for Film and Video & GAME 367 Writing and Editing Music and Sound
6-7 credits selected from GAME 200-499

Total Credits 18-19

Computer Game Design, BFA

Banner Code: AR-BFA-GAME

Jeremy Tuohy, Academic Advisor
The 120-credit Computer Game Design program enables students to focus on the artistic components of computer game design while providing them with the technical skills prerequisite to the field.

Admissions & Policies

Policies

Upper-Level Credits
All undergraduate students are required to complete a minimum of 45 credits of upper-division courses at the 300-499 level. Fulfilling degree requirements does not guarantee this requirement will be met.

Major GPA
All GAME undergraduate students must earn a minimum 2.00 cumulative GPA in their major. All GAME courses except GAME 101 Introduction to Game Design (Mason Core) (p. 135), GAME 250 Music for Film and Video, and GAME 367 Writing and Editing Music and Sound must be passed with a grade of C or better.

Requirements

Degree Requirements
Total credits: 120

Mason Core
ENGH 101 Composition (Mason Core) (p. 135) 3
ENGH 302 Advanced Composition (Mason Core) (p. 135) 3
AVT 180 New Media in the Creative Arts (Mason Core) (p. 135) 3
CS 105 Computer Ethics and Society (Mason Core) (p. 135) 1
MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) 4
Select one from the following: 4
PHYS 103 Physics and Everyday Phenomena I (Mason Core) (p. 135)
PHYS 160 & PHYS 161 University Physics I (Mason Core) (p. 135) and University Physics I Laboratory (Mason Core) (p. 135) (or another laboratory science course approved by advisor)
PSYC 100 Basic Concepts in Psychology (Mason Core) (p. 135) 3
Six credits of
GAME 490 Senior Game Design Capstone (Mason Core) (p. 135) (Must be taken twice for 3 credits each)
GAME 491 Internship 3-4
Total Credits 53-54

Digital Media Electives
Select at least 12 credits from the following (or another course approved by your advisor):
AVT 280 Introduction to New Media Arts
AVT 354 Digital Photography II
AVT 382 2D Experimental Animation
AVT 383 3D Experimental Animation

1 Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

Non-Specific Mason Core Requirements

Oral Communication (p. 136) 3
Arts (p. 137) 3
Literature (p. 140) 3
Natural Science (p. 141) 1 4
Western Civilization/World History (p. 143) 3
Global Understanding (p. 139) 3
Total Credits 19

1 including laboratory

Approved courses may be found under the Mason Core section of this catalog.
AVT 390 Video Art
AVT 482 Advanced Image Making
AVT 487 Advanced Topics: New Media Art
ENGH 372 Introduction to Film (Mason Core) (p. 135)
FAVS 399 Special Topics in Film and Video Studies
GAME 320 Digital Painting for Games
GAME 399 Special Topics
GAME 431 Advanced Game Animation I

Total Credits 12

Visual Arts Electives
Select 6-8 credits from the following (or another course approved by your advisor):

AVT 215 Typography (Mason Core) (p. 135)
AVT 217 Introduction to Web Design
AVT 222 Drawing I (Mason Core) (p. 135)
AVT 232 Painting I (Mason Core) (p. 135)
AVT 243 Printmaking I (Mason Core) (p. 135)
AVT 252 Darkroom Photography I (Mason Core) (p. 135)
AVT 262 Sculpture I (Mason Core) (p. 135)
AVT 311 Graphic Design Methods and Principles
AVT 323 Drawing II
AVT 324 Figure Drawing
AVT 333 Painting II
AVT 337 Figurative Painting
AVT 343 Printmaking II
AVT 353 Darkroom Photography II
AVT 363 Sculpture II

Total Credits 6-8

General Electives
Select 6-9 credits of General Electives

Total Credits 6-9

Computer Game Design, MA
Banner Code: AR-MA-GAME

Sang Nam, Associate Director
2025 Art and Design Building
Fairfax Campus
Phone: 703-993-4362
Email: snam5@gmu.edu
Website: game.gmu.edu/project/graduate/

The MA in Computer Game Design prepares graduate students, who may have studied game design at the undergraduate level, or who have degrees in a related technology, humanities, or arts discipline. The program’s intention is to prepare students for employment and further study in the computer game design and development fields, with a curriculum that reflects the gaming industry’s demand for an academically rigorous, technical program coupled with an understanding of the artistic and creative elements of the evolving field of study.

Admissions & Policies

Admissions
Admission is competitive. An offer of admission is valid only for the semester for which the student applies. Application for graduate admission is made to the Office of Graduate Admissions. The application deadline for fall admission is March 1; the application deadline for the spring semester is November 1. Mason encourages early applications from prospective students who wish to be considered for academic scholarships, grants or teaching assistantships.

Eligibility
Admission is contingent on satisfactory completion of in-progress coursework, and graduation with a Bachelor degree, with a 3.00 GPA or higher, from an accredited undergraduate institute of higher education.

Application Requirements
The following items are required with applications for admission in the MA in Computer Game Design:

- Evidence of computer programming knowledge. A minimum of 3 credits (undergraduate or graduate) of Pearl or Python and 3 credits of Java or C# is required (subject to change as fields develop);
- Completed online application for graduate study;
- Application fee;
- Official transcripts from all undergraduate institutions attended;
- Three letters of recommendation: letters from instructors, professional supervisors, who can evaluate the applicant’s academic potential;
- International students must meet University criteria for the TOEFL (current University standard: 230 for computer-based, 88 for internet based tests), or other English proficiency examination;
- Goals statement: 1000 words, double spaced, 12 font;
- Writing sample: essay, review, project written within the last 3 years for academic course, college publication or competition, or for professional or community activity;
- Portfolio: must display 20 examples of the applicants’ most accomplished work. The applicant’s portfolio is a major selection criterion for graduate admission. Applicants’ portfolio items are considered part of the application for admission and, thus, cannot be returned. The portfolio and all other application materials will be submitted to the Office of Graduate Admissions. See website for submission instructions.

Policies
See College of Visual and Performing Arts (p. 764) for college academic policies.

Requirements

Degree Requirements
Total credits: 36

Core Requirements
GAME 600 Research Methodologies in Game Design 3

Four credits of 4
This combination of factors makes film an important area for academic inquiry and professional and artistic training.

Faculty

Program Faculty
Program Director
Giovanna Chesler

Program Faculty
Britt, Charles, Chesler, Kraus, Steger, Thrasher

Affiliated Faculty
Fuchs, Hinton, Kehoe, McDonald, Murray, Wood

Requirements & Policies

Requirements
Portfolio
Admission to Film and Video Studies (FAVS) is considered separately from admission to the university and only by portfolio review. Information about the portfolio process, including submission due dates and portfolio application requirements, can be found on the program’s website (http://favs.gmu.edu) or by calling the FAVS office at 703-993-3287. Admission to the university is determined by the Admissions Office.

Writing-Intensive
The university requires all students to complete at least one course designated “writing-intensive” in their majors at the 300 level or above. Students seeking a BA in film and video studies fulfill this requirement by completing ENGH 373 Film and Video Forms, FAVS 470 Film and Video Screenwriting, FAVS 498 Creative Producing and Development or THR 482 Advanced Screenplay Workshop.

Policies
Upper-Level Credits
All undergraduate students are required to complete a minimum of 45 credits of upper-division courses at the 300-499 level.

Termination from the Major
No Film and Video Studies course that is required for the major may be unsuccessfully attempted more than three times. A grade lower than a C constitutes an unsuccessful attempt in any given course. Those students who do not successfully complete such a course within three attempts will be terminated from the major. For more information, see the “Termination from the Major” section under AP.5 Undergraduate Policies (p. 84).

Academic Policies
Please see College of Visual and Performing Arts (p. 763) for college academic policies.
Programs

• Film and Video Studies, BA

Film and Video Studies, BA
Banner Code: AR-BA-FAVS

Lori Yi, Academic Advisor
C100 College Hall
Fairfax Campus
Phone: 703-993-5780
Email: favs@gmu.edu
Website: favs.gmu.edu/students/undergraduate-program/

George Mason University's program in Film and Video Studies (FAVS) is the first multidisciplinary undergraduate degree in Virginia focusing on production, film theory and history, and related media forms, with core courses in ethics, business, writing for the moving image, documentary and web media. The degree is housed in the College of Visual and Performing Arts (CVPA) and includes courses taught by faculty and working professionals from disciplines including Theater, Visual Arts, Communication, English, Film and Media Studies, Chinese Studies, History, and others. We offer three concentrations: Directing and Producing, Production/Post-Production, and Screenwriting. Each concentration includes a capstone experience wherein students are professionalized and mentored by faculty on original projects in their senior year.

Admissions & Policies

Admissions

All students are admitted to the Film and Video Studies (FAVS) program of study separately from their admission to the university and only by portfolio review.

Policies

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84). See College of Visual and Performing Arts (p. 763) for policies specific to the college.

Requirements

Degree Requirements

Total credits: 120

Students must earn a minimum grade of C in all core and required FAVS courses.

Mason Core

FAVS majors may not double-count Literature and Art courses toward both the FAVS major and Mason Core requirements. The synthesis requirement is part of the FAVS core requirements.

Foundation Requirements

Oral Communication (p. 136) 3

Information Technology (p. 136) 3
Quantitative Reasoning (p. 136) 3
ENGH 101 Composition (Mason Core) (p. 135) 3
ENGH 302 Advanced Composition (Mason Core) (p. 135) 3

Core Requirements

Literature (p. 140) 3
Arts (p. 137) 3
Natural Science (p. 141) 2 7
Western Civilization/World History (p. 143) 3
Global Understanding (p. 139) 3
Social and Behavioral Sciences (p. 142) 3
Total Credits 37

1 Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

2 Including one laboratory science

Major

Film and Video Studies Core Requirements

AVT 204 Visual Thinking 3
ENGH 373 Film and Video Forms 3
FAVS 225 The History of World Cinema (Mason Core) (p. 135) 3
FAVS 250 Business of Film and Video 3
FAVS 255 Video Production for Film 3
FAVS 280 Writing for the Moving Image 3
FAVS 352 Ethics of Film and Video (Mason Core) (p. 135) 3
or COMM 454 Free Speech and Ethics (Mason Core) (p. 135)
FAVS 450 Internship in Film and Video Studies 3

Analysis, History, Theory

Choose one course from the following: 3

AVT 377 Cyberpunk
CHIN 320 Contemporary Chinese Film
COMM 365 Gender, Race, and Class in the Media
COMM 380 Media Criticism
COMM 399 Special Topics in Communication 1
ENGH 319 Popular Culture
ENGH 370 Introduction to Documentary (Mason Core) (p. 135)
ENGH 371 Television Studies (Mason Core) (p. 135)
ENGH 372 Introduction to Film (Mason Core) (p. 135)
ENGH 470 RS: Topics in Film/Media History (Mason Core) (p. 135)
ENGH 472 Topics in Film/Media Theory
ENGH 474 Topics in Film/Media Studies
FAVS 300 Global Horror Film (Mason Core) (p. 135)
FAVS 399  Special Topics in Film and Video Studies
FREN 470  French and Francophone Cinema
HIST 389  Topics in U.S. History
HIST 393  Topics in Film and History
JAPA 320  Japanese Cinema
MUSI 301  Music in Motion Pictures (Mason Core) (p. 135)
INTS 347  Gender Representation in Popular Culture
RUSS 470  Topics in (Post) Soviet Film
WMST 300  Current Issues in Women and Gender Studies

Other courses as approved by Program Director

Diversity of Perspectives
Choose one course from the following: 3
COMM 365  Gender, Race, and Class in the Media
COMM 399  Special Topics in Communication
ENGH 202  Texts and Contexts (Mason Core) (p. 135) 1,2
ENGH 318  Introduction to Cultural Studies
ENGH 319  Popular Culture
ENGH 362  Global Voices (Mason Core) (p. 135) 1
ENGH 418  Cultural Constructions of Sexualities
FAVS 399  Special Topics in Film and Video Studies
INTS 347  Gender Representation in Popular Culture
WMST 300  Current Issues in Women and Gender Studies
WMST 308  Introduction to Lesbian, Gay, Bisexual, Transgender, Transsexual, and Queer Studies

Other courses as approved by Program Director

Authoring Electives
Choose two courses from the following: 6
AVT 376  Live Movies
AVT 390  Video Art
AVT 457  Documentary Photography
FAVS 365  Documentary Filmmaking
FAVS 375  Fiction Film Directing
FAVS 378  Web Series

Other courses as approved by Program Director

Total Credits 27-28

1  Must be approved by Program Director.
2  May not be used to fulfill Mason Core.

Concentration in Producing and Directing (PROD)

Courses
FAVS 260  Video Editing for Film 3
or COMM 360  Digital Postproduction
FAVS 331  Cinematography 3
FAVS 333  Sound Editing and Recording 3
FAVS 498  Creative Producing and Development 3
FAVS 499  Senior Project (Mason Core) (p. 135) 3

Fundamental Electives
Select two courses (6-7 credits) from the following: 6-7
AVT 252  Darkroom Photography I (Mason Core) (p. 135)
AVT 354  Digital Photography II
AVT 356  Photo Studio Techniques

Other courses as approved by Program Director

Total Credits 54-58

1  Must be approved by Program Director.

Concentration in Production and Post Production (PROP)

Courses
FAVS 260  Video Editing for Film 3
or COMM 360  Digital Postproduction
FAVS 331  Cinematography 3
FAVS 333  Sound Editing and Recording 3
FAVS 497  Senior Film Practicum (Mason Core) (p. 135) 3

Fundamental Electives
Choose two courses from the following: 6-7
AVT 252  Darkroom Photography I (Mason Core) (p. 135)
AVT 354  Digital Photography II
AVT 356  Photo Studio Techniques
AVT 374  Sound Art I
AVT 411  Motion Design
COMM 358  Multi-Camera Studio Production
COMM 364  Videography
COMM 366  Visual Communication
COMM 397  Special Topics in Production
FAVS 311  Producing I
FAVS 356  Film Marketing
FAVS 357  New Media and Film Distribution
FAVS 460  Advanced Video Editing
GAME 250  Music for Film and Video
THR 230  Fundamentals of Production (Mason Core) (p. 135)

Other courses as approved by Program Director

**Authoring Electives**
Choose one course from the following: 3
- AVT 376  Live Movies
- AVT 390  Video Art
- AVT 457  Documentary Photography
- FAVS 365  Documentary Filmmaking
- FAVS 375  Fiction Film Directing
- FAVS 378  Web Series

Other courses as approved by Program Director

**Advanced Skills Electives**
Choose two courses from the following: 6
- AVT 382  2D Experimental Animation
- AVT 383  3D Experimental Animation
- AVT 411  Motion Design
- COMM 358  Multi-Camera Studio Production
- FAVS 460  Advanced Video Editing
- FAVS 483  Feature-Length Scriptwriting
- THR 334  Lighting Design
- THR 336  Technical Direction
- THR 434  Advanced Lighting Design

Other courses as approved by Program Director

Total Credits 27-28

1 Must be approved by Program Director.

**Concentration in Screenwriting (SCWR)**

**Courses**
- ENGH 396  Introduction to Creative Writing (Mason Core) (p. 135) 3
- ENGH 399  Creative Nonfiction Writing 3
- FAVS 470  Film and Video Screenwriting or THR 482  Advanced Screenplay Workshop 3
- FAVS 483  Feature-Length Scriptwriting 3
- FAVS 496  Advanced Visual Storytelling (Mason Core) (p. 135) 3
- GAME 332  RS: Story Design for Computer Games 3

**Screenwriting Electives**
Choose two courses from the following: 6
- COMM 303  Writing across the Media
- COMM 397  Special Topics in Production
- ENGH 377  Digital Creative Writing
- ENGH 386  Editing for Audience, Style, and Voice
- ENGH 398  Fiction Writing
- ENGH 492  Advanced Fiction Writing Workshop
- ENGH 497  Topics in Creative Writing
- FAVS 378  Web Series
- FAVS 399  Special Topics in Film and Video Studies 1
- GAME 399  Special Topics 1
- THR 380  Playwriting I
- THR 381  Playwriting II

**THR 480  Advanced Playwriting**
Or other courses as approved by Program Director

Total Credits 24

1 Must be approved by Program Director.

**General Electives**
Students must use general electives to complete a minor, a double major or double degree outside their primary major field of study (15-20 credits) or demonstrate intermediate-level proficiency in one foreign language (0-9 credits). After fulfilling one of these options, the remaining general electives may be taken inside or outside of the department.

Total Credits 25-29

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**School of Art**

Peter Winant, Director
2050 Art and Design Building
Fairfax Campus
Phone: 703-993-8898
Website: soa.gmu.edu

**Mission**

George Mason University’s School of Art is a collaborative academic and professional community focused on advancing creativity through traditional and new media applied to varying social contexts. The School of Art is founded on the premise that art both reflects and inspires a creative society, improving the human condition while describing the world, both as it is and could be. We focus on the role of artists in that conversation. We encourage students to see art both as an individual expression and public interaction. We celebrate historical reference, current relevance and experimentation-emphasizing innovative ways of thinking that enhance the impact of art on the future of society.

Embedded in a major liberal arts university rich in learning resources, the School of Art plays a vital role in the creative climate of the institution and the region through the cross-disciplinary research it facilitates and the artwork it produces and exhibits. The School’s facilities engage an exceptional faculty of practicing artists, an active visiting artist program, and a diverse and intellectually curious graduate and undergraduate student body. Artistic skills and principles of creative practice in all visual media are grounded in a forward-thinking, adaptive curriculum. Faculty and students forge cross-disciplinary experimentation, challenging conventional thinking and blurring the lines between traditional artistic disciplines, indeed, between the arts and other humanities and sciences.

The School of Art educates artists and creative professionals to be responsible contributors to society, preparing them to be agents of change in an increasingly connected, complex, inclusive world. We highly value rigor in conceptual approach, skill in art production, and imaginative methods for implementing projects and engaging audiences. Each student is given a background in aesthetic and analytical judgment, the ethical framework for professional practice, the confidence to be both self-reliant and collaborative, and the mastery of design and production necessary to thrive as a professional artist in a competitive global environment.
Undergraduate Programs

Undergraduate studio degrees offered by the School of Art include the bachelor of arts (BA) and the bachelor of fine arts (BFA). An honors program enhances either degree for selected AVT majors. The school also offers undergraduate minors in art and visual technology, arts and social change, graphic design, photography, and web design.

For students who are interested in a career in teaching art in the public schools, neither the BA nor the BFA program satisfies all requirements for those seeking licensure. Undergraduate students interested in this field are highly encouraged to consider the accelerated degree path for the master of art in teaching and should contact the school’s art education advisor to learn more about teacher preparation.

All George Mason University students are welcome to enroll in course work in the School of Art to fulfill Mason Core (p. 135) for requirements for the arts or to pursue minors. Consult the course listings for prerequisites and requirements. Students should carefully examine prerequisites for School of Art courses. Students may be removed from a course if they enroll without having fulfilled the prerequisites.

Studios

The School of Art program is located in the Art and Design Building which houses well-equipped studios for drawing, painting, photography, printmaking, and sculpture, as well as six computer-equipped studios that cross platforms and are installed with current software applications used for two-dimensional imaging, three-dimensional modeling, animation, video production, sound editing, multimedia authoring, photography, and web publishing.

Policies, procedures, and schedules for studio use are established by the AVT studio faculty and are posted in the studios.

Honors Program

Students interested in the Honors Program in School of Art should contact the director of the school. Both BA and BFA students are eligible to apply for admission to the program. Honors students must complete at least 4 credits AVT 394 Honors Seminar. They must have a cumulative GPA of at least 3.00 and at least 3.50 in AVT 394 Honors Seminar and the AVT major.

Graduate Programs

The MA in Graphic Design offers students a comprehensive study and preparation for the graphic design profession. The program calls for 36 credits, which includes courses in typography, web design, image making, and brand design. The broad range of study is intended to develop professionals prepared for an ever-expanding graphic design field. This degree is the only MA in Graphic Design in the Washington Metropolitan region.

The Art Education Licensure Certificate is a post-baccalaureate program designed for those who currently hold a graduate degree in an art-related field along with those who want a more immediate entrance into the art teaching profession. This 'licensure only' program, which results in a pre-K-12 art certification in the Commonwealth of Virginia, is a 21 credit program consisting of graduate education courses, area endorsements, student teaching internships and seminar.

The Master of Arts in Teaching in Art Education is a pre-service degree program that prepares students with a BFA degree or equivalent for pre-K-12 art licensure by the Commonwealth of Virginia. Using a studio-based approach to art education and working closely with area public school systems, the MAT degree consists of 30 credits of graduate art education, school practicum experience, studio work, and preservice teaching internship and seminar.

MFA, Visual and Performing Arts

The School of Art offers two concentrations under the Master of Fine Arts, Visual and Performing Arts degree: Graphic Design and Visual Art. Applicants to the program must designate which concentration they intend to apply for on the application. Each concentration has its own unique set of admissions requirements and program requirements. For specific information, please refer to the Visual and Performing Arts, MFA entry.

The MFA is a terminal degree that prepares students to become professional artists, work in technology or arts-related fields, and teach at the university level. Candidates are required to complete 60 credits, of which 30 credits are made up from core requirements and 30 are made up of emphasis and studio requirements.

In the Visual Arts concentration, students may select an emphasis in new media, painting and drawing, photography, printmaking, sculpture, or InterArts. The latter offers students the opportunity to combine art forms in interdisciplinary projects that may be installation, performance, publishing, time-based, or writing-based; and combine creative and critical approaches to their work.

While it is anticipated that students will move through the MFA as described in this catalog, individuals with extensive professional accomplishment may, upon recommendation of the SOA Graduate Committee and with prior approval of the CVPA dean, craft an individualized program within their intended emphasis that meets curricular requirements.

Accelerated Master’s Options

The School of Art offers the following Accelerated Master’s programs:

- Art and Visual Technology, BA/Arts Management, Accelerated MA
- Art and Visual Technology, BFA/Art Education, Accelerated MAT
- Art and Visual Technology, BFA/Arts Management, Accelerated MA
- Art and Visual Technology, BFA/Graphic Design, Accelerated MA

Each program allows undergraduate students to take graduate classes that can be used towards a designated Master’s degree. Undergraduates who wish to pursue the accelerated Master’s route should talk to their academic advisor first to see if they qualify. Students must be within 75-100 credits of their Bachelor’s program to be eligible to apply; those who have earned more than 100 credits will not be considered. Students must be approved by their academic advisor and formally apply and be accepted to the Master’s program through an Accelerated Master’s application. For more information about admissions requirements and the application process, students should visit the website (http://cvpa.gmu.edu).

Faculty

Professors

Carboneau, Linton, White
Associate Professors
Constantine, Cooley, Crawford, Cui, Endress, Frenn, Karametou, Rothstein,
Sheridan, Winant (director), Wrbican

Assistant Professors
Debuque, Del Popolo, Kardambikis, South, Starr (associate director),
Sutters

Research Faculty
Russell

Adjunct Faculty
Barr, Benassi, Bisese, Booth, Bourke, Bradley, Brugnoli-Whipkey, Carr,
Cushner, Daly, Guerrieri, Hicks, Ho, Kass, Kenney, Kruep, Loda, Mayhew,
McCoy, Micari, Morales, Petrine, Petzrick, Quigley, Quinones, Rajkovich,
Sanchez, Sawyer, Seawell, Stratten, Torres, Trost, Van Meer, Watson,
Yoder

Requirements & Policies

Requirements
Undergraduate Admission to the School of Art
Students are admitted to School of Art degree programs separately from
their admission to George Mason University and only by portfolio review.
The College of Visual and Performing Arts strongly encourages students
to apply to the university by November 1 in order to receive maximum
scholarship consideration, including merit and talent-based scholarships.

Applicants apply to George Mason University. Admission to George
Mason is determined by the Admissions Office and is separate from
admission to the School of Art degree programs. All School of Art
applicants are encouraged to apply for admission to the university prior
to submitting a portfolio for review.

Successfully complete a portfolio review. Please refer to the Portfolio

Artsbus Requirement
All AVT majors must meet the school’s requirement of travel to galleries
and museums through the Artsbus program. Students meet this
requirement by enrolling in AVT 300 Artsbus Attendance. The procedure
and requirements for enrollment in AVT 300 Artsbus Attendance are the
same as for any other class.

Freshmen who enroll as AVT majors must register for AVT 300 Artsbus
Attendance 5 times during their course of study. Transfer students and
students who change their majors to AVT must register for AVT 300
Artsbus Attendance for the equivalent of each semester they are enrolled
at Mason, up to a maximum of five semesters. Semesters of enrollment
in AVT 300 Artsbus Attendance do not have to be consecutive. Students
may take AVT 300 Artsbus Attendance up to three times in a semester if
they wish to accelerate their completion of the requirement although this
is strongly discouraged.

All rules and requirements to AVT 300 Artsbus Attendance participation
are posted on the Artsbus website (http://artsbus.gmu.edu). Students
are responsible for being familiar with and following the posted rules and
requirements for Artsbus. The site also provides pertinent information for
each trip regarding exhibits as well as reviews and articles for exhibitions.

Visual Voices Requirement
All AVT majors must fulfill three credits of AVT 301 Visual Voices
Colloquium in order to graduate unless they are enrolled at Mason
for fewer than three semesters. If enrolled for less than three
semesters, students are required to register for AVT 301 Visual Voices
Colloquium each semester in which they are enrolled. Visual Voices is an
intrinsic part of the major, offering students a chance to meet with and
hear nationally and internationally recognized artists speak about their
work.

Writing-Intensive Requirement
Mason requires all students to complete at least one course designated
“writing intensive” in their majors at the 300 level or above. AVT students
fulfill this requirement by successfully completing AVT 395 Writing for
Artists.

Upper-Level Credits
All undergraduate students are required to complete a minimum of 45
credits of upper-division courses at the 300–499 level.

Major GPA
All School of Art BA and BFA majors, AVT minor, Arts and Social Change
minor, Graphic Design minor, Photography minor, and Web Design minor
students must earn a grade of C or better in required AVT coursework,
including Studio Foundation, Critical Analysis and Contemporary Practice,
Breadth and Experience, Synthesis and Concentrations. All School of Art
undergraduate students must earn a minimum 2.00 cumulative GPA in
their major. To graduate with a BA or BFA in Art and Visual Technology
with a concentration in Graphic Design, students are required to maintain
a 2.40 GPA in concentration classes. Students who fail to maintain
this minimum may either retake core classes (an earned higher grade
replaces the old one) or take concentration special topics classes in
order to raise their average to the threshold. The effect of this change
will be that very weak students will have to return to required classes to
master core skills, and marginally weak students will be able to meet the
requirement while expanding the breadth of their education.

Policies
See CVPA Requirements and Policies (p. 764).

Programs
- Art Education Licensure Graduate Certificate
- Art Education, MAT
- Art and Visual Technology Minor
- Art and Visual Technology, BA
- Art and Visual Technology, BFA
- Arts and Social Change Minor
- Graphic Design Minor
- Graphic Design Undergraduate Certificate
- Graphic Design, MA
- Photography Minor
- Web Design Minor
Art Education Licensure Graduate Certificate

Banner Code: AR-CERG-ARTL

Nicole Brugnoli-Whipkey, Administrative Assistant for Graduate Study
2005 Art and Design Building
Fairfax Campus
Phone: 703-993-5792
Email: nbrugnol@gmu.edu
Website: soa.gmu.edu

Following this curriculum does not guarantee entry into the Master of Art Teaching (MAT) Program (p. 787). Prospective MAT students must meet all MAT admissions requirements. Students must also complete a minimum of 18 credits in degree status after admission to the degree program.

This certificate may be earned either on a part-time or full-time basis.

Admissions & Policies

Admissions

Admission Requirements

In addition to meeting the general university admission requirements, admission to the licensure program is contingent on completion of a BFA, BA in art or approved equivalent along with a minimum 3.00 cumulative undergraduate GPA. Eligibility for the certificate may demand additional coursework to establish proficiency in visual arts. Students will be required to satisfy the required state endorsement courses prior to student teaching.

Applications will be accepted for fall and spring semesters. The deadline for receipt of application materials is October 1 for Spring and April 1 for Fall. Each applicant must provide the following materials:

- Completed application form
- Certified copies of all undergraduate transcripts and any graduate transcripts
- Statement of intent and professional goals for entering the field
- Three letters of reference from faculty members or individuals who have firsthand knowledge of the applicant’s academic or professional capabilities
- Official passing score on Praxis Core or SAT equivalent
- TOEFL score, if required by Mason policies
- Portfolio of 15-20 images that reflect artistic breadth and depth, including drawing skills of the applicant’s art. The work should be submitted via SlideRoom. All portfolios must include a written image sheet with the corresponding number, title, date, medium, and size of each work. Incomplete portfolios will not be considered. Applicants’ portfolio items are considered part of the application for admission and, thus, cannot be returned. Please do not send original materials.

The all application materials should be submitted to the Office of Graduate Admissions (https://www2.gmu.edu/admissions-aid/how-apply/graduate). Applicants refer to the graduate page of the School of Art website (http://soa.gmu.edu/graduateprograms) for more details.

Diversity among students is another consideration for acceptance into the program. Applicants with degrees in areas other than art are welcome, although they may be required to complete undergraduate core and studio art history courses.

The certificate is a post-baccalaureate program designed for those who currently hold an undergraduate degree in an art-related field along with those who want a more immediate entrance into the art teaching profession. This “licensure only” program, which results in a pre K-12 art certification in the Commonwealth of Virginia, is a 21-credit program consisting of graduate education courses, art endorsements, student teaching internships and seminar.

International students may be required to undergo an additional audit of their undergraduate transcripts.

Policies

Students must earn a B- or higher in all coursework.

Certificate Requirements

Total credits: 21

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 595</td>
<td>Introduction to Art Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>AVT 691</td>
<td>Elementary Art Education</td>
<td>3</td>
</tr>
<tr>
<td>AVT 692</td>
<td>Secondary Art Education</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 501</td>
<td>Literacy and Curriculum Integration, PK-12</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 539</td>
<td>Human Development and Learning PK-12</td>
<td>3</td>
</tr>
<tr>
<td>AVT 695</td>
<td>Internship in Art Education (Student Teaching)</td>
<td>5</td>
</tr>
<tr>
<td>AVT 696</td>
<td>Internship in Art Education Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 21

1 Prior to internship, student must pass: Praxis II, VCLA, technology and child abuse standards to receive placement for student teaching.

All Licensure Certificate students will receive ongoing evaluations by the art education faculty to determine their readiness for student teaching.

In addition, applicants who did not take equivalent undergraduate courses will be required to take AVT 180 New Media in the Creative Arts (Mason Core) (p. 135), art education endorsements, plus any additional studio or art history course work to meet Virginia licensure requirements.

Art Education, MAT

Banner Code: AR-MAT-ARTE

Nicole Brugnoli-Whipkey, Administrative Assistant for Graduate Study
2005 Art and Design Building
Fairfax Campus
Phone: 703-993-5792
Email: nbrugnol@gmu.edu
Website: soa.gmu.edu
The Master of Arts in Teaching in Art Education (MAT I) is a pre-service degree program that prepares students with a BFA degree or equivalent for PreK-12 art licensure by the Commonwealth of Virginia. Using a studio-based approach to art education and working closely with area public school systems, the MAT degree consists of 30 credits of graduate art education, school practicum experience, studio work, and pre-service teaching internship and seminar.

**Available Concentrations**
This degree program has two concentrations: one concentration for those seeking certification (MAT I) as well as a one for licensed art teachers who are continuing education (MAT II). The concentration for licensed art teachers (MAT II) is designed for PreK-12 licensed art teachers who currently hold an undergraduate degree in art education and a current teaching license in Art Education. Applicants should be interested in obtaining a graduate art education degree for further professional development. Students take graduate art education courses, approved graduate level studio art courses, education courses, and complete a capstone project.

**Admissions & Policies**

**Admissions**
In addition to meeting the general university admission requirements for graduate study, admission to this program is contingent on completion of a BFA in visual art or approved equivalent. Candidates must have a minimum 3.00 cumulative undergraduate GPA.

**Eligibility**
Eligibility for the MAT I in Art Education program may demand additional course work to establish proficiency in visual arts. Students lacking a strong background in the visual arts or pedagogy, or those who earned a BFA or BA at an institution other than Mason, may be required to satisfy prerequisite courses prior to entry into the graduate program. Applicants must complete an endorsement worksheet through the College of Education and Human Development in order to prove that their previous coursework satisfies the prerequisite requirements for Virginia licensure and/or for entry into the Master’s program.

Students interested in pursuing the degree with the concentration for licensed art teachers must meet the above with the following exceptions: admission is contingent upon the completion of a BFA or BA in art or art education with a minimum 3.00 cumulative undergraduate GPA, maintaining a current PreK-12 license to teach art education with at least one or more years of art teaching experience.

**Application Materials and Deadlines**
Applications will be accepted for fall and spring semesters. The deadline for receipt of application materials is October 1 and March 1. Each applicant must provide the following materials:

- Completed application form
- Certified copies of all undergraduate transcripts and any graduate transcripts
- Statement of intent and professional goals for entering the field
- Three letters of reference from faculty members or individuals who have firsthand knowledge of the applicant’s academic or professional capabilities
- Official scores on Praxis Core or SAT equivalent (MAT I only)
- Endorsement Worksheet (MAT I only)
- TOEFL score (for international applicants only)
- Portfolio Requirement
  - MAT I: portfolio must include 15 to 20 images that reflect artistic breadth and depth, including drawing skills of the applicant’s art.
  - MAT II: portfolio must include 10 images of the applicant’s portfolio and personal art that reflect artistic breadth and depth, including drawing skills, along with 10 student art works displaying a variety of 2-D and 3-D media. Student artwork is to be accompanied by a brief description of the lesson content.

1 All portfolios should be submitted through SlideRoom. All portfolios must include title, date, medium, and size of each work. Incomplete portfolios will not be considered.

All application materials should be submitted to the Office of Graduate Admissions. Qualified applicants may be invited to an on-campus interview. Applicants should visit the School of Art’s website (http://soa.gmu.edu/graduateadmissions) for more details.

Diversity among students is another consideration for acceptance into the program. Applicants with degrees in areas other than art are welcome, although they may be required to complete additional undergraduate core, studio, and art history courses.

**Policies**
See College of Visual and Performing Arts (p. 763) for policies specific to the college.

**Requirements**

**Degree Requirements**
Total Credits: 30
Students must earn a B- or higher in licensure coursework.

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 605</td>
<td>Issues and Research in Art Education</td>
<td>3</td>
</tr>
<tr>
<td>AVT 667</td>
<td>Two-Dimensional Art Making: Form, Theme, and Context</td>
<td>3</td>
</tr>
<tr>
<td>AVT 668</td>
<td>Three-Dimensional Art Making Across Cultures</td>
<td>3</td>
</tr>
<tr>
<td>CVPA 600</td>
<td>CVPA Graduate ProSeminar (must be taken within a student’s first 2 semesters)</td>
<td>0</td>
</tr>
</tbody>
</table>

Total Credits: 9

**MAT (I) Required Courses**
Coursework meets licensure and Master’s degree requirements. The listing below follows the recommended sequencing for licensure.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 615</td>
<td>Technology for Art Teachers</td>
<td>3</td>
</tr>
<tr>
<td>AVT 691</td>
<td>Elementary Art Education</td>
<td>3</td>
</tr>
<tr>
<td>AVT 692</td>
<td>Secondary Art Education</td>
<td>3</td>
</tr>
<tr>
<td>AVT 695</td>
<td>Internship in Art Education (Student Teaching)</td>
<td>5</td>
</tr>
<tr>
<td>AVT 696</td>
<td>Internship in Art Education Seminar</td>
<td>1</td>
</tr>
<tr>
<td>EDRD 501</td>
<td>Literacy and Curriculum Integration, PK-12</td>
<td>3</td>
</tr>
</tbody>
</table>
I. MAT (II) Concentration for Licensed Art Teachers (LAT) Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 596</td>
<td>Independent Study</td>
<td>4</td>
</tr>
<tr>
<td>or AVT 599</td>
<td>Special Topics in Art and Visual Technology</td>
<td>4</td>
</tr>
<tr>
<td>AVT 606</td>
<td>Creativity and Cognition in the Arts and Media</td>
<td>3</td>
</tr>
<tr>
<td>AVT 615</td>
<td>Technology for Art Teachers</td>
<td>3</td>
</tr>
<tr>
<td>AVT 698</td>
<td>Independent Study/Directed Readings</td>
<td>1</td>
</tr>
<tr>
<td>EDUC 537</td>
<td>Introduction to Culturally Linguistically Diverse Learners</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 21

1 Prior to internships, students must pass: Praxis II, VCLA, technology & child abuse standards.

MAT (II) Professional Teaching Portfolio

The comprehensive experience for the MAT I includes the following:

1. a group exhibition, "The Art of Teaching Art Showcase," in which MAT candidates display and formally present works of PreK–12 student art completed during the internship, along with exemplars of the MAT candidate’s own artwork, and
2. a culminating review of the intern’s competencies as reflected in a professional teaching portfolio, accomplished during the internship seminar course that accompanies student teaching.

A committee of MAT faculty will determine whether the student has mastered the field of study based on the final portfolio and exhibition. Students who are unable to successfully complete the full student teaching internship in art education and seminar for student teachers will be terminated from the MAT in Art Education program.

MAT (I) Teacher Endorsement

MAT I students originally admitted under provisional status must complete all endorsements and any assigned art education foundational courses (which may include AVT 494 Strategies in Art Room: PK-12 and AVT 495 Introduction to Art Teaching and Learning) by the date indicated on the student’s provisional admission agreement and prior to admission to degree status. These courses may be taken concurrently with other MAT courses, but may not exceed a total of 9 credits. All MAT I students should meet all testing and coursework requirements prior to starting their student teaching internship.

Students must have a studio major in the Visual Arts and meet the Virginia Department of Education’s required semester credit hours in the following specific areas: 12 hours of two-dimensional media, 12 hours of three-dimensional media, 9 hours of cultural context and art history, judgment and criticism, aesthetics, and 3 hours of related areas of the fine arts.

Note:
MAT I students will receive ongoing evaluation reviews by the MAT faculty to determine whether they have achieved satisfactory progress toward their degree.

MAT (II) Concentration for Licensed Art Teachers (LAT) Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 522</td>
<td>Foundations of Secondary Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 539</td>
<td>Human Development and Learning PK-12</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 542</td>
<td>Foundations of Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 543</td>
<td>Children, Family, Culture, and Schools, 4-12 Year Olds</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 597</td>
<td>Special Topics in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 606</td>
<td>Education and Culture</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 613</td>
<td>How Students Learn</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 614</td>
<td>Designing and Assessing Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 615</td>
<td>Educational Change</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 21

Other courses as approved by director may fulfill this requirement.

Capstone:
LAT concentration students must complete a Capstone Project. Under the guidance of a faculty advisor, students will select a topic in a personal area of interest in art education pedagogy, carry out in-depth research, and prepare a capstone final project in the form of a written report and visual presentation.

Student Teaching Placement Requirement

All MAT students must pass Praxis II and Virginia Communication and Language Assessment (VCLA) to receive placement for student teaching in the final semester.

Accelerated Master’s

Art and Visual Technology, BFA/Art Education, Accelerated MAT Overview

Undergraduates in art may apply to the accelerated master’s degree in Art Education. If accepted, students will be able to earn an Art and Visual Technology, BFA (p. 793) and an Art Education, MAT (p. 787) after satisfactory completion of 144 credits.

Students choosing the accelerated option must fulfill all university requirements for the master’s degree. The regular designed timeframe would be a start in the Fall and the completion in the Fall semester five and a half years later, but longer time frames may also be available.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admissions Requirements

Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Academic Affairs Office. It includes the proposed conferral date for the undergraduate degree and
the two graduate courses that are to be applied to the undergraduate degree.

In addition to meeting the general university requirements for admission for graduate study, applicants must submit:

- Statement of intent and professional goals for entering the field
- Three letters of reference from faculty members or individuals who have firsthand knowledge of the applicant's academic or professional capabilities
- Official score on Praxis Core or SAT equivalent
- MAT (for BFA students) portfolio must include 15 to 20 images that reflect artistic breadth and depth, including samples of work with ample attention to drawing and painting from observation. These works must be submitted through SlideRoom. All pieces must include the title of the piece, date, medium, and size of each work. Incomplete portfolios will not be considered.

Teacher Endorsement

Students for the MAT (for BFA students) must complete ALL endorsements, as well as the Praxis Core Exam and the PLUS art education foundational courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 493</td>
<td>Teaching Visual Thinking Through Media, PK-12</td>
<td>3</td>
</tr>
<tr>
<td>AVT 494</td>
<td>Strategies in Art Room: PK-12</td>
<td>3</td>
</tr>
<tr>
<td>AVT 495</td>
<td>Introduction to Art Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

Students must meet Virginia Department of Education's required semester credit hours in the following specific areas:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 hours of two-dimensional media</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>12 hours of three-dimensional media</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>9 hours of cultural context and art history, judgment and criticism, aesthetics</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>3 hours of related areas of fine arts</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>36</td>
</tr>
</tbody>
</table>

Students should work closely with their advisor to ensure they complete these course requirements through the BFA in Art and Visual Technology (p. 793) and MAT (p. 787) degrees.

Accelerated Option Requirements

As an undergraduate, the accelerated master's student is required to complete the two graduate courses indicated on their Accelerated Master's Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated on the application, candidates submit the Bachelor's/Accelerated Master's Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing and must meet all master's degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master's program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high-achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean's Office.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Art and Visual Technology Minor

Banner Code: AVT
2050 Art and Design Building
Fairfax Campus
Phone: 703-993-8898
Email: avt@gmu.edu
Website: soa.gmu.edu

The minor offers a core of foundational studies with the opportunity for further study in the following areas: drawing, graphic design, new media arts, painting, photography, printmaking, or sculpture.

Admissions & Policies

Policies

Eight credits of coursework must be unique to the minor, with a minimum earned GPA of 2.0. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18-19

Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 104</td>
<td>Two-Dimensional Design and Color (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>or AVT 105</td>
<td>Three-Dimensional Design and Beyond</td>
<td></td>
</tr>
<tr>
<td>AVT 222</td>
<td>Drawing I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>4-8 credits in AVT 2xx- level courses (p. 1152)</td>
<td>4-8</td>
<td></td>
</tr>
<tr>
<td>3-6 credits in AVT 3xx- and 4xx- level courses (p. 1152)</td>
<td>3-6</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>18-19</td>
</tr>
</tbody>
</table>

Art and Visual Technology, BA

Banner Code: AR-BA-AVT
2050 Art and Design Building
Fairfax Campus
Requirements

Degree Requirements
Total credits: 120

Mason Core

Foundation Requirements
ENGH 101 Composition (Mason Core) (p. 135) 1 3
ENGH 302 Advanced Composition (Mason Core) (p. 135) 1 3
Oral Communication (p. 136) 3
Quantitative Reasoning (p. 136) 3
Information Technology (p. 136) 2 3

Core Requirements
Literature (p. 140) 3
Arts (p. 137) 3
Natural Science (p. 141) 4 7
Western Civilization/World History (p. 143) 3
Global Understanding (p. 139) 5 3
Social and Behavioral Sciences (p. 142) 3

Total Credits 37

1 Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as in ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

2 All students concentrating in new media art must take AVT 180 New Media in the Creative Arts (Mason Core) (p. 135) and CS 105 Computer Ethics and Society (Mason Core) (p. 135) or PHIL 112 Ethics and the Cybersociety (Mason Core) (p. 135).

3 AVT majors may not choose AVT courses to meet this requirement, and they may not double-count ARTH courses toward both the AVT major and the Mason Core arts requirement.

4 Including at least one laboratory science

5 AVT majors may not double-count ARTH courses toward both AVT major requirements and the Mason Core global understanding requirement.

AVT Major Requirements

Studio Foundation
AVT 101 New Majors Colloquium 1
AVT 104 Two-Dimensional Design and Color (Mason Core) (p. 135) 4
AVT 105 Three-Dimensional Design and Beyond 4
AVT 222 Drawing I (Mason Core) (p. 135) 4
AVT 323 Drawing II 3
or AVT 324 Figure Drawing

Art History, Critical Analysis, Contemporary Practice
Select one from the following: 3

ARTH 200 History of Western Art I (Mason Core) (p. 135)
ARTH 203 Survey of Asian Art (Mason Core) (p. 135)
ARTH 204 Survey of Latin American Art (Mason Core) (p. 135)
ARTH 201 History of Western Art II (Mason Core) (p. 135)
ARTH 374 Art Now 3

Three credits of 3

AVT 301 Visual Voices Colloquium
AVT 307 Aesthetics 3
AVT 395 Writing for Artists 3

Breadth and Experience
Select three to four courses from the following: 2 12-13

AVT 215 Typography (Mason Core) (p. 135)
AVT 217 Introduction to Web Design
AVT 232 Painting I (Mason Core) (p. 135)
AVT 243 Printmaking I (Mason Core) (p. 135)
AVT 252 Darkroom Photography I (Mason Core) (p. 135)
AVT 253 Digital Photography I (Mason Core) (p. 135)
AVT 254 Photography
AVT 262 Sculpture I (Mason Core) (p. 135)
AVT 272 Interdisciplinary Arts (Mason Core) (p. 135)
AVT 280 Introduction to New Media Arts
AVT 326 Nontraditional Approaches to Drawing
AVT 327 Illustration
AVT 346 Digital Printmaking
AVT 374 Sound Art I
AVT 385 EcoArt (Mason Core) (p. 135)
AVT 496 Special Topics
Other courses as approved by program director

Professional Practices

AVT 413 Professional Design Practices 3 3
or AVT 453 Professional Practices

Synthesis

AVT 497 Senior Project (Mason Core) (p. 135) 3
or AVT 498 Senior Design Project (Mason Core) (p. 135)

Total Credits 52-53

1 Must be taken for a total of 3 credits or each semester, if less than 3 semesters
2 At least one course must be a 200-level studio course. See each concentration for individual requirements.
3 All students concentrating in graphic design must complete AVT 413 Professional Design Practices

Artsbus Requirement
All AVT majors must meet the school’s requirement of travel to galleries and museums through the Artsbus program. Students meet the
requirement by enrolling in AVT 300 Artsbus Attendance. The procedure and requirements for enrollment in AVT 300 are the same as for any other class.

Freshman who enroll as AVT majors must register for AVT 300 Artsbus Attendance 5 times during their course of study. Transfer students and students who change their majors to AVT must register for AVT 300 Artsbus Attendance for the equivalent of each semester they are enrolled at Mason, up to a maximum of five semesters.

**Concentrations**
Select one concentration and complete the requirements therein.

**Drawing (DRW)**
All AVT majors concentrating in drawing must complete AVT 232 Painting I (Mason Core) (p. 135) under Breadth and Experience.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 422</td>
<td>3</td>
</tr>
<tr>
<td>AVT 423</td>
<td>3</td>
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</table>

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 324</td>
<td>3</td>
</tr>
<tr>
<td>AVT 326</td>
<td>3</td>
</tr>
<tr>
<td>AVT 328</td>
<td>3</td>
</tr>
<tr>
<td>AVT 333</td>
<td>3</td>
</tr>
<tr>
<td>AVT 336</td>
<td>3</td>
</tr>
<tr>
<td>AVT 337</td>
<td>3</td>
</tr>
<tr>
<td>AVT 432</td>
<td>3</td>
</tr>
<tr>
<td>AVT 433</td>
<td>3</td>
</tr>
<tr>
<td>AVT 496</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses as approved by program director

Total Credits 12

1 Topic must be Drawing.

**Graphic Design (GD)**
All AVT majors concentrating in graphic design must complete AVT 252 Darkroom Photography I (Mason Core) (p. 135) or AVT 253 Digital Photography I (Mason Core) (p. 135) under Breadth and Experience.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 311</td>
<td>3</td>
</tr>
<tr>
<td>AVT 313</td>
<td>3</td>
</tr>
<tr>
<td>AVT 414</td>
<td>3</td>
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</tbody>
</table>

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 410</td>
<td>3</td>
</tr>
<tr>
<td>AVT 412</td>
<td>3</td>
</tr>
<tr>
<td>AVT 415</td>
<td>3</td>
</tr>
<tr>
<td>AVT 416</td>
<td>3</td>
</tr>
<tr>
<td>AVT 419</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses as approved by program director

Total Credits 12

**Photography (PHO)**
All AVT majors concentrating in photography must complete AVT 252 Darkroom Photography I (Mason Core) (p. 135) under Breadth and Experience.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 353</td>
<td>3</td>
</tr>
<tr>
<td>AVT 356</td>
<td>3</td>
</tr>
<tr>
<td>AVT 359</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 354</td>
<td>3</td>
</tr>
<tr>
<td>AVT 355</td>
<td>3</td>
</tr>
<tr>
<td>AVT 454</td>
<td>3</td>
</tr>
<tr>
<td>AVT 455</td>
<td>3</td>
</tr>
<tr>
<td>AVT 457</td>
<td>3</td>
</tr>
<tr>
<td>AVT 458</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses as approved by program director

Total Credits 12

**Printmaking (PM)**
All AVT majors concentrating in new media art must complete AVT 280 Introduction to New Media Arts under Breadth and Experience, and AVT 180 New Media in the Creative Arts (Mason Core) (p. 135) and CS 105 Computer Ethics and Society (Mason Core) (p. 135) or PHIL 112 Ethics and the Cybersociety (Mason Core) (p. 135) for their IT Mason Core requirement.

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 374</td>
<td>3</td>
</tr>
<tr>
<td>AVT 376</td>
<td>3</td>
</tr>
<tr>
<td>AVT 382</td>
<td>3</td>
</tr>
<tr>
<td>AVT 383</td>
<td>3</td>
</tr>
<tr>
<td>AVT 385</td>
<td>3</td>
</tr>
<tr>
<td>AVT 390</td>
<td>3</td>
</tr>
<tr>
<td>AVT 482</td>
<td>3</td>
</tr>
<tr>
<td>AVT 483</td>
<td>3</td>
</tr>
<tr>
<td>AVT 487</td>
<td>3</td>
</tr>
<tr>
<td>AVT 488</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses as approved by program director

Total Credits 12

**Printmaking (PM)**
All AVT majors concentrating in printmaking must complete AVT 280 Printmaking I (Mason Core) (p. 135) under Breadth and Experience.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 343</td>
<td>3</td>
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</tbody>
</table>

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 345</td>
<td>3</td>
</tr>
<tr>
<td>AVT 346</td>
<td>3</td>
</tr>
<tr>
<td>AVT 442</td>
<td>3</td>
</tr>
<tr>
<td>AVT 443</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses as approved by program director

Total Credits 12
Other courses as approved by program director

Total Credits 12

Sculpture (SCL)
All AVT majors concentrating in sculpture must complete AVT 262 Sculpture I (Mason Core) (p. 135) under Breadth and Experience.

AVT 363 Sculpture II 3
Three credits of
AVT 393 Field Experience in the Arts or AVT 489 Internship in Art and Visual Technology
AVT 462 Sculpture III 3
AVT 463 Sculpture IV 3

Total Credits 12

Concentration Electives
AVT 496 Special Topics or AVT 491 Independent Study in Art and Visual Technology may be taken with permission of respective program director.

General Electives
BA students must use some/all general electives to complete a
Minor
Double Major
Double Degree 1
Intermediate-level proficiency in one foreign language
Remaining electives 2

Total Credits 18-19

1 Must be outside student’s primary major field of study.
2 May be taken inside or outside of the department. All students are required to take a minimum of 45 credits of upper-division courses (300 and 400 level); most students will require at least 13 elective credits at the 300 level or above. AVT 393 Field Experience in the Arts and AVT 489 Internship in Art and Visual Technology are not required courses but are highly recommended as electives for BA students.

Accelerated Master's

Art and Visual Technology, BA/Arts Management, Accelerated MA

Overview
Undergraduates in Art may apply to the accelerated master’s degree in Arts Management. If accepted, students will be able to earn an Art and Visual Technology, BA (p. 790) and an Arts Management, MA (p. 774) after satisfactory completion of 150 credits.

Students choosing the accelerated option must fulfill all university requirements for the master’s degree. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete all requirements.

This accelerated option is offered through joint cooperation between the School of Art (p. 784) and the Arts Management Program (p. 772).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admissions Requirements
Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Academic Affairs Office. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

Interested students should contact the Arts Management Program Office for more details about the application process.

Accelerated Option Requirements
As an undergraduate, the accelerated master’s student is required to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, candidates submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing and must meet all master’s degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master’s program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean’s Office.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Art and Visual Technology, BFA

Banner Code: AR-BFA-AVT

2050 Art and Design Building
Fairfax Campus
Phone: 703-993-8898
Email: avt@gmu.edu
Website: soa.gmu.edu
## Requirements

### Degree Requirements

Total credits: 120

#### Mason Core

**Foundation Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>3</td>
</tr>
<tr>
<td>Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 101 Composition</td>
<td>2</td>
</tr>
<tr>
<td>ENGH 100 Composition</td>
<td>3</td>
</tr>
</tbody>
</table>

**Core Requirements**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Literature</td>
<td>3</td>
</tr>
<tr>
<td>Arts</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science</td>
<td>7</td>
</tr>
<tr>
<td>Western Civilization</td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding</td>
<td>3</td>
</tr>
<tr>
<td>Social and Behavioral Sciences</td>
<td>3</td>
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</tbody>
</table>

Total Credits: 37

1. All students concentrating in new media art must take AVT 180 New Media in the Creative Arts (Mason Core) (p. 135) and CS 105 Computer Ethics and Society (Mason Core) (p. 135) or PHIL 112 Ethics and the Cybersociety (Mason Core) (p. 135).

2. Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as in ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

3. AVT majors may not choose AVT courses to meet this requirement, and they may not double-count ARTH courses toward both the AVT major and the Mason Core arts requirement.

4. including at least one laboratory science

5. AVT majors may not double-count ARTH courses toward both AVT major requirements and the Mason Core global understanding requirement.

### AVT Major Requirements

#### Studio Foundation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AVT 101</td>
<td>New Majors Colloquium</td>
<td>1</td>
</tr>
<tr>
<td>AVT 104</td>
<td>Two-Dimensional Design and Color</td>
<td>4</td>
</tr>
<tr>
<td>(Mason Core)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVT 105</td>
<td>Three-Dimensional Design and Beyond</td>
<td>4</td>
</tr>
<tr>
<td>AVT 222</td>
<td>Drawing I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>AVT 323 or AVT 324</td>
<td>Drawing II or Figure Drawing</td>
<td>3</td>
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</tbody>
</table>

#### Art History, Critical Analysis, Contemporary Practice

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 201</td>
<td>History of Western Art II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 374</td>
<td>Art Now</td>
<td>3</td>
</tr>
<tr>
<td>AVT 301</td>
<td>Visual Voices Colloquium</td>
<td>3</td>
</tr>
<tr>
<td>AVT 307</td>
<td>Aesthetics</td>
<td>3</td>
</tr>
<tr>
<td>AVT 395</td>
<td>Writing for Artists</td>
<td>3</td>
</tr>
<tr>
<td>AVT 472</td>
<td>Critical Theory in the Visual Arts</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ARTH 200</td>
<td>History of Western Art I (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>ARTH 203</td>
<td>Survey of Asian Art (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>ARTH 204</td>
<td>Survey of Latin American Art (Mason Core)</td>
<td>(p. 135)</td>
</tr>
<tr>
<td>Select one from the following:</td>
<td>3</td>
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</tr>
<tr>
<td>AVT 305</td>
<td>Creative Processes</td>
<td></td>
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<tr>
<td>AVT 309</td>
<td>Art as Social Action</td>
<td></td>
</tr>
<tr>
<td>AVT 318</td>
<td>History of Graphic Design</td>
<td></td>
</tr>
<tr>
<td>AVT 371</td>
<td>Visual Perception and the Arts</td>
<td></td>
</tr>
<tr>
<td>AVT 372</td>
<td>Hip Hop Culture</td>
<td></td>
</tr>
<tr>
<td>AVT 374</td>
<td>Sound Art I</td>
<td></td>
</tr>
<tr>
<td>AVT 380</td>
<td>Thinking Through Animation</td>
<td></td>
</tr>
<tr>
<td>AVT 407</td>
<td>Advanced Aesthetics</td>
<td></td>
</tr>
<tr>
<td>AVT 410</td>
<td>Experiential Design History</td>
<td></td>
</tr>
<tr>
<td>AVT 493</td>
<td>Teaching Visual Thinking Through Media, PK-12</td>
<td>3</td>
</tr>
<tr>
<td>3 credits of 300-400 level ARTH (p. 1143)</td>
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<td></td>
</tr>
</tbody>
</table>

#### Breadth and Experience

Select three to four courses from the following: 12-13

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 215</td>
<td>Typography (Mason Core)</td>
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<tr>
<td>AVT 217</td>
<td>Introduction to Web Design</td>
<td></td>
</tr>
<tr>
<td>AVT 232</td>
<td>Painting I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 243</td>
<td>Printmaking I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 252</td>
<td>Darkroom Photography I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 253</td>
<td>Digital Photography I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 254</td>
<td>Photography</td>
<td></td>
</tr>
<tr>
<td>AVT 262</td>
<td>Sculpture I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 272</td>
<td>Interdisciplinary Arts (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 280</td>
<td>Introduction to New Media Arts</td>
<td></td>
</tr>
<tr>
<td>AVT 326</td>
<td>Nontraditional Approaches to Drawing</td>
<td></td>
</tr>
<tr>
<td>AVT 327</td>
<td>Illustration</td>
<td></td>
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<tr>
<td>AVT 346</td>
<td>Digital Printmaking</td>
<td></td>
</tr>
<tr>
<td>AVT 374</td>
<td>Sound Art I</td>
<td></td>
</tr>
<tr>
<td>AVT 385</td>
<td>EcoArt (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>AVT 496</td>
<td>Special Topics</td>
<td></td>
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<tr>
<td>Other courses as approved by program director</td>
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</tbody>
</table>

#### Professional Practices

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>AVT 413</td>
<td>Professional Design Practices</td>
<td>3</td>
</tr>
<tr>
<td>or AVT 453</td>
<td>Professional Practices</td>
<td></td>
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</table>

#### Synthesis

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AVT 497</td>
<td>Senior Project (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>
or AVT 498 Senior Design Project (Mason Core) (p. 135)

Total Credits 58-59

1 Transfer students with less than three semesters remaining must take AVT 301 Visual Voices Colloquium for each remaining semester.

2 Students concentrating in graphic design must take either AVT 318 History of Graphic Design or AVT 410 Experiential Design History to meet this requirement.

3 At least one course must be a 200-level studio course. See each concentration for individual requirements.

4 All students concentrating in graphic design must complete AVT 413 Professional Design Practices.

**Artsbus Requirement**

All AVT majors must meet the school's requirement of travel to galleries and museums through the Artsbus program. Students meet the requirement by enrolling in AVT 300 Artsbus Attendance. The procedure and requirements for enrollment in AVT 300 are the same as for any other class.

Freshman who enroll as AVT majors must register for AVT 300 Artsbus Attendance 5 times during their course of study. Transfer students and students who change their majors to AVT must register for AVT 300 Artsbus Attendance for the equivalent of each semester they are enrolled at Mason, up to a maximum of five semesters.

**Concentrations**

Select one concentration and complete the requirements therein.

**Drawing (DRW)**

All AVT majors concentrating in drawing must complete AVT 232 Painting I (Mason Core) (p. 135) under Breadth and Experience.

AVT 422 Drawing III 3

AVT 423 Drawing IV 3

Select 12 credits from 300-400 level AVT (p. 1143) 12

Select 6 credits from the following: 6

AVT 324 Figure Drawing
AVT 326 Nontraditional Approaches to Drawing
AVT 328 Mixed Media
AVT 333 Painting II
AVT 336 Experimental Painting
AVT 337 Figurative Painting
AVT 432 Painting III
AVT 433 Advanced Painting I
AVT 496 Special Topics 1

Other courses as approved by program director

Total Credits 24

1 Topic must be in Drawing.

**Graphic Design (GD)**

All AVT majors concentrating in graphic design must complete AVT 217 Introduction to Web Design and AVT 252 Darkroom Photography I (Mason Core) (p. 135) or AVT 253 Digital Photography I (Mason Core) (p. 135) under Breadth and Experience.

AVT 311 Graphic Design Methods and Principles 3

AVT 313 Editorial Design 3

AVT 414 Corporate Design and Branding 3

Select 15 credits from the following: 1

AVT 411 Motion Design
AVT 412 Advanced Typography
AVT 415 Web Design and Usability
AVT 416 Advertising Design
AVT 417 Package Design
AVT 419 Topics in Graphic Design
AVT 420 Advanced Web Design

Other courses as approved by program director

Total Credits 24

1 AVT 491 Independent Study in Art and Visual Technology or AVT 496 Special Topics may be taken with permission of the Area Coordinator.

**InterArts (IA)**

The concentration in InterArts is an individualized program of study focused on arts research with multidisciplinary goals. Students concentrating in InterArts are engaged with both creative and conceptual inquiry in the development of artistic practice bolstered by knowledge of other disciplines. Often, this work exists at the interstices of artforms, and focuses on research on areas of interest to the student. InterArts students draw on the large resources of the School of Art and the university in creating an individualized program of studio courses and complementary courses for a total of 24 credits (12 credits of disciplinary focus and 12 credits of complementary study). In consultation with a faculty advisor, the student drafts a curriculum contract outlining the course of study, which is approved by the InterArts faculty. Admission to the concentration is based on acceptance into the BFA program via a portfolio review process and project approval from the InterArts faculty.

Twelve credits of disciplinary focus 12

Twelve credits of complementary study 12

Total Credits 24

**New Media Art (NMA)**

All majors concentrating in new media art must complete AVT 280 Introduction to New Media Arts under Breadth and Experience, and AVT 180 New Media in the Creative Arts (Mason Core) (p. 135) and CS 105 Computer Ethics and Society (Mason Core) (p. 135) or PHIL 112 Ethics and the Cybersociety (Mason Core) (p. 135) for their IT Mason Core requirement.

Select 12 credits from 300-400 level AVT (p. 1143) 12

Select 12 credits from the following: 12

AVT 374 Sound Art I
AVT 376 Live Movies
AVT 382 2D Experimental Animation
AVT 383 3D Experimental Animation
AVT 385 EcoArt (Mason Core) (p. 135)
AVT 390 Video Art
AVT 482 Advanced Image Making
AVT 483 RS: Art and Interactivity
AVT 487 Advanced Topics: New Media Art

Other courses as approved by program director

Total Credits 24
Painting (PNT)
All majors concentrating in painting must complete AVT 262 Sculpture I (Mason Core) (p. 135) under Breadth and Experience.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 333</td>
<td>Painting II</td>
<td>3</td>
</tr>
<tr>
<td>AVT 432</td>
<td>Painting III</td>
<td>3</td>
</tr>
<tr>
<td>AVT 433</td>
<td>Advanced Painting I</td>
<td>3</td>
</tr>
<tr>
<td>300-400 level AVT (p. 1143)</td>
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<tr>
<td>Select 12 credits from the following:</td>
<td>12</td>
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<tr>
<td>AVT 336</td>
<td>Experimental Painting</td>
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<tr>
<td>AVT 337</td>
<td>Figurative Painting</td>
<td></td>
</tr>
<tr>
<td>AVT 434</td>
<td>Advanced Painting II</td>
<td></td>
</tr>
<tr>
<td>AVT 435</td>
<td>Advanced Painting III</td>
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<tr>
<td>AVT 496</td>
<td>Special Topics ¹</td>
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<tr>
<td>Other courses as approved by program director</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

¹ Topic must be in Painting.

Photography (PHO)
All AVT majors concentrating in photography must complete AVT 252 Darkroom Photography I (Mason Core) (p. 135) under Breadth and Experience.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 353</td>
<td>Darkroom Photography II</td>
<td>3</td>
</tr>
<tr>
<td>AVT 356</td>
<td>Photo Studio Techniques</td>
<td>3</td>
</tr>
<tr>
<td>AVT 359</td>
<td>Photography Seminar</td>
<td>3</td>
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<tr>
<td>Select 6 credits from 300-400 level AVT (p. 1143)</td>
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<td>Select 9 credits from the following:</td>
<td>9</td>
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<tr>
<td>AVT 354</td>
<td>Digital Photography II</td>
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<tr>
<td>AVT 355</td>
<td>Color Photo Methods</td>
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<tr>
<td>AVT 454</td>
<td>Alternative Photo Processes</td>
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<tr>
<td>AVT 455</td>
<td>Digital Printing Techniques</td>
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</tr>
<tr>
<td>AVT 457</td>
<td>Documentary Photography</td>
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<tr>
<td>AVT 458</td>
<td>Advanced Studio Lighting</td>
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</tr>
<tr>
<td>Other courses as approved by program director</td>
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<td></td>
</tr>
</tbody>
</table>

Total Credits 24

Printmaking (PM)
AVT 343 Printmaking II 3
Select 12 credits from 300-400 level AVT (p. 1143) 12
Select 9 credits from the following: 9
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 345</td>
<td>Paper/Print/Book as Language</td>
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</tr>
<tr>
<td>AVT 442</td>
<td>Digital Printmaking</td>
<td></td>
</tr>
<tr>
<td>AVT 443</td>
<td>Printmaking III</td>
<td></td>
</tr>
<tr>
<td>Other courses as approved by program director</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

Sculpture (SCL)
All AVT majors concentrating in sculpture must complete AVT 262 Sculpture I (Mason Core) (p. 135) under Breadth and Experience

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 363</td>
<td>Sculpture II</td>
<td>3</td>
</tr>
<tr>
<td>Three credits of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AVT 393</td>
<td>Field Experience in the Arts</td>
<td>3</td>
</tr>
</tbody>
</table>

or AVT 489 Internship in Art and Visual Technology
AVT 462 Sculpture III 3
AVT 463 Sculpture IV 3
Additional coursework as approved by program director 12

Total Credits 24

General Electives
Select 0-1 credits from General Electives 0-1
Total Credits 0-1

Accelerated Master's Option

Art and Visual Technology, BFA/Art Education, Accelerated MAT

Overview
Undergraduates in art may apply to the accelerated master's degree in Art Education. If accepted, students will be able to earn an Art and Visual Technology, BFA (p. 793) and an Art Education, MAT (p. 787) after satisfactory completion of 144 credits.

Students choosing the accelerated option must fulfill all university requirements for the master's degree. The regular designed timeframe would be a start in the Fall and the completion in the Fall semester five and a half years later, but longer time frames may also be available.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admissions Requirements
Applicants to accelerated master's programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master's Program Application, available from the College of Visual and Performing Arts (CVPA) Academic Affairs Office. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

In addition to meeting the general university requirements for admission for graduate study, applicants must submit:

- Statement of intent and professional goals for entering the field
- Three letters of reference from faculty members or individuals who have firsthand knowledge of the applicant's academic or professional capabilities
- Official score on Praxis Core or SAT equivalent
- MAT (for BFA students) portfolio must include 15 to 20 images that reflect artistic breadth and depth, including samples of work with ample attention to drawing and painting from observation. These works must be submitted through SlideRoom. All pieces must include the title of the piece, date, medium, and size of each work. Incomplete portfolios will not be considered.
Teacher Endorsement

Students for the MAT (for BFA students) must complete ALL endorsements, as well as the Praxis Core Exam and the PLUS art education foundational courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 493</td>
<td>Teaching Visual Thinking Through Media, PK-12</td>
<td>3</td>
</tr>
<tr>
<td>AVT 494</td>
<td>Strategies in Art Room: PK-12</td>
<td>3</td>
</tr>
<tr>
<td>AVT 495</td>
<td>Introduction to Art Teaching and Learning</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Students must meet Virginia Department of Education’s required semester credit hours in the following specific areas:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12 hours of two-dimensional media</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>12 hours of three-dimensional media</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>9 hours of cultural context and art history, judgment and criticism, aesthetics</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>3 hours of related areas of fine arts</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 36

Students should work closely with their advisor to ensure they complete these course requirements through the BFA in Art and Visual Technology (p. 793) and MAT (p. 787) degrees.

Accelerated Option Requirements

As an undergraduate, the accelerated master’s student is required to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated on the application, candidates submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing and must meet all master's degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master's program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high-achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean's Office.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Art and Visual Technology, BFA/Arts Management, Accelerated MA

Overview

Undergraduates in Art may apply to the accelerated master's degree in Arts Management. If accepted, students will be able to earn an Art and Visual Technology, BFA (p. 793) and an Arts Management, MA (p. 774) after satisfactory completion of 150 credits.

Students choosing the accelerated option must fulfill all university requirements for the master's degree. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete all requirements.

This accelerated option is offered through joint cooperation between the School of Art (p. 784) and the Arts Management Program (p. 772).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admissions Requirements

Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Academic Affairs Office. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

Interested students should contact the Arts Management Program Office for more details about the application process.

Accelerated Option Requirements

As an undergraduate, the accelerated master’s student is required to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, candidates submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing and must meet all master’s degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master’s program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high-achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean's Office.
To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

**Art and Visual Technology, BFA/Graphic Design, Accelerated MA**

**Overview**

Undergraduates in Art may apply to the accelerated master's degree in Graphic Design. If accepted, students will be able to earn an Art and Visual Technology, BFA (p. 793) and a Graphic Design, MA (p. 800) after satisfactory completion of 150 credits.

Students choosing the accelerated option must fulfill all university requirements for the master's degree. The standard timeframe would be a start in the Fall and the completion in the Fall semester five and a half years later, but longer time frames may also be available.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admissions Requirements**

Applicants to accelerated master's programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master's Program Application, available from the College of Visual and Performing Arts (CVPA) Academic Affairs Office. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

In addition to meeting the general university requirements for admission for graduate study, applicants must submit three letters of recommendation from faculty, or those who can evaluate the applicant's academic potential; a sample of academic writing about art or graphic design, such as a paper from an art or design history course; and 20 examples of original design works in a format that is viewable via SlideRoom.

**Accelerated Option Requirements**

As an undergraduate, the accelerated master's student is required to complete the two graduate courses indicated on their Accelerated Master's Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, candidates submit the Bachelor's/Accelerated Master's Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing and must meet all master's degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master's program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean's Office.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

**Arts and Social Change Minor**

Banner Code: ASC

2050 Art and Design Building
Fairfax Campus

Phone: 703-993-8898
Email: avt@gmu.edu
Website: soa.gmu.edu

The minor leverages artistic and creative practice in an array of academic and social contexts. The goal is to infuse these practices into territories outside the traditional art world through research, participatory experimentation and documentary aesthetic aspects of social practice. With a focus on creative research and project production students experience direct engagement with communities while developing skills toward fostering positive change in communities via the arts.

Students must complete an approved AVT course for their Mason Core Arts requirement.

Special topics courses will be notated in Patriot Web as a designated Arts and Social Change course.

**Admissions & Policies**

**Policies**

Twelve credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 21

**Coursework**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 390</td>
<td>Video Art</td>
<td>3</td>
</tr>
<tr>
<td>AVT 393</td>
<td>Field Experience in the Arts</td>
<td>3</td>
</tr>
<tr>
<td>AVT 496</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

1 Must be a designated Arts and Social Change section.

**Two Courses**

Select two courses from the following: 6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 309</td>
<td>Art as Social Action</td>
</tr>
<tr>
<td>AVT 345</td>
<td>Paper/Print/Book as Language</td>
</tr>
<tr>
<td>AVT 363</td>
<td>Sculpture II</td>
</tr>
<tr>
<td>AVT 374</td>
<td>Sound Art I</td>
</tr>
</tbody>
</table>
## Graphic Design Minor

### Banner Code: GD

2050 Art and Design Building  
Fairfax Campus  
Phone: 703-993-8898  
Email: avt@gmu.edu  
Website: soa.gmu.edu

The Graphic Design Minor is intended for students pursuing careers in graphic design. This minor is available to AVT majors. AVT majors must complete at least 12 credits unique to the minor.

### Admissions & Policies

**Policies**

Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

This minor is available to AVT majors. AVT majors must complete 12 credits unique to the minor.

It is recommended that non-AVT majors take AVT 104 Two-Dimensional Design and Color (Mason Core) (p. 135) for their Art Mason Core requirement as well as AVT 180 New Media in the Creative Arts (Mason Core) (p. 135) for the Information Technology (IT, except ethics) requirement. These courses are prerequisites for Graphic Design coursework.

### Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 215</td>
<td>Typography (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>AVT 311</td>
<td>Graphic Design Methods and Principles</td>
<td>3</td>
</tr>
<tr>
<td>AVT 313</td>
<td>Editorial Design</td>
<td>3</td>
</tr>
<tr>
<td>AVT 318</td>
<td>History of Graphic Design</td>
<td>3</td>
</tr>
<tr>
<td>AVT 412</td>
<td>Advanced Typography</td>
<td>3</td>
</tr>
<tr>
<td>FAVS 399</td>
<td>Special Topics in Film and Video Studies (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>FRLN 385</td>
<td>Multilingualism, Identity, and Power (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>INTS 337</td>
<td>Social Justice Consciousness and Personal Transformation</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 320</td>
<td>Social Structure and Globalization (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>THR 490</td>
<td>Special Topics in Theater</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

### Graphic Design Undergraduate Certificate

### Banner Code: AR-CERB-GD

2050 Art and Design Building  
Fairfax Campus  
Phone: 703-993-8898  
Email: avt@gmu.edu  
Website: soa.gmu.edu

The Graphic Design Undergraduate Certificate is for prospective students with a 4-year baccalaureate undergraduate degree from an accredited institution who seek to gain the skills and competency to advance into a career in graphic design. It encompasses a specific body of knowledge and practice that prepares candidates for rewarding positions in the design field.

This certificate may be completed under part or full time basis.

### Admissions & Policies

**Admissions**

There is not a portfolio review required for admission, but prospective students—with graphic design experience—should consider scheduling an interview with the program director prior to applying. Tuition is billed at the undergraduate rate, and most students complete certificate requirements in four semesters.

Students entering the certificate must be able to demonstrate basic skills in visual language and should have working knowledge of professional graphic design software, or must take AVT 180 New Media in the Creative Arts (Mason Core) (p. 135) in addition to other required courses.
### Requirements

#### Certificate Requirements

**Total credits:** 24

**Foundation Courses**

- **AVT 215** Typography (Mason Core) (p. 135)  
  - 4 credits
- **AVT 217** Introduction to Web Design  
  - 4 credits
- **AVT 253** Digital Photography I (Mason Core) (p. 135)  
  - 4 credits
- **AVT 311** Graphic Design Methods and Principles  
  - 3 credits

**Total Credits:** 15

**Design Specialties Courses**

- **AVT 313** Editorial Design  
  - 3 credits
- **AVT 414** Corporate Design and Branding  
  - 3 credits

**Total Credits:** 6

**Capstone**

- **AVT 413** Professional Design Practices  
  - 3 credits

**Total Credits:** 3

---

### Graphic Design, MA

**Banner Code:** AR-MA-GD

**Nicole Brugnoli-Whipkey, Administrative Assistant for Graduate Study**

2005 Art and Design Building  
Fairfax Campus

Phone: 703-993-5792  
Email: nbrugnol@gmu.edu  
Website: soa.gmu.edu

The MA in Graphic Design offers students a comprehensive study and preparation for the graphic design profession. The program calls for 36 credits, which includes courses in typography, web design, image making, and brand design. The broad range of study is intended to develop professionals prepared for an ever-expanding graphic design field.

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### Admissions & Policies

#### Admissions

Application deadlines are as published by the University. Applicants should have an earned BA or BFA degree in Graphic Design from an accredited college or university, with a GPA of 3.00 in art courses. However, applicants with a BA or BS in another discipline, and work experience in the field may also apply for admission. Student should schedule an interview with design faculty prior to admission.

In addition to meeting the general university requirements for admission for graduate study, applicants must submit three letters of recommendation from faculty members, or those who can evaluate the applicant’s academic potential; a sample of academic writing about art or graphic design, such as a paper from an art or design history course; and a portfolio with 20 examples of design works that are SlideRoom-compatible.

#### Portfolio Guidelines

The applicant's portfolio is a major selection criterion for graduate admission and should represent the applicant's most accomplished work.

Applicants’ portfolio items are considered part of the application for admission and, thus, cannot be returned. Please do not send original materials. The portfolio and all other application materials should be submitted to the Office of Graduate Admissions. For more information, contact the School of Art at 703-993-8898.

#### Studios

The School of Art is located in the Art and Design Building which houses well equipped studios for drawing, painting, photography, printmaking, and sculpture, as well as six computer-equipped studios that cross platforms and are installed with current software applications used for two dimensional imaging, three-dimensional modeling, animation, video production, sound editing, multimedia authoring, photography, and web publishing.

Policies, procedures, and schedules for studio use are established by the AVT studio faculty and are posted in the studios.

#### Policies

For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87).

See College of Visual and Performing Arts (p. 763) for policies specific to the college.

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### Requirements

#### Degree Requirements

**Total credits:** 36

**Core Courses**

Select 8 credits from the following:  

- **AVT 519** Special Topics in Graphic Design  
- **AVT 596** Independent Study  
- **AVT 599** Special Topics in Art and Visual Technology

Or other course as approved by director

Three credits of  

- **AVT 611** Graduate Design Seminar  
- **AVT 612** Independent Project Research  
- **AVT 613** Experiential Design History  
- **AVT 617** Advanced Typography  
- **CVPA 600** CVPA Graduate ProSeminar (Must be taken within the student's first 2 semesters)

**Total Credits:** 19

**Electives**

Select 13 credits from the following:  

- **AVT 519** Special Topics in Graphic Design (1-13 credits)
Final Project
The final steps for completion of the MA in Graphic Design are a substantial final project that calls upon all the skills of a working designer.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 794</td>
<td>Graphic Design Project</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 4

Accelerated Master’s

Art and Visual Technology, BFA/Graphic Design, Accelerated MA

Overview
Undergraduates in Art may apply to the accelerated master’s degree in Graphic Design. If accepted, students will be able to earn an Art and Visual Technology, BFA (p. 793) and a Graphic Design, MA (p. 800) after satisfactory completion of 150 credits.

Students choosing the accelerated option must fulfill all university requirements for the master’s degree. The standard timeframe would be a start in the Fall and the completion in the Fall semester five and a half years later, but longer time frames may also be available.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admissions Requirements
Applicants to accelerated master's programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master's Program Application, available from the College of Visual and Performing Arts (CVPA) Academic Affairs Office. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

In addition to meeting the general university requirements for admission for graduate study, applicants must submit three letters of recommendation from faculty, or those who can evaluate the applicant’s academic potential; a sample of academic writing about art or graphic design, such as a paper from an art or design history course; and 20 examples of original design works in a format that is viewable via SlideRoom.

Accelerated Option Requirements
As an undergraduate, the accelerated master’s student is required to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, candidates submit the Bachelor's/Accelerated Master's Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing and must meet all master's degree requirements except for the two courses (6 credits) completed as undergraduates. Students will begin their master's program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Art. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 credit hours of graduation and must be approved by the Dean's Office.

To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Photography Minor

Banner Code: PHO
2050 Art and Design Building
Fairfax Campus
Phone: 703-993-8898
Email: avt@gmu.edu
Website: soa.gmu.edu

The minor provides opportunities for students to develop a personal vision in response to photography’s role in contemporary art and culture. Various studio classes emphasize a range of techniques in the production of traditional, digital and experimental imagery. Critical thinking combined with studio/lab experience enhance this comprehensive introduction to the field and practice of photography.

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor with a minimum 2.00 GPA earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

This minor is available to AVT majors. AVT majors must complete 12 credits unique to the minor.

Requirements

Minor Requirements
Total credits: 16

Required Courses
AVT 252  Darkroom Photography I (Mason Core)  4
or AVT 253  Digital Photography I (Mason Core) (p. 135)

or AVT 253  Digital Photography I (Mason Core) (p. 135)
Web Design Minor

Banner Code: WDSN
2050 Art and Design Building
Fairfax Campus
Phone: 703-993-8898
Website: soa.gmu.edu

Admissions & Policies

Policies
AVT majors must complete 12 credits unique to the minor. It is
recommended that non-AVT majors take AVT 104 Two-Dimensional
Design and Color (Mason Core) (p. 135) for their Mason Core (p. 135) Arts
requirement as well as AVT 180 New Media in the Creative Arts (Mason
Core) (p. 135) for the Mason Core (p. 135) Information Technology (IT,
except ethics) requirement. These courses are prerequisites for Web
Design coursework.

Requirements

Minor Requirements
Total credits: 17

Coursework
AVT 215 Typography (Mason Core) (p. 135) 4
AVT 217 Introduction to Web Design 4
AVT 311 Graphic Design Methods and Principles 3
AVT 411 Motion Design 3
or AVT 420 Advanced Web Design

AVT 415 Web Design and Usability 3
Total Credits 17

Note: Students pursuing the Web Design minor are responsible for fulfilling
the prerequisites required in the minor curriculum. Please contact the
department for questions or issues when registering for classes.

School of Dance
Susan Shields, Director
A300 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1114
Website: dance.gmu.edu

Faculty

School Faculty
Professors
Lepore, Miller, Shields (director)

Associate Professors
d’Amboise (Heritage Professor), Joyce, Price

Assistant Professor
Reedy

Adjunct Faculty
Adebusola, Brown, Clark, Goodson, Hansen-Honeycutt, Isaac, Matthews,
Pilkington, Rocher, Spatz, Summerall, Windom

Requirements & Policies

Requirements
BFA/BA Admissions Requirements
The School of Dance offers a BFA and a BA. Entrance to either program
is by audition. Information about the audition process, including dates
and audition application, can be found on the School of Dance website
(p. 802). Admission to the university is determined by the Admissions
Office.

Master of Fine Arts, Visual and Performing Arts,
Concentration in Dance
A Visual and Performing Arts, Master of Fine Arts with a concentration
in Dance is offered by the College of Visual and Performing Arts. For
specific information, please refer to the Visual and Performing Arts, MFA
(p. 767).

Writing-Intensive Requirement
The university requires all students to complete at least one course
designated “writing intensive” in their major at the 300-level or above.
Students in the Dance, BFA and BA fulfill this requirement by successfully
completing DANC 390 Dance History I (Mason Core) (p. 135) or DANC 391 Dance History II (Mason Core) (p. 135).

**Policies**

See CVPA Requirements and Policies (p. 764).

**Programs**

- Dance Appreciation Minor
- Dance, BA
- Dance, BFA
- World Dance Minor

**Dance Appreciation Minor**

Banner Code: DNCA

Marjorie Summerall, Program Coordinator

A300 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1114
Email: dance@gmu.edu
Website: dance.gmu.edu/academics/dance-programs

The minor offers students the opportunity to study a variety of movement styles and understand dance in its historical and cultural context.

**Admissions & Policies**

**Policies**

A maximum of 4 transfer credits may be applied to the minor. Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 21

**Core**

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DANC 101</td>
<td>Dance Appreciation (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

**Three Courses**

Select three courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 125</td>
<td>Modern/Contemporary Dance I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 145</td>
<td>Ballet I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 225</td>
<td>Modern/Contemporary Dance II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 245</td>
<td>Ballet II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

**Notes**

Students with prior experience in ballet and/or modern dance may, with permission of instructor, take all 9 credits of technique courses at the 200 level.

All students pursuing the minor must demonstrate a basic level of training in both modern dance and ballet, and therefore, complete 9 credits of modern and ballet technique.

**Two or More Courses**

Select two or more courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 119</td>
<td>Dance in Popular Culture: Afro-Latino Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 120</td>
<td>Special Topics in Dance</td>
<td></td>
</tr>
<tr>
<td>DANC 125</td>
<td>Modern/Contemporary Dance I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 131</td>
<td>Beginning Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 145</td>
<td>Ballet I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 161</td>
<td>Beginning Tap Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 225</td>
<td>Modern/Contemporary Dance II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 231</td>
<td>Intermediate Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 245</td>
<td>Ballet II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 301</td>
<td>What is Dance? (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 318</td>
<td>Global Perspectives: World Dance Forms (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 331</td>
<td>Advanced Jazz Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 418</td>
<td>Global Dance Intensive (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 420</td>
<td>Special Topics in Dance</td>
<td></td>
</tr>
</tbody>
</table>

Or other courses as approved by the School of Dance Director or Advisor

**Total Credits**

6

Note:

1. DANC 118 World Dance (Mason Core) (p. 135) fulfills the global understanding requirement. Students who choose to take this course twice for the minor must select two different world cultures.

**Notes**

Mason does not guarantee the availability of these courses every semester; some are offered in alternate years.

**Dance, BA**

Banner Code: AR-BA-DANC

Marjorie Summerall, Program Coordinator

A300 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1114
Email: dance@gmu.edu
Website: dance.gmu.edu/academics/dance-programs
The BA degree is a 120-credit general program of dance study within a liberal arts degree framework.

Admissions & Policies

Admissions
Entrance to the program is by audition. Information about the audition process, including dates and audition application, can be found on the school webpage (http://dance.gmu.edu), or by calling the dance office at 703-993-1114. Admission to the university is determined by the Admissions Office.

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements
Total credits: 120

Mason Core
Written Communication
ENGH 101 Composition (Mason Core) (p. 135) \(^1\) 3
ENGH 302 Advanced Composition (Mason Core) (p. 135) \(^1\) 3

Foundation Requirements
Oral Communication (p. 136) 3
Quantitative Reasoning (p. 136) 3
Information Technology (p. 136) 3

Core Requirements
Literature (p. 140) 3
Natural Science (p. 141) \(^2\) 7
Western Civilization/World History (p. 143) 3
Social and Behavioral Sciences (p. 142) 3

Synthesis
Synthesis (p. 143) 3

Total Credits 34

\(^1\) Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as in ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

\(^2\) must include a laboratory science

Dance Major Core
Additional technique and performance credits beyond those required in the major core may be applied to dance electives.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 114</td>
<td>Rhythmic Analysis and Music Resources for Dance</td>
<td>3</td>
</tr>
<tr>
<td>Select one from the following: (^1)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 318</td>
<td>Global Perspectives: World Dance Forms (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 418</td>
<td>Global Dance Intensive (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>Approved university global understanding requirement (p. 139)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DANC 150</td>
<td>Dance Improvisation</td>
<td>3</td>
</tr>
<tr>
<td>DANC 170</td>
<td>Orientation to Dance Production</td>
<td>1</td>
</tr>
<tr>
<td>DANC 190</td>
<td>First Year Seminar</td>
<td>0</td>
</tr>
<tr>
<td>DANC 210</td>
<td>Anatomy and Kinesiology for Dance</td>
<td>3</td>
</tr>
<tr>
<td>DANC 251</td>
<td>Dance Composition I</td>
<td>3</td>
</tr>
<tr>
<td>DANC 252</td>
<td>Dance Composition II</td>
<td>3</td>
</tr>
<tr>
<td>DANC 270</td>
<td>Dance Production Lab</td>
<td>1</td>
</tr>
<tr>
<td>Two credits</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Select 9 credits from the following:</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>DANC 325</td>
<td>Modern/Contemporary Dance III (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 425</td>
<td>Modern/Contemporary Dance IV (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>Select 6 credits from the following:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>DANC 345</td>
<td>Ballet III (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 445</td>
<td>Ballet IV (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Dance Electives
Select 10 credits from the following: 10

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 119</td>
<td>Dance in Popular Culture: Afro-Latino Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 120</td>
<td>Special Topics in Dance</td>
<td></td>
</tr>
<tr>
<td>DANC 131</td>
<td>Beginning Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 161</td>
<td>Beginning Tap Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 225</td>
<td>Modern/Contemporary Dance II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 231</td>
<td>Intermediate Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 245</td>
<td>Ballet II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 318</td>
<td>Global Perspectives: World Dance Forms (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 324</td>
<td>Introduction to Dance Conditioning</td>
<td></td>
</tr>
<tr>
<td>DANC 325</td>
<td>Modern/Contemporary Dance III (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 331</td>
<td>Advanced Jazz Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 345</td>
<td>Ballet III (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>
Danc 370  Dance Performance
Danc 371  Residency Workshop
Danc 399  Independent Study
Danc 418  Global Dance Intensive (Mason Core) (p. 135)
Danc 420  Special Topics in Dance
Danc 425  Modern/Contemporary Dance IV (Mason Core) (p. 135)
Danc 445  Ballet IV (Mason Core) (p. 135)
Danc 453  Teaching Creative Movement
Or other courses as approved by the School of Dance Director or Advisor

Total Credits 56

1  Meets Mason Core (p. 135) global understanding requirement.
2  Three credits will meet the Mason Core (p. 135) arts requirement.

Electives
BA students must use general electives to either complete a minor, double major or double degree outside their primary field of study (15-20 credits) or demonstrate intermediate-level proficiency in one foreign language (0-9 credits) 1,2

Electives

Dance, BFA
Banner Code: AR-BFA-DANC

Marjorie Summerall, Program Coordinator
A300 delaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1114
Email: dance@gmu.edu
Website: dance.gmu.edu/academics/dance-programs

The BFA in dance is a performance-oriented contemporary dance program designed to prepare students professionally as performers, choreographers, educators, and active leaders of the dance community. Students in this program demonstrate technical mastery and devote their college study to an intensive and comprehensive dance curriculum.

Daily technical training in modern dance and ballet, and numerous performance opportunities develops a versatile dancer. Student progress in the BFA program is assessed consistently. Because of the professional nature of the BFA degree, the program requires completion of 126 credits of coursework.

Admissions & Policies
Admissions
Entrance to the program is by audition. Information about the audition process, including dates and audition application, can be found on the school web page (http://dance.gmu.edu), or by calling the dance office at 703-993-1114. Admission to the university is determined by the Admissions Office.

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements
Degree Requirements
Total credits: 126

Mason Core
Written Communication
ENGH 101  Composition (Mason Core) (p. 135) 1 3
ENGH 302  Advanced Composition (Mason Core) (p. 135) 3

Foundation Requirements
Quantitative Reasoning (p. 136) 3
Information Technology (p. 136) 3

Core Requirements
Literature (p. 140) 3
Natural Science (p. 141) 2 7
Western Civilization/World History (p. 143) 3
Social and Behavioral Sciences (p. 142) 3

Total Credits 28

1  Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as in ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

2  must include one laboratory science

Dance Major Core
Additional technique and performance credits beyond those required in the major core may be applied to dance electives.

Danc 114  Rhythmic Analysis and Music Resources for Dance 3
Select one from the following: 1

Danc 118  World Dance (Mason Core) (p. 135)
Danc 318  Global Perspectives: World Dance Forms (Mason Core) (p. 135)
Danc 418  Global Dance Intensive (Mason Core) (p. 135)
World Dance Minor

Approved university global understanding requirement (p. 139)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 150</td>
<td>Dance Improvisation</td>
<td>3</td>
</tr>
<tr>
<td>DANC 170</td>
<td>Orientation to Dance Production</td>
<td>1</td>
</tr>
<tr>
<td>DANC 190</td>
<td>First Year Seminar</td>
<td>0</td>
</tr>
<tr>
<td>DANC 210</td>
<td>Anatomy and Kinesiology for Dance</td>
<td>3</td>
</tr>
<tr>
<td>DANC 251</td>
<td>Dance Composition I</td>
<td>3</td>
</tr>
<tr>
<td>DANC 252</td>
<td>Dance Composition II</td>
<td>3</td>
</tr>
<tr>
<td>DANC 270</td>
<td>Dance Production Lab</td>
<td>1</td>
</tr>
<tr>
<td>DANC 360</td>
<td>Choreography</td>
<td>3</td>
</tr>
<tr>
<td>DANC 362</td>
<td>RS: Directed Choreography</td>
<td>1</td>
</tr>
</tbody>
</table>

Four credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 370</td>
<td>Dance Performance</td>
<td></td>
</tr>
<tr>
<td>or DANC 371</td>
<td>Residency Workshop</td>
<td></td>
</tr>
</tbody>
</table>

DANC 372    | Advanced Dance Production                         | 1       |
DANC 390    | Dance History I (Mason Core) (p. 135)             | 3       |
DANC 391    | Dance History II (Mason Core) (p. 135)            | 3       |
DANC 410    | Introduction to Contemporary Movement Theories    | 3       |
DANC 454    | Methods of Teaching Dance                         | 3       |
DANC 490    | Senior Dance Seminar (Mason Core) (p. 135)        | 3       |

Select 18 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 325</td>
<td>Modern/Contemporary Dance III (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 425</td>
<td>Modern/Contemporary Dance IV (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 345</td>
<td>Ballet III (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 445</td>
<td>Ballet IV (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Dance Electives

Select 15 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 118</td>
<td>World Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 119</td>
<td>Dance in Popular Culture: Afro-Latino Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 120</td>
<td>Special Topics in Dance</td>
<td></td>
</tr>
<tr>
<td>DANC 131</td>
<td>Beginning Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 161</td>
<td>Beginning Tap Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 225</td>
<td>Modern/Contemporary Dance II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 231</td>
<td>Intermediate Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 245</td>
<td>Ballet II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 318</td>
<td>Global Perspectives: World Dance Forms (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 324</td>
<td>Introduction to Dance Conditioning</td>
<td></td>
</tr>
<tr>
<td>DANC 325</td>
<td>Modern/Contemporary Dance III (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>DANC 331</td>
<td>Advanced Jazz Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 345</td>
<td>Ballet III (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 362</td>
<td>RS: Directed Choreography</td>
<td></td>
</tr>
</tbody>
</table>

DANC 370    | Dance Performance                                 |         |
DANC 371    | Residency Workshop                                |         |
DANC 399    | Independent Study                                 |         |
DANC 410    | Introduction to Contemporary Movement Theories    |         |
DANC 418    | Global Dance Intensive (Mason Core) (p. 135)      |         |
DANC 420    | Special Topics in Dance                           |         |
DANC 425    | Modern/Contemporary Dance IV (Mason Core) (p. 135)|         |
DANC 445    | Ballet IV (Mason Core) (p. 135)                   |         |
DANC 453    | Teaching Creative Movement                        |         |

Or other courses approved by the School of Dance Director or Advisor

Total Credits 86

1 Meets Mason Core (p. 135) global understanding requirement
2 Three credits will meet the Mason Core (p. 135) arts requirement.

Electives

BFA majors are encouraged to complete coursework in any of the following areas to enhance their artistry:

<table>
<thead>
<tr>
<th>Code</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT</td>
<td>(p. 1152)</td>
</tr>
<tr>
<td>ARTH</td>
<td>(p. 1143)</td>
</tr>
<tr>
<td>MUSI</td>
<td>(p. 1740)</td>
</tr>
<tr>
<td>THR</td>
<td>(p. 2007)</td>
</tr>
</tbody>
</table>

Total Credits 12

World Dance Minor

Banner Code: DNCW

A300 DeLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1114
Website: dance.gmu.edu

The minor in World Dance develops knowledge and appreciation of the vast diaspora of the philosophies, history, and cultural diversity of world dance forms.

Admissions & Policies

Policies

For policies governing all minors, see Undergraduate Policies (p. 84).

Requirements

Minor Requirements

Total credits: 21

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 101</td>
<td>Dance Appreciation (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>
MUSI 103 Musics of the World (Mason Core) (p. 135) 3

Six credits of

DANC 118 World Dance (Mason Core) (p. 135) 6
DANC 119 Dance in Popular Culture: Afro-Latino Dance (Mason Core) (p. 135) 3

Total Credits 15

1 Must complete two different world cultures.

Electives

Choose two electives from the following:

DANC 125 Modern/Contemporary Dance I (Mason Core) (p. 135) 6
DANC 131 Beginning Jazz Technique (Mason Core) (p. 135)
DANC 145 Ballet I (Mason Core) (p. 135)
DANC 225 Modern/Contemporary Dance II (Mason Core) (p. 135)
DANC 231 Intermediate Jazz Technique (Mason Core) (p. 135)
DANC 245 Ballet II (Mason Core) (p. 135)
MUSI 303 Topics in Ethnomusicology
DANC 331 Advanced Jazz Dance (Mason Core) (p. 135)
DANC 418 Global Dance Intensive (Mason Core) (p. 135)

Or other courses approved by the School of Dance Director or Advisor

Total Credits 6

Note:
Mason does not guarantee the availability of these courses every semester.

School of Music

Linda Monson, Director
A417 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1380
Website: music.gmu.edu

Undergraduate Programs

Bachelor's Degrees

The two undergraduate degree programs offered through the School of Music, the bachelor of art (BA) in music and the bachelor of music (BM), prepare students for graduate work in music and music literature; research and professional work in musical activities; and state licensure, or certification, to teach vocal and choral or instrumental music at the elementary and secondary school levels.

Through its strategic plan, Music Outreach and the Teaching Professions, the School of Music enables students to pursue worthwhile vocational goals as teachers, performers, conductors, and composers. The School of Music also seeks to educate its students to reflect a concern for cultural and humanistic values as future ambassadors and advocates of music and other arts. Through innovative learning experiences, the School of Music provides all students in the BA and BM programs with opportunities to become effective musicians, teachers, and advocates of music. Teaching music is the principal area in which students can find employment in private studios, public and private schools, academies, and higher education within the ever-changing workplace. Because of this, all music majors at Mason receive some training in the teaching of music.

The School of Music also recognizes the critical outreach role it provides in serving students from all majors, as well as members of the community who significantly benefit from the values and experiences of an education in music. The School of Music seeks to provide unique educational opportunities through its various course offerings, workshops, presentations, and performances for those seeking music enrichment.

Teacher Licensure

Undergraduate students seeking certification to teach vocal and choral or instrumental music at the elementary and secondary levels must earn the BM degree as specified under Concentration in Music Education section in this section. Students who have earned a baccalaureate degree and are seeking state licensure to teach music must also complete this sequence of courses, which constitute a state-approved program for teacher education in music.

Graduate Certificates

Music Education Licensure for PK-12

This graduate certificate is designed as a pathway to music education licensure for music students without an undergraduate degree in music education. Upon completing this certificate students will be equipped with the necessary skills, knowledge, and experience to obtain music teaching licensure from the Commonwealth of Virginia.

Music and Well-Being Graduate Certificate

The Graduate Certificate in Music and Well-Being builds on courses currently offered in the School of Music and on the school-wide initiative around well-being as an important consideration and subject of study for all musicians. The certificate allows students to explore the connections between music and consciousness and between vibration, meditation, and well-being. It is conceived as a complement to the programs focused on mindfulness and well-being that are a priority across the university.

Instrumental Performance Artist Graduate Certificate

The certificate is a specialized, graduate-level program for advanced musicians who desire to further develop and refine their performance art. The certificate program is a two-year course of study requiring at least two consecutive semesters of residence. A total of 32 credits is required. Advisor’s approval is required for each semester’s enrollment.

Piano Performance Artist Certificate

The certificate is a specialized, graduate-level program for advanced musicians who desire to further develop and refine their performance art. The certificate program is a two-year course of study requiring at least two consecutive semesters of residence. A total of 32 credits is required. Advisor’s approval is required for each semester’s enrollment.

Vocal Performance Artist Graduate Certificate

The certificate is a specialized, graduate-level program for advanced musicians who desire to further develop and refine their performance art.
The certificate program is a two-year course of study requiring at least two consecutive semesters of residence. A total of 32 credits is required. Advisor’s approval is required for each semester’s enrollment.

**Graduate Programs**

**Accelerated Master’s Option**

The School of Music offers a Music, BM (Performance)/Music, Accelerated MM (Performance) option which allows undergraduate students to take graduate classes that can be used towards a designated Master’s degree. Undergraduates who wish to pursue the accelerated Master’s route should talk to their academic advisor first to see if they qualify. Students must be within 75-90 credits of their Bachelor’s program to be eligible to apply; those who have earned more than 90 credits will not be considered. Students must be approved by their academic advisor and formally apply and be accepted to the Master’s program through an Accelerated Master’s application. For more information about admissions requirements and the application process, students should visit the website (http://cvpa.gmu.edu).

**Music, MM**

The MM degree is offered as an educational channel to meet the intellectual and career needs of qualified students. It is a comprehensive and advanced program of study with a choice of concentrations in performance, music education, composition, conducting, jazz studies, and pedagogy. The MM with a concentration in music education does not provide licensure to teach music in public or private schools.

**Music Education, Ph.D.**

The PhD in music education, a research-intensive degree, focuses on the gathering, processing, and interpretation of information. Students in the PhD program take seminars and topics courses in music education, as well as research courses through the College of Education and Human Development. PhD graduates are expected to demonstrate the ability to communicate significant concepts of music education.

The PhD in music education requires 60 credits beyond the master’s degree in music.

**Doctor of Musical Arts (DMA)**

The DMA concentrations are composition, conducting, and performance. While these concentrations share some of the required course work, each is also distinct in course requirements. Professional musicians earn the DMA to enhance and extend their knowledge and practice within their area of specialization. The DMA student focuses on the profession of music performance, as well as the theory and practice of the discipline.

The Doctor of Musical Arts (DMA) degree require 60 credits beyond the master’s degree in music.

**Faculty**

**School Faculty**

**Professors**

Balakerskaia, Billingham, Camphouse, Carroll, Engebretson, Hearden, Layendecker (Heritage Chair), Maiello, Miller, Monson (Director), Rendler, G. Smith

**Associate Professors**

Aler, Guessford, Nickens, T. Owens (Associate Director), G. Robinson

**Assistant Professors**

D. Purcell, Green, Kilkenny

**Administrative Faculty**

Freer

**Adjunct Faculty**


**Requirements & Policies**

**Requirements**

**Admission Requirements**

Entrance to all music degree programs is by audition. Arrangements for an audition must be made in advance by contacting the School of Music before the scheduled audition date. Auditions are held approximately once per month. Audition dates and audition application forms are available through the School of Music (http://music.gmu.edu).

**Program Requirements**

A fundamentals of music test is given during the first week of classes to all students enrolled in MUSI 115 Theory I. Call for additional information.

Competency placement tests are required of all transfer students who wish to present transfer credit in any of the following areas: aural skills and keyboard skills.

Students must earn a minimum 2.00 cumulative GPA in their major or higher, if required by their program.

**Policies**

See CVPA Requirements and Policies (p. 764).

**Termination from the Major**

No School of Music course that is required for the major may be unsuccessfully attempted more than three times. A grade of F constitutes an unsuccessful attempt in any given course. Those students who do not successfully complete such a course within three attempts will be terminated from the major. For more information, see AP.5.2.4 Termination from the Major (p. 85).

**Writing-Intensive Requirement**

Mason requires all students to complete at least one course designated “writing intensive” in their major at the 300 level or above. Students majoring in music may fulfill this requirement by successfully completing MUSI 332 Music History in Society II or MUSI 438 Music History in Society B. Students who transfer this course into Mason may be required to repeat it or enroll in some other suitable course to fulfill the writing intensive requirement.
Programs

- Ethnomusicology Minor
- Instrumental Performance Artist Graduate Certificate
- Jazz Studies Minor
- Music Education Licensure for PK-12 Graduate Certificate
- Music Education, PhD
- Music Minor
- Music Technology Minor
- Music and Well-Being Graduate Certificate
- Music and Well-Being Minor
- Music, BA
- Music, BM
- Music, MM
- Musical Arts, DMA
- Musical Theater Undergraduate Certificate: Music
- Piano Performance Artist Graduate Certificate
- Vocal Performance Artist Graduate Certificate

Ethnomusicology Minor

Banner Code: EMUS

Melinda Wildman, Academic Advisor
A417 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/undergraduate/

The minor is designed for those who wish to widen their scope of knowledge about music while deepening their understanding of the world’s peoples. Students learn in the classroom, as well as experientially, in the form of applied studies and exercises in field work how music making functions within cultural contexts, conveying varied meanings in bodily action and musical sound worldwide. Students gain skills that will serve them in many fields of endeavor, from developing specific musical expertise to acquiring proficiency with technological and anthropological aspects of ethnographic enquiry.

Admissions & Policies

Admissions

Students must first demonstrate to the Ethnomusicology coordinator a basic level of knowledge and training in some area of Western or non-Western music, or earn a grade of B or higher in MUSI 103 Musics of the World (Mason Core) (p. 135) or MUSI 431 Music History in Society III (Mason Core) (p. 135).

Policies

Eight credits of coursework must be unique to the minor with a minimum 2.00 GPA earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Core

MUSI 103 Musics of the World (Mason Core) (p. 135) 3

or MUSI 431 Music History in Society III (Mason Core) (p. 135)

MUSI 303 Topics in Ethnomusicology 3

Two credits of

MUSI 394 Ethnomusicology Internship 1

ANTH 114 Introduction to Cultural Anthropology (Mason Core) (p. 135) 3

Select 1 credit from the following:

1 Applied Music Options (course list follows)

1 Music Ensemble Options (course list follows)

Total Credits 12

1 Subject to approval from the Ethnomusicology minor coordinator.

Electives

Electives subject to approval from the Ethnomusicology minor coordinator and should be selected from the following list. Additional electives may include summer travel courses, as appropriate, and must be approved by the minor coordinator.

Select 6 credits from the following: 6

MUSI 102 Popular Music in America (Mason Core) (p. 135)

MUSI 107 Jazz and Blues in America (Mason Core) (p. 135)

MUSI 379 Jazz Improvisation

MUSI 485 Chamber Ensembles (Mason Core) (p. 135)

Applied Music Options (course list follows)

AFAM 200 Introduction to African American Studies (Mason Core) (p. 135)

AFAM 390 Special Topics in African American Studies

ANTH 302 Peoples and Cultures of Latin America (Mason Core) (p. 135)

ANTH 306 Peoples and Cultures of Island Asia (Mason Core) (p. 135)

ANTH 309 Peoples and Cultures of India (Mason Core) (p. 135)

AVT 378 The African American Experience in the Performing Arts

COMM 157 Digital Media Workshop

COMM 305 Foundations of Intercultural Communication (Mason Core) (p. 135)

DANC 118 World Dance (Mason Core) (p. 135)

DANC 119 Dance in Popular Culture: Afro-Latino Dance (Mason Core) (p. 135)
ENH 315  Folklore and Folklife
Total Credits  6

Applied Music Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 242</td>
<td>Applied Music in Keyboard</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 243</td>
<td>Applied Music in Voice</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 244</td>
<td>Applied Music in Woodwind</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 245</td>
<td>Applied Music in Brass</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 246</td>
<td>Applied Music in String</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 247</td>
<td>Applied Music in Percussion</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 248</td>
<td>Applied Music in Composition</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 442</td>
<td>Applied Music in Keyboard</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 443</td>
<td>Applied Music in Voice</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 444</td>
<td>Applied Music in Woodwind</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 445</td>
<td>Applied Music in Brass</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 446</td>
<td>Applied Music in String</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 447</td>
<td>Applied Music in Percussion</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 448</td>
<td>Applied Music in Composition</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Music Ensemble Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 382</td>
<td>Piano Ensemble (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 385</td>
<td>Chamber Singers (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 485</td>
<td>Chamber Ensembles (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

Instrumental Performance Artist Graduate Certificate

Banner Code: AR-CERG-ACIP

Melinda Wildman, Academic Advisor
A417 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

The certificate is a specialized, graduate-level option for advanced musicians who desire to further develop and refine their performance art. The certificate is a two-year course of study requiring at least two consecutive semesters of residence. A total of 32 credits is required. Advisor's approval is required for each semester's enrollment.

This certificate may be earned on a full time or part time basis.

Admissions & Policies

Admissions

Application Materials

- An artist certificate application and current résumé
- A bachelor's degree in music or equivalent (as evaluated by the School of Music Admissions Committee)
- Transcripts from previous educational institutions
- One-page written statement of student's goals and interest in the program
- Two letters of recommendation
- Recording of a live performance of solo works from the standard repertory submitted via SlideRoom.

Applicants must perform an audition recital and be interviewed on the Mason Campus. Applicants will be notified of the date and time of the audition and interview.

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 32

Studies in Performance

Select 12 credits of Graduate Applied Music from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 721</td>
<td>Applied Music</td>
<td></td>
</tr>
<tr>
<td>MUSI 724</td>
<td>Applied Music in Woodwind</td>
<td></td>
</tr>
<tr>
<td>MUSI 725</td>
<td>Applied Music in Brass</td>
<td></td>
</tr>
<tr>
<td>MUSI 727</td>
<td>Applied Music in Percussion</td>
<td></td>
</tr>
<tr>
<td>MUSI 790</td>
<td>Graduate Recital ¹</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits  17

¹ Two semesters of solo recitals and one semester of chamber recital.

Support Studies in Literature and Pedagogy

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 630</td>
<td>Topics in Music History and Literature</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 730</td>
<td>Advanced Topics in Music History</td>
<td></td>
</tr>
<tr>
<td>MUSI 551</td>
<td>Keyboard Pedagogy</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 553</td>
<td>Instrumental Pedagogy and Literature</td>
<td></td>
</tr>
<tr>
<td>MUSI 695</td>
<td>Teaching Internship</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits  8

Support Studies in Accompanying or Ensemble plus Electives

Select Accompanying or Ensemble:

<table>
<thead>
<tr>
<th>Accompanying:</th>
<th>Credits</th>
</tr>
</thead>
</table>


Jazz Studies Minor

Banner Code: JAZZ

Melinda Wildman, Academic Advisor
A417 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

This minor is open to music and non music majors who wish to explore America’s unique art form. It is open to all instrumentalists and vocalists, including students who perform on instruments not normally associated with jazz.

Admissions & Policies

Admissions

No prior experience in jazz is needed, but candidates must pass a music audition.

Policies

Students in the keyboard area use the Keyboard Skills I credit as a music elective.

University policy states that students must earn 8 distinct credits that are not used for their major toward their degree, with a minimum 2.00 GPA earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 20

Select 2 credits of Applied Music Options (course list follows) 2

MUSI 107 Jazz and Blues in America (Mason Core) 3
(p. 135)

Applied Music Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Music advisor for registration permission and options.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSI 242</td>
<td>Applied Music in Keyboard</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 243</td>
<td>Applied Music in Voice</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 244</td>
<td>Applied Music in Woodwind</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 245</td>
<td>Applied Music in Brass</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 246</td>
<td>Applied Music in String</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 247</td>
<td>Applied Music in Percussion</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 248</td>
<td>Applied Music in Composition</td>
<td>2</td>
</tr>
<tr>
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<td>2-3</td>
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<tr>
<td>MUSI 446</td>
<td>Applied Music in String</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 447</td>
<td>Applied Music in Percussion</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 448</td>
<td>Applied Music in Composition</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Music Education Licensure for PK-12 Graduate Certificate

Banner Code: AR-CERG-MELP

Melinda Wildman, Academic Advisor
A417 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

This certificate may be earned on a full-time or part-time basis.
Admissions & Policies

Admissions
• In addition to standard requirements through the university’s online application, requirements for this program include:
  • Transcript audit that indicates: Bachelor of Music or its equivalent, minimum cumulative G.P.A. of 3.0 (Endorsement Worksheet)
  • Official copy of Praxis Core Academic Skills for Educators Test (or equivalency)
  • One page professional goals statement submitted with application
  • Upon application review by music education faculty, the successful applicant will be invited to an interview and music skills proficiency exam.

Coursework completed at other institutions will not be considered for transfer into this graduate certificate program. Applicants who believe they have met requirements for a license are encouraged to apply directly to the Virginia Department of Education (VDOE). Instructions and a type-and-print version of the application for a teaching license can be found on the VDOE website at: http://www.doe.virginia.gov/teaching/licensure/application.pdf

Specifics regarding testing requirements and passing scores are dictated by the College of Education and Human Development (CEHD) and can be found online at https://cehd.gmu.edu/teacher/test/praxis

Requirements

Certificate Requirements
Total credits: 21

Required Courses
Upon admission to this graduate certificate the candidate must complete the following.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 561</td>
<td>Music Curriculum and Instruction Procedures</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 593</td>
<td>Foundations of Music Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 539</td>
<td>Human Development and Learning PK-12</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 501</td>
<td>Literacy and Curriculum Integration, PK-12</td>
<td>3</td>
</tr>
<tr>
<td>Select</td>
<td>one from the following:</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 566</td>
<td>Instrumental Methods for Band</td>
<td></td>
</tr>
<tr>
<td>MUSI 567</td>
<td>Instrumental Methods, Strings</td>
<td></td>
</tr>
<tr>
<td>MUSI 568</td>
<td>Vocal and Choral Methods</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 15

Internship
Upon completion of coursework the candidate must complete a student teaching internship at the elementary and secondary levels in a program-approved public or private school (6 credits). Prior to being permitted to student teach, the candidate must complete and pass the VCLA, the Praxis Subject Assessment (Music Content Knowledge-5113), and the MTEC Competency Check.

Music Education, PhD

Banner Code: AR-PHD-MUE

Brian Wuttke, Director of Music Education
A417 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/graduate/

The PhD, a research-intensive degree, focuses on the gathering, processing, and interpretation of information. Students in the PhD program take seminars and topics courses in music education, as well as research courses through the College of Education and Human Development (p. 154). PhD graduates are expected to demonstrate the ability to communicate significant concepts of music education. The PhD requires 90 credits, 60 beyond the master’s degree in music.

Admissions & Policies

Admissions

Admission Requirements
In addition to meeting all admission requirements for graduate study, applicants should submit the following:

• Master’s degree in music or its equivalent from an accredited university;
• GPA of 3.00 in master’s-level music course work; 3.50 in courses related to the prospective area of doctoral study (music education, performance, composition, or conducting);
• Three recommendations;
• Satisfactory scores on GRE;
• Sample of academic writing such as a graduate-level paper from a musicology or music history course taken during MM studies.
• Students in performance and conducting must audition. Specific details of those requirements are available from the advisors.
• Composition students must present a portfolio of recent compositions and recordings of performances.

• Music education majors must present a dossier of their teaching experience and activities, a video of sample classroom teaching, and they must schedule an interview with music faculty including the director of graduate studies (DGS) prior to admission.

Applicants should refer to the graduate admissions (https://music.gmu.edu/auditions/masters-auditions) page of the School of Music website for specific details on what is required and how to submit their materials. There is no “provisional” admission. Students must meet appropriate standards prior to commencing doctoral studies.

Policies

Reduction of Credit
Students must have a master's degree before being admitted. Most students receive a reduction of study of 30 credits based on their previous master's degree.

Requirements

Degree Requirements
Total credits: 90

The following degree plan is based on a student who receives a full 30 credit reduction. Students who do not receive a full credit reduction should choose additional credits in consultation with their advisor.

Placement Examinations
Prior to the beginning of the first semester of doctoral studies, the student must complete placement examinations in music theory, music history, and musicianship (including aural skills and keyboard skills). Positive scores on the placement exams may reduce or eliminate prerequisites for courses in music history and music theory.

Doctoral Coursework
The doctoral student must maintain a minimum of 3.00 GPA in courses presented on the degree plan, which may include no more than 6 credits with a grade of C. The GPA calculation excludes all transfer courses and may include no more than 6 credits from the degree plan, which may include no more than 6 credits with a grade of C. The GPA calculation excludes all transfer courses and they must schedule an interview with music faculty including the director of graduate studies (DGS) prior to admission.

Applicants should refer to the graduate admissions (https://music.gmu.edu/auditions/masters-auditions) page of the School of Music website for specific details on what is required and how to submit their materials. There is no “provisional” admission. Students must meet appropriate standards prior to commencing doctoral studies.

Select six credits in music theory

MUSI 610 Topics in Music Theory

Doctoral Research
Select 12 credits from the following:

MUSI 710 Advanced Topics in Music Theory
MUSI 630 Topics in Music History and Literature
or MUSI 730 Advanced Topics in Music History
MUSI 640 Topics in World Musics
MUSI 660 Topics in Music Education (3 credits)
1-6
MUSI 810 Doctoral Seminar in Analysis
or MUSI 830 Doctoral Seminar in Music History
MUSI 860 Doctoral Seminar in Music Education (12 credits)
MUSI 880 Doctoral Major Ensemble (3 credits)
CVPA 600 CVPA Graduate ProSeminar (must be taken within the student’s first 2 semesters)
Select 6 credits of MUSI 500 - 800 level electives as approved by advisor. (p. 1740)
Total Credits 48

Residency
More than half of all credits (minimum 72) must be taken in doctoral degree status, after admission to the degree program. One year (fall and spring) of consecutive full-time study (9 credits per semester) is recommended (18 total credits). Or, the academic residency requirement may be fulfilled by earning 21 credits within 12 months (fall and spring semesters and summer term). Academic residency should be completed during the first year of study. Any necessary prerequisite courses at the 500 level can be included to meet the residency requirement. Language courses at the undergraduate level may not be included. Note: The academic residency does not imply meeting the standards of Virginia residency for tuition purposes.

Language Requirements
Reading proficiency is required in a language appropriate to the student’s major area of study. Normally, this will be German, French, or Italian. Alternatively, the student may choose to demonstrate proficiency interpreting statistical findings in quantitative-based educational research. The director of graduate studies and the Graduate Committee will determine the appropriate area of study. Reading proficiency may be accomplished by completing a reading examination provided by the music faculty. The reading examination provided by the faculty will normally consist of translation (with dictionary) of appropriate technical passages relevant to the student’s area of study within a two-hour period. The language reading proficiency should be completed prior to earning 12 credits of courses at the 600 level or above.

Graduate Committee
The Graduate Committee will evaluate the progress of the student annually. Continuation in the program is subject to the endorsement of this group.

Comprehensive Exams
After the completion of required courses (excluding dissertation credits) or during the semester when completion of those courses is anticipated, the student will take comprehensive examinations. The written exams may also be followed by a one-hour oral exam if needed to clarify issues included in the written exams.
Advancement to Candidacy

Before doctoral students may be advanced to candidacy by the dean of the College of Visual and Performing Arts, they must complete all course work required by the program faculty, be certified in all relevant doctoral research skills, pass the comprehensive exams, and be recommended by the Graduate Committee, the director of graduate studies, and the director of the School of Music. Students advanced to candidacy after the add period for a given semester must wait until the following semester to register for MUSI 999 Dissertation.

Dissertation

The dissertation is the capstone experience of doctoral study. The dissertation will be guided by the Dissertation Committee consisting of at least three members of the music faculty. The student’s major professor will chair the committee. The director of graduate studies of the School of Music may be a part of the committee; if not, he or she will serve ex officio. All Dissertation Committee members will be appointed by the dean of the College of Visual and Performing Arts and have graduate faculty status, as approved by the university provost.

Final Defense and Graduation

When all degree requirements have been satisfied, including completion of the doctoral dissertation, the doctoral candidate may request a doctoral defense. Approval for the defense must be obtained from the Dissertation Committee, the director of graduate studies and the director of the School of Music, and the dean of the College of Visual and Performing Arts. Notice of a defense must be circulated to the university community two weeks before the defense date.

All relevant rules regarding schedule, fees, and other matters as described in the catalog must be followed. All copies of the dissertation materials and fees must be paid before the doctoral degree is awarded.

Music Minor

Banner Code: MUSI

Melinda Wildman, Academic Advisor
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Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

Admissions & Policies

Admissions

All students pursuing a music minor must pass a music audition. Students in the keyboard area use the Keyboard Skills I credit as a music elective.

Policies

University policy states that students must earn 8 distinct credits that are not used for their major toward their minor, with a minimum grade of 2.00 earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 21

Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 101</td>
<td>Introduction to Classical Music (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 113</td>
<td>Aural Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 115</td>
<td>Theory I</td>
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<tr>
<td>MUSI 116</td>
<td>Theory II</td>
<td>3</td>
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<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
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<tr>
<td>MUSI 114</td>
<td>Aural Skills II</td>
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<tr>
<td>or MUSI 172</td>
<td>Keyboard Skills II</td>
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</tr>
<tr>
<td>Select 6 credits from Applied Music Options (course list follows)</td>
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</table>

Two semesters of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MUSI 300</td>
<td>Recital Attendance 1</td>
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</tr>
<tr>
<td>Select 3 credits from Music Ensemble Options (course list follows)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 21

1 All students who enroll as music minors and jazz studies minors must take MUSI 300 Recital Attendance for two semesters. A grade of S (satisfactory) must be earned each semester.

Applied Music Options

See Music advisor for registration permission and options.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 242</td>
<td>Applied Music in Keyboard</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 243</td>
<td>Applied Music in Voice</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 244</td>
<td>Applied Music in Woodwind</td>
<td>2</td>
</tr>
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<td>Applied Music in Brass</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 246</td>
<td>Applied Music in String</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 247</td>
<td>Applied Music in Percussion</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 248</td>
<td>Applied Music in Composition</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 442</td>
<td>Applied Music in Keyboard</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 443</td>
<td>Applied Music in Voice</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 444</td>
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</tr>
<tr>
<td>MUSI 448</td>
<td>Applied Music in Composition</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Music Ensemble Options

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
</tbody>
</table>
Music Technology Minor

Banner Code: MTEC

Melinda Wildman, Academic Advisor
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Fairfax Campus

Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

This minor is open to majors from throughout the university who seek to expand their knowledge and skill in this area of study.

Admissions & Policies

Admissions

Entrance requirements
MUSI 100 Fundamentals of Music (Mason Core) (p. 135) or MUSI 115 Theory I with a grade of C or higher. A music audition and interview with music technology faculty is required.

Policies

University policy states that students must earn 8 distinct credits that are not used for their major toward their degree, with a minimum 2.00 GPA earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Required Courses
MUSI 254 Music and Technology 3
Two semesters of Recital Attendance 0
MUSI 300 Electronic Composition 3
MUSI 355 Recording Techniques 3
Total Credits 9

Music Technology Electives
Select from the following: 1

Applied Music, Ensemble and Skills Courses:

Applied Music Options (course list follows)
Music Ensemble Options (course list follows)
MUSI 171 Keyboard Skills I
MUSI 367 Class Guitar
MUSI 368 Class Voice

Music Theory

MUSI 100 Fundamentals of Music (Mason Core) (p. 135)
MUSI 115 Theory I

Music History

MUSI 102 Popular Music in America (Mason Core) (p. 135)
MUSI 103 Musics of the World (Mason Core) (p. 135)
MUSI 104 Introduction to Twentieth-Century Music
MUSI 105 Music in the United States
MUSI 107 Jazz and Blues in America (Mason Core) (p. 135)

Music Technology Topics:

MUSI 359 Topics in Music Technology
Total Credits 9

1 Select 0-3 credits from each category.

Applied Music Options

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
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<td>Applied Music in Composition</td>
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<td>MUSI 443</td>
<td>Applied Music in Voice</td>
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</tr>
<tr>
<td>MUSI 448</td>
<td>Applied Music in Composition</td>
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</table>

Music Ensemble Options

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 382</td>
<td>Piano Ensemble (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core)</td>
<td>1</td>
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<td>Chamber Singers (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core)</td>
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</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>
Music and Well-Being Graduate Certificate

Banner Code: AR-CERG-MUWB

Melinda Wildman, Academic Advisor
A417 deLaski Performing Arts Building
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Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

The Graduate Certificate in Music and Well-Being builds on courses currently offered in the School of Music and on the school-wide initiative around well-being as an important consideration and subject of study for all musicians. Expanding and supplementing courses developed in connection with the undergraduate minor in Music and Well-Being, the certificate allows students to explore the connections between music and consciousness and between vibration, meditation, and well-being. The graduate certificate gives students a thorough grounding in theory and practice and includes instruction in compositional and improvisational approaches. Although there is some overlap in subject matter, this is not intended as a program in music therapy. The certificate is conceived as a complement to the programs focused on mindfulness and well-being that are a priority across the university. The success of the long-running Healing Arts Ensemble at the graduate level as well as the undergraduate level, and the growth in the new minor in Music and Well-Being indicates the potential level of student interest in the program.

This certificate may be pursued either in part or full time status.

Certificate Requirements
Total credits: 22

Required Courses
MUSI 555  Music as a Healing Art 3
MUSI 577  Music and Consciousness 3
Three semesters of
MUSI 685  Graduate Chamber Ensemble (Healing Arts Ensemble) 1
MUSI 699  Independent Study (Music Healing Practicum for 3 credits) 3
MUSI 777  Music and Consciousness 2 3
Six credits of
MUSI 728  Applied Music in Composition
MUSI 790  Graduate Recital 1

Total Credits 22

Music and Well-Being Minor

Banner Code: MUWB

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Fairfax Campus
Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

The minor is designed to allow participation by students with minimal formal musical training. The coursework allows students to explore the connections between music and consciousness and between vibration, mindfulness, and well-being.

Admissions & Policies

Admissions
Admission to the Music and Well-Being minor is by interview with the minor coordinator.

Policies
University policy states that students must earn 8 distinct credits that are not used for their major toward their minor, with a minimum grade of 2.00 earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Minor Requirements
Total credits: 18

Coursework
MUSI 100  Fundamentals of Music (Mason Core) 3
or MUSI 115  Theory I
MUSI 101  Introduction to Classical Music (Mason Core) 3
MUSI 171  Keyboard Skills I 1 1
Two semesters of
MUSI 300  Recital Attendance 2
MUSI 366  Class Percussion 1 1
MUSI 367  Class Guitar 1 1
MUSI 455  Music as a Healing Art  3
MUSI 477  Music and Consciousness  3
Three credits of
MUSI 485  Chamber Ensembles (Mason Core) (p. 135) (Healing Arts Ensemble)  3

Total Credits  18

1 Students demonstrating proficiency in keyboard, percussion, or guitar may substitute other MUSI 100-MUSI 499 courses at the discretion of the Program Coordinator.

2 A grade of S (satisfactory) must be earned each semester.

Music, BA
Banner Code: AR-BA-MUSI

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Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

Requirements

Degree Requirements
Total credits: 120

Mason Core

Foundation Requirements
Quantitative Reasoning (mathematics) (p. 136)  3
ENGH 101  Composition (Mason Core) (p. 135)  1
ENGH 302  Advanced Composition (Mason Core) (p. 135)  1
Oral Communication (p. 136)  2

Core Requirements
Literature (p. 140)  3
Natural Science (p. 141)  4
Western Civilization/World History (p. 143)  3
Social or Behavioral Sciences (p. 142)  3
Global Understanding (p. 139)  5

Total Credits  31

1 Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as in ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

2 All students excluding Music Technology students must take MUSI 251 Musical/Oral Communication

3 Also have significant elective choices as per Mason Core listing.

4 Two classes; one must contain a lab. Students completing the Concentration in Music Technology must take PHYS 103 Physics and Everyday Phenomena I (Mason Core) (p. 135).

5 All students excluding Music Technology students must take MUSI 431 Music History in Society III (Mason Core) (p. 135)

Remaining Mason Core requirements are fulfilled with major coursework.

Additional Non-Major coursework

One of the following:

<table>
<thead>
<tr>
<th>Intermediate-level language proficiency</th>
<th>0-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>0-18</td>
</tr>
<tr>
<td>Double Major</td>
<td>0-18</td>
</tr>
<tr>
<td>Double Degree</td>
<td>0-18</td>
</tr>
</tbody>
</table>

Total Credits  0-18

1 See CVPA Requirements and Policies (p. 764) for details regarding foreign language requirement.

2 In a discipline other than music.

Music Major

Musicanship

MUSI 113  Aural Skills I  1

One credit of

MUSI 114  Aural Skills II  1

MUSI 115  Theory I  3
MUSI 116  Theory II  3
MUSI 171  Keyboard Skills I  1
MUSI 172  Keyboard Skills II  1

Music History Courses

Music Technology concentration students only:

MUSI 338  Music History in Society A  9
MUSI 438  Music History in Society B  3
MUSI 439  Music History in Society C  3

All other students:

MUSI 331  Music History in Society I or MUSI 432  Music History in Society IV  6
MUSI 332  Music History in Society II  4

Performance and Music Electives

Five semesters of

MUSI 300  Recital Attendance  0
MUSI 490  RS: Musical Communication in Context (Mason Core) (p. 135)  3

Select one from the following:  3-5

Music Technology concentration students only:

CS 112  Introduction to Computer Programming (Mason Core) (p. 135)
& PHIL 112  and Ethics and the Cybersociety (Mason Core) (p. 135)

All other students:

MUSI 259  Music in Computer Technology (Mason Core) (p. 135)

Electives

All students excluding Music Technology students:  12-13
MUSI electives (p. 1740)
Music, BA

Applied Music Options (list follows) \(^5\) 6-8
Music Ensemble (list follows) 3
Total Credits 38-44

1. Pianists substitute MUSI 371 Techniques of Accompanying I for MUSI 171 Keyboard Skills I
2. Pianists substitute MUSI 372 Techniques of Accompanying II for MUSI 172 Keyboard Skills II
3. Meets Writing Intensive requirement in the BA in Music with a concentration in Music Technology.
4. Meets Writing Intensive requirement in the BA in Music (all concentrations except Music Technology).
5. Students in the Music Technology concentration should take 8 credits of Applied Music. All others should take 6 credits.

### Applied Music Options

<table>
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<tr>
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<tbody>
<tr>
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<td>Applied Music in Keyboard</td>
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</tr>
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<td>Applied Music in Voice</td>
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</table>

See Music advisor for registration permission and options.

### Music Ensemble Options

<table>
<thead>
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<tr>
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<td>Chamber Ensembles (Mason Core) (p. 135)</td>
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</tbody>
</table>

### Pedagogy

All students (except for Music Technology students) must register for a pedagogy and literature class appropriate to their major instrument or register for a teaching internship.

Select one from the following:

- MUSI 395 Teaching Internship (2 credits)
- MUSI 351 Keyboard Pedagogy \(^1\)
- MUSI 352 Vocal Pedagogy and Lab \(^2\)
- MUSI 353 Instrumental Pedagogy and Literature \(^3\)

Total Credits 0-3

1. Required for keyboard students.
2. Required for vocal students.
3. Topic varies; students must register for the topic corresponding with their major instrument. Required for strings and guitar students; recommended for wind, brass, or percussion students.

### Concentration in Music Technology (MTEC)

Students pursuing this concentration may not also pursue the Music and Technology minor. Students who wish to complete a concentration in music technology must also complete the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>MUSI 252</td>
<td>Popular Music Arranging</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 254</td>
<td>Music and Technology</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 354</td>
<td>Electronic Composition</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 355</td>
<td>Recording Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 359</td>
<td>Topics in Music Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

### General Electives

Select the amount of elective credit corresponding with degree path:

- Music Technology students 20-38
- All other students 23-41

1. Electives may not include additional music courses.

### Accelerated Master's

**Music, BA/Arts Management, Accelerated MA**

### Overview

Students choosing the accelerated option must fulfill all university requirements for the master's degree. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete all requirements.

This accelerated option is offered through joint cooperation between the School of Music and the Arts Management Program.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees. For policies governing all graduate degrees, see the Academic Policies section of the catalog.

### Application Requirements

Applicants to accelerated master's programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master's Program Application, available from the College of Visual and Performing Arts (CVPA) Graduate Studies. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.
Interested students should contact the Arts Management Program Office for more details about the application process.

**Accelerated Option Requirements**

As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Option Requirements. As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students will begin their master’s program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

**Reserve Graduate Credits**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Music. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation and must be approved by the Dean’s Office.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition Form.

**Mason Core**

Coursework within the major and concentration fulfills the information technology, global understanding, oral communications, fine arts, and synthesis requirements. Students must fulfill the requirements remaining in the following areas:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
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<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Non-Lab Natural Science (p. 141)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Social or Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3</td>
</tr>
</tbody>
</table>

- 1 Students in the Music Technology concentration, will fulfill this requirement as part of their concentration requirements.
- 2 Music Technology concentration students only.

**Core Courses Required for All Concentrations**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUSI 113</td>
<td>Aural Skills I</td>
<td>1</td>
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<td>MUSI 114</td>
<td>Aural Skills II</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 115</td>
<td>Theory I</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 116</td>
<td>Theory II</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 213</td>
<td>Aural Skills III</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 215</td>
<td>Theory III</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 251</td>
<td>Musical/Oral Communication</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 273</td>
<td>Keyboard Skills III</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 214</td>
<td>Aural Skills IV</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 216</td>
<td>Theory IV</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 431</td>
<td>Music History in Society III (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

- 1 Fulfills Mason Core (p. 135) requirement in oral communication for Music, BM students only.

**Concentration in Composition (CPO)**

Students must complete all concentration requirements as well as requirements for one of the following emphases:

- Brass
- Guitar
- Keyboard
- Percussion
- String
- Voice
- Woodwind

**Courses Required for All Emphases**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 214</td>
<td>Aural Skills IV</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 216</td>
<td>Theory IV</td>
<td>3</td>
</tr>
<tr>
<td>Select 8 credits from MUSI 242-MUSI 248 (see Applied Music Options)</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**Music, BM**

Banner Code: AR-BM-MUSI

Melinda Wildman, Academic Advisor

A417 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

**Requirements**

**Degree Requirements**

Total credits: 120

Students must complete all Mason Core (p. 135) requirements and core coursework, as well as the requirements within one selected concentration.
Select 8 credits from MUSI 442-MUSI 448 (see Applied Music Options)

MUSI 259 Music in Computer Technology (Mason Core) (p. 135) 3
MUSI 319 Class Composition and Arranging 3
MUSI 324 Junior Recital (Mason Core) (p. 135) 1
MUSI 331 Music History in Society I 3
MUSI 332 Music History in Society II 3
MUSI 354 Electronic Composition 3
MUSI 361 Class Strings 1
MUSI 363 Class Woodwinds 1
MUSI 365 Class Brass 1
MUSI 366 Class Percussion 1
MUSI 379 Jazz Improvisation 1
MUSI 391 Conducting I 2
MUSI 396 Conducting II 2
MUSI 419 Orchestration 3
MUSI 424 Senior Recital (Mason Core) (p. 135) 1

Three credits of 3
MUSI 454 Jazz Arranging or MUSI 485 Chamber Ensembles (Mason Core) (p. 135)

Four credits of 4
MUSI 485 Chamber Ensembles (Mason Core) (p. 135) (M3E or Healing Arts Ensemble only) 1
MUSI 491 Musical Communication in Performance (Mason Core) (p. 135) 1
MUSI 438 Music History in Society B 3
MUSI 439 Music History in Society C 3
Select 5 credits from MUSI 100-MUSI 499 2 5

Total Credits 70

1 Additional to M3E/Healing Arts Ensemble requirement.
2 As approved by Music advisor.

Emphasis Requirement
Composition: Brass Emphasis

MUSI 171 Keyboard Skills I 1
MUSI 172 Keyboard Skills II 1
MUSI 353 Instrumental Pedagogy and Literature 3
Select 4 credits from the following: 4
MUSI 380 Wind Symphony (Mason Core) (p. 135)
MUSI 383 Symphonic Band (Mason Core) (p. 135)
MUSI 387 Symphony Orchestra (Mason Core) (p. 135)
MUSI 389 Jazz Ensemble (Mason Core) (p. 135)

Total Credits 9

Composition: Keyboard Emphasis

MUSI 351 Keyboard Pedagogy 3
MUSI 371 Techniques of Accompanying I 1
MUSI 372 Techniques of Accompanying II 1
Select 4 credits from the following: 4
MUSI 381 University Chorale (Mason Core) (p. 135)
MUSI 384 Symphonic Chorus (Mason Core) (p. 135)
MUSI 385 Chamber Singers (Mason Core) (p. 135)

Total Credits 9

Composition: Percussion Emphasis

MUSI 171 Keyboard Skills I 1
MUSI 172 Keyboard Skills II 1
MUSI 353 Instrumental Pedagogy and Literature 3
Select 4 credits from the following: 4
MUSI 380 Wind Symphony (Mason Core) (p. 135)
MUSI 383 Symphonic Band (Mason Core) (p. 135)
MUSI 387 Symphony Orchestra (Mason Core) (p. 135)
MUSI 389 Jazz Ensemble (Mason Core) (p. 135)

Total Credits 9

Composition: String Emphasis

MUSI 171 Keyboard Skills I 1
MUSI 172 Keyboard Skills II 1
MUSI 353 Instrumental Pedagogy and Literature 3
Four credits of 4
MUSI 387 Symphony Orchestra (Mason Core) (p. 135)

Total Credits 9

Composition: Voice Emphasis

MUSI 171 Keyboard Skills I 1
MUSI 172 Keyboard Skills II 1
MUSI 352 Vocal Pedagogy and Lab 3
Select 4 credits from the following: 4
MUSI 381 University Chorale (Mason Core) (p. 135)
MUSI 384 Symphonic Chorus (Mason Core) (p. 135)
MUSI 385 Chamber Singers (Mason Core) (p. 135)

Total Credits 9

Composition: Woodwind Emphasis

MUSI 171 Keyboard Skills I 1
MUSI 172 Keyboard Skills II 1
MUSI 353 Instrumental Pedagogy and Literature 3
Select 4 credits from the following: 4
MUSI 380 Wind Symphony (Mason Core) (p. 135)
MUSI 383 Symphonic Band (Mason Core) (p. 135)
MUSI 387  Symphony Orchestra (Mason Core) (p. 135)
MUSI 389  Jazz Ensemble (Mason Core) (p. 135)

Total Credits 9

**Concentration in Jazz (JAZC)**

Students must complete all concentration requirements as well as requirements for one of the following emphases:

- Brass
- Guitar
- Keyboard
- Percussion
- Woodwind

**Courses Required for All Emphases**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 107</td>
<td>Jazz and Blues in America (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 214</td>
<td>Aural Skills IV</td>
<td>2</td>
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<tr>
<td>MUSI 216</td>
<td>Theory IV</td>
<td>3</td>
</tr>
<tr>
<td>Select 8 credits from MUSI 242-MUSI 248 (see Applied Music Options)</td>
<td>8</td>
<td></td>
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<tr>
<td>Select 8 credits from MUSI 442-MUSI 448 (see Applied Music Options)</td>
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<tr>
<td>MUSI 259</td>
<td>Music in Computer Technology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 311</td>
<td>Jazz Studies</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 319</td>
<td>Class Composition and Arranging</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 324</td>
<td>Junior Recital (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 338</td>
<td>Music History in Society A</td>
<td>3</td>
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<td>MUSI 379</td>
<td>Jazz Improvisation</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 424</td>
<td>Senior Recital (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 438</td>
<td>Music History in Society B</td>
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<td>MUSI 439</td>
<td>Music History in Society C</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 450</td>
<td>Jazz Improvisation</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 452</td>
<td>Jazz Improvisation II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 454</td>
<td>Jazz Arranging</td>
<td>3</td>
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<tr>
<td>Six credits of</td>
<td></td>
<td>6</td>
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<tr>
<td>MUSI 485</td>
<td>Chamber Ensembles (Mason Core) (p. 135) (Jazz Chamber Ensembles only)</td>
<td>3</td>
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<tr>
<td>MUSI 491</td>
<td>Musical Communication in Performance (Mason Core) (p. 135)</td>
<td>1</td>
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<tr>
<td>Five credits of</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>MUSI 492</td>
<td>Selected Topics in Music (Topics in Jazz Studies only)</td>
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<tr>
<td>Select 3 credits from MUSI 100-MUSI 499</td>
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<tr>
<td>Total Credits</td>
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</table>

1 As approved by Music advisor.

**Emphasis Requirement**

**Jazz: Brass Emphasis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
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Select 8 credits from the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 385</td>
<td>Chamber Singers (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
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</tbody>
</table>

Total Credits 10

**Jazz: Guitar Emphasis**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
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</table>

Select 8 credits from the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 385</td>
<td>Chamber Singers (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
<td></td>
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</table>

Total Credits 10

**Jazz: Keyboard Emphasis**

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MUSI 371</td>
<td>Techniques of Accompanying I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 372</td>
<td>Techniques of Accompanying II</td>
<td>1</td>
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</table>

Select 8 credits from the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 385</td>
<td>Chamber Singers (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 10

**Jazz: Percussion Emphasis**

<table>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
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</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
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</table>

Select 8 credits from the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core) (p. 135)</td>
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<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core) (p. 135)</td>
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<tr>
<td>MUSI 385</td>
<td>Chamber Singers (Mason Core) (p. 135)</td>
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<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
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</tr>
</tbody>
</table>

Total Credits 10

**Jazz: Woodwind Emphasis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
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</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
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Select 8 credits from the following: 8

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
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<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
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<td></td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 10
Select 8 credits from the following:

- MUSI 380 Wind Symphony (Mason Core) (p. 135)
- MUSI 381 University Chorale (Mason Core) (p. 135)
- MUSI 383 Symphonic Band (Mason Core) (p. 135)
- MUSI 384 Symphonic Chorus (Mason Core) (p. 135)
- MUSI 385 Chamber Singers (Mason Core) (p. 135)
- MUSI 387 Symphony Orchestra (Mason Core) (p. 135)
- MUSI 389 Jazz Ensemble (Mason Core) (p. 135)

Total Credits: 10

**Concentration in Music Education (MUE)**

**Certification to Teach**

The music education concentration at George Mason University is recognized by the Virginia Department of Education (VDOE) as an approved teacher preparation program that imparts licensure. Even though an undergraduate student may declare music education as their major, this is not an official indication of a student's degree status. In order to be accepted into the degree, students must complete an application, meet all eligibility requirements, and pass the MTEC Interview and Skill Proficiency Exam. All entry requirements are described in Part 1 of the GMUsicEd Handbook located online (http://catalog.gmu.edu/colleges-schools/visual-performing-arts/music/music-bm/https/sites.google.com/site/gmusicedhandbook/Information/part1bme).

The deadline for applying to the BME and taking the MTEC exam is the 4th semester of coursework. The 4th semester is defined as a minimum of 36 attempted credits. Transfer and continuing students entering GMU as an undergraduate with 36 or more credits will be required to apply to the BME no later than their 2nd semester of coursework at GMU.

Student must complete all concentration requirements as well as requirements for one of the following emphases:

- Brass
- Guitar
- Keyboard
- Percussion
- String
- Voice
- Woodwind

**Courses Required for All Emphases**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 214</td>
<td>Aural Skills IV</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 216</td>
<td>Theory IV</td>
<td>3</td>
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<tr>
<td>Select 8 credits from MUSI 242-MUSI 248</td>
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<td>8</td>
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<tr>
<td>Select 6 credits from MUSI 442-MUSI 448</td>
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<td>6</td>
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<tr>
<td>MUSI 259</td>
<td>Music in Computer Technology (Mason Core)</td>
<td>3</td>
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<tr>
<td>MUSI 319</td>
<td>Class Composition and Arranging</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 323</td>
<td>Music Education Recital</td>
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<tr>
<td>MUSI 331</td>
<td>Music History in Society I</td>
<td>3</td>
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<td>MUSI 332</td>
<td>Music History in Society II</td>
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<tr>
<td>MUSI 361</td>
<td>Class Strings</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 366</td>
<td>Class Percussion</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 367</td>
<td>Class Guitar</td>
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**Music Education: Brass Emphasis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
</tr>
<tr>
<td>Select 2 credits of MUSI 363</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>MUSI 365</td>
<td>Class Brass</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 368</td>
<td>Class Voice</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 396</td>
<td>Conducting II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 464</td>
<td>Instrumental Music Methods I</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 466</td>
<td>Instrumental Music Methods II</td>
<td>3</td>
</tr>
<tr>
<td>Select 1 credit from MUSI 100-MUSI 499</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 7 credits from the following:</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
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</table>

Total Credits: 25

1 As approved by Music advisor.

**Music Education: Guitar Emphasis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
</tr>
<tr>
<td>Select 2 credits of MUSI 363</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>MUSI 365</td>
<td>Class Brass</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 368</td>
<td>Class Voice</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 396</td>
<td>Conducting II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 464</td>
<td>Instrumental Music Methods I</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 467</td>
<td>Instrumental Music Methods I: Orchestra</td>
<td></td>
</tr>
<tr>
<td>MUSI 466</td>
<td>Instrumental Music Methods II</td>
<td>3</td>
</tr>
<tr>
<td>Select 1 credit from MUSI 100-MUSI 499</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Select 7 credits from the following:</td>
<td></td>
<td>7</td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core) (p. 135)</td>
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<td>MUSI 385</td>
<td>Chamber Singers (Mason Core) (p. 135)</td>
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<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
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<tr>
<td></td>
<td>Total Credits</td>
<td>25</td>
</tr>
</tbody>
</table>

1 As approved by Music advisor.

**Music Education: Keyboard Emphasis**

Two credits of 2

- MUSI 223 Applied Music in Voice
- MUSI 352 Vocal Pedagogy and Lab
- MUSI 371 Techniques of Accompanying I
- MUSI 372 Techniques of Accompanying II
- MUSI 391 Conducting I
- MUSI 396 Conducting II
- MUSI 461 The Teaching of General Music in the Elementary and Middle School
- MUSI 463 The Teaching of Vocal Music in the Secondary School

Select 1 credit from the following: 1

- MUSI 363 Class Woodwinds
- MUSI 365 Class Brass

Select 7 credits from the following: 7

- MUSI 381 University Chorale (Mason Core) (p. 135)
- MUSI 384 Symphonic Chorus (Mason Core) (p. 135)
- MUSI 385 Chamber Singers (Mason Core) (p. 135)

Total Credits 25

**Music Education: Percussion Emphasis**

MUSI 171 Keyboard Skills I 1
- MUSI 172 Keyboard Skills II 1

Two credits of 2

- MUSI 363 Class Woodwinds
- MUSI 365 Class Brass
- MUSI 368 Class Voice
- MUSI 391 Conducting I
- MUSI 396 Conducting II
- MUSI 464 Instrumental Music Methods I
- MUSI 466 Instrumental Music Methods II

Select 1 credit from MUSI 100-MUSI 499 (p. 1740) 1

Select 7 credits from the following: 7

- MUSI 380 Wind Symphony (Mason Core) (p. 135)
- MUSI 383 Symphonic Band (Mason Core) (p. 135)
- MUSI 387 Symphony Orchestra (Mason Core) (p. 135)
- MUSI 389 Jazz Ensemble (Mason Core) (p. 135)

Total Credits 25

1 As approved by Music advisor.

**Music Education: Woodwind Emphasis**

MUSI 171 Keyboard Skills I 1
- MUSI 172 Keyboard Skills II 1

Two credits of 2

- MUSI 363 Class Woodwinds
- MUSI 365 Class Brass
- MUSI 368 Class Voice
- MUSI 391 Conducting I
- MUSI 396 Conducting II
- MUSI 464 Instrumental Music Methods I
- MUSI 466 Instrumental Music Methods II

Select 1 credit from MUSI 100-MUSI 499 (p. 1740) 1

Select 7 credits from the following: 7

- MUSI 380 Wind Symphony (Mason Core) (p. 135)
- MUSI 383 Symphonic Band (Mason Core) (p. 135)
Concentration in Music Technology (MTEC)

Students must complete all concentration requirements as well as requirements for one of the following emphases:

- Electroacoustic Music
- Engineering
- Recording

Courses Required for All Emphases

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Six credits of</td>
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<tr>
<td>MUSI 248</td>
<td>Applied Music in Composition</td>
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<td>MUSI 252</td>
<td>Popular Music Arranging</td>
<td>3</td>
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<td>MUSI 254</td>
<td>Music and Technology</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 338</td>
<td>Music History in Society A</td>
<td>3</td>
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<tr>
<td>MUSI 354</td>
<td>Electronic Composition</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 355</td>
<td>Recording Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 358</td>
<td>Music Programming</td>
<td>3</td>
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<tr>
<td>MUSI 359</td>
<td>Topics in Music Technology</td>
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<td></td>
<td>Music Ensemble Options</td>
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<tr>
<td></td>
<td>Two credits of</td>
<td>2</td>
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<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>1</td>
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<tr>
<td>MUSI 438</td>
<td>Music History in Society B</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 439</td>
<td>Music History in Society C</td>
<td>3</td>
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<tr>
<td>MUSI 490</td>
<td>RS: Musical Communication in Context</td>
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</tr>
<tr>
<td>PHYS 103</td>
<td>Physics and Everyday Phenomena I</td>
<td>4</td>
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<tr>
<td></td>
<td>6-7 credits of general electives</td>
<td>6-7</td>
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</table>

Total Credits: 53

1. See Music advisor for permission and course options.
2. Transfer students must earn at least 2 credits at Mason.

Emphasis Requirement

**Music Technology: Electroacoustic Music**

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MUSI 359</td>
<td>Topics in Music Technology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Four credits of</td>
<td>4</td>
</tr>
<tr>
<td>MUSI 448</td>
<td>Applied Music in Composition</td>
<td>1</td>
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<tr>
<td></td>
<td>Two credits of</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 485</td>
<td>Chamber Ensembles (Mason Core) (p. 135)</td>
<td>1</td>
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</tbody>
</table>

Total Credits: 26

1. Must be electroacoustic music emphasis.
2. At least one credit of additional coursework or general electives must come from 300 or 400 level courses.

**Music Technology: Engineering Emphasis**

A double degree in a STEM field or the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>or MATH 115</td>
<td>Analytic Geometry and Calculus I (Honors) (Mason Core) (p. 135)</td>
<td>4</td>
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</tbody>
</table>

Additional Coursework

Coursework from any of the following prefixes: 22

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ECE</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>IT</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MATH</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MBUS</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>PHYS</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 26

1. At least 10 credits from additional coursework or general electives must come from 300 or 400 level courses.

**Music Technology: Recording Emphasis**

Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 359</td>
<td>Topics in Music Technology</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Two credits of</td>
<td>2</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td></td>
</tr>
</tbody>
</table>

**MATH**

Select one from the following: 3-4

- **MATH 106** Quantitative Reasoning (Mason Core) (p. 135)
- **MATH 108** Introductory Calculus with Business Applications (Mason Core) (p. 135)
- **MATH 113** Analytic Geometry and Calculus I (Mason Core) (p. 135)
- **MATH 115** Analytic Geometry and Calculus I (Honors) (Mason Core) (p. 135)
- **MATH 125** Discrete Mathematics I (Mason Core) (p. 135)

**Additional Coursework** 2

Select 14-15 credits of additional coursework from the following: 14-15

- **MUSI 221** Applied Music I (1-4 credits)
- **MUSI 359** Topics in Music Technology
- **MUSI 485** Chamber Ensembles (Mason Core) (p. 135) (1-3 credits)

Coursework from any of the following prefixes:

- **ECE** (p. 1456)
- **ECON** (p. 1413)
- **IT** (p. 1655)
- **MATH** (p. 1717)
- **MBUS** (p. 1738)
- **PHYS** (p. 1828)

**Total Credits** 26

1. Topic must be in Recording emphasis.
2. At least 5 credits from additional coursework or general electives must come from 300 or 400 level courses.

**Concentration in Performance (PFM)**

Students must complete all concentration requirements as well as requirements for one of the following emphases:

- Brass
- Guitar
- Keyboard
- Percussion
- String
- Voice
- Woodwind

**Courses Required for All Emphases**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 214</td>
<td>Aural Skills IV</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 216</td>
<td>Theory IV</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 8 credits from MUSI 242-MUSI 248 (see Applied Music Options)</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Select 8 credits from MUSI 442-MUSI 448 (see Applied Music Options)</td>
<td>8</td>
</tr>
<tr>
<td>MUSI 259</td>
<td>Music in Computer Technology (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 319</td>
<td>Class Composition and Arranging</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 324</td>
<td>Junior Recital (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 331</td>
<td>Music History in Society I</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 332</td>
<td>Music History in Society II</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 424</td>
<td>Senior Recital (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 432</td>
<td>Music History in Society IV</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 491</td>
<td>Musical Communication in Performance (Mason Core)</td>
<td>1</td>
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</tbody>
</table>

**Total Credits** 39

**Emphasis Requirement**

**Performance: Brass Emphasis**

- **MUSI 171** Keyboard Skills I
- **MUSI 172** Keyboard Skills II
- **MUSI 353** Instrumental Pedagogy and Literature
- **MUSI 379** Jazz Improvisation
- **MUSI 391** Conducting I
- Two credits of
  - **MUSI 395** Teaching Internship
  - **MUSI 396** Conducting II
  - **MUSI 419** Orchestration
  - **MUSI 493** Topics in Music Theory

**Eight credits of** 8

- **MUSI 485** Chamber Ensembles (Mason Core) (p. 135)

**Select 9 credits from MUSI 100-MUSI 499** 9

**Select 8 credits from the following:** 8

- **MUSI 380** Wind Symphony (Mason Core) (p. 135)
- **MUSI 383** Symphonic Band (Mason Core) (p. 135)
- **MUSI 387** Symphony Orchestra (Mason Core) (p. 135)
- **MUSI 389** Jazz Ensemble (Mason Core) (p. 135)

**Total Credits** 40

1. As approved by Music advisor.

**Performance: Guitar Emphasis**

- **MUSI 171** Keyboard Skills I
- **MUSI 172** Keyboard Skills II
- **MUSI 353** Instrumental Pedagogy and Literature
- **MUSI 379** Jazz Improvisation
- **MUSI 391** Conducting I
- Two credits of
  - **MUSI 395** Teaching Internship
  - **MUSI 396** Conducting II
  - **MUSI 419** Orchestration
  - **MUSI 493** Topics in Music Theory

**Eight credits of** 8

- **MUSI 485** Chamber Ensembles (Mason Core) (p. 135)

**Select 9 credits from MUSI 100-MUSI 499** 9

**Select 8 credits from the following:** 8

- **MUSI 381** University Chorale (Mason Core) (p. 135)
- **MUSI 384** Symphonic Chorus (Mason Core) (p. 135)
- **MUSI 385** Chamber Singers (Mason Core) (p. 135)
### Performance: Keyboard Emphasis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MUSI 351</td>
<td>Keyboard Pedagogy</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 371</td>
<td>Techniques of Accompanying I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 372</td>
<td>Techniques of Accompanying II</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 373</td>
<td>Advanced Accompanying and Musicianship Skills</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 379</td>
<td>Jazz Improvisation</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 382</td>
<td>Piano Ensemble (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>or MUSI 485</td>
<td>Chamber Ensembles (Mason Core) (p. 135)</td>
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</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
</tr>
</tbody>
</table>

Two credits of

- MUSI 395 Teaching Internship

Six credits of

- MUSI 485 Chamber Ensembles (Mason Core) (p. 135)

Three credits of

- MUSI 492 Selected Topics in Music

Select 9 credits from MUSI 100-MUSI 499

Select 8 credits from the following:

- MUSI 381 University Chorale (Mason Core) (p. 135)
- MUSI 384 Symphonic Chorus (Mason Core) (p. 135)
- MUSI 385 Chamber Singers (Mason Core) (p. 135)

Total Credits 40

1. As approved by Music advisor.

### Performance: Percussion Emphasis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 353</td>
<td>Instrumental Pedagogy and Literature</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 379</td>
<td>Jazz Improvisation</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
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</tbody>
</table>

Two credits of

- MUSI 395 Teaching Internship

Eight credits of

- MUSI 485 Chamber Ensembles (Mason Core) (p. 135)

Select 9 credits from MUSI 100-MUSI 499

Select 8 credits from the following:

- MUSI 380 Wind Symphony (Mason Core) (p. 135)
- MUSI 383 Symphonic Band (Mason Core) (p. 135)
- MUSI 387 Symphony Orchestra (Mason Core) (p. 135)
- MUSI 389 Jazz Ensemble (Mason Core) (p. 135)

Total Credits 40

1. As approved by Music advisor.

### Performance: String Emphasis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 325</td>
<td>Performance Seminar and Vocal Literature for Singers and Accompanists I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 341</td>
<td>Diction for Singers I: Italian Diction and English Diction</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 342</td>
<td>Diction for Singers II: German Diction and French Diction</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 352</td>
<td>Vocal Pedagogy and Lab</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 388</td>
<td>Fundamental Techniques of Stagecraft for Opera and Music Theater</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
</tr>
</tbody>
</table>

Four credits of

- MUSI 485 Chamber Ensembles (Mason Core) (p. 135)

Select 9 credits from MUSI 100-MUSI 499

Select 8 credits from the following:

- MUSI 380 Wind Symphony (Mason Core) (p. 135)
- MUSI 383 Symphonic Band (Mason Core) (p. 135)
- MUSI 387 Symphony Orchestra (Mason Core) (p. 135)
- MUSI 389 Jazz Ensemble (Mason Core) (p. 135)

Total Credits 40

1. As approved by Music advisor.

### Performance: Voice Emphasis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 325</td>
<td>Performance Seminar and Vocal Literature for Singers and Accompanists I</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 341</td>
<td>Diction for Singers I: Italian Diction and English Diction</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 342</td>
<td>Diction for Singers II: German Diction and French Diction</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 352</td>
<td>Vocal Pedagogy and Lab</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 388</td>
<td>Fundamental Techniques of Stagecraft for Opera and Music Theater</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
</tr>
</tbody>
</table>

Select 8 credits from the following:

- MUSI 380 Wind Symphony (Mason Core) (p. 135)
- MUSI 383 Symphonic Band (Mason Core) (p. 135)
- MUSI 387 Symphony Orchestra (Mason Core) (p. 135)
- MUSI 389 Jazz Ensemble (Mason Core) (p. 135)

Total Credits 40

1. As approved by Music advisor.
Performance: Woodwind Emphasis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 171</td>
<td>Keyboard Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 172</td>
<td>Keyboard Skills II</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 353</td>
<td>Instrumental Pedagogy and Literature</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 379</td>
<td>Jazz Improvisation</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 391</td>
<td>Conducting I</td>
<td>2</td>
</tr>
</tbody>
</table>

Two credits of

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 396</td>
<td>Conducting II</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 419</td>
<td>Orchestration</td>
<td>3</td>
</tr>
<tr>
<td>or MUSI 493</td>
<td>Topics in Music Theory</td>
<td></td>
</tr>
</tbody>
</table>

Eight credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 485</td>
<td>Chamber Ensembles (Mason Core)</td>
<td>2</td>
</tr>
</tbody>
</table>

Select 9 credits from MUSI 100-MUSI 499 1

Select 8 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 389</td>
<td>Jazz Ensemble (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 40

1 As approved by Music advisor.

Applied Music Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 242</td>
<td>Applied Music in Keyboard</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 243</td>
<td>Applied Music in Voice</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 244</td>
<td>Applied Music in Woodwind</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 245</td>
<td>Applied Music in Brass</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 246</td>
<td>Applied Music in String</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 247</td>
<td>Applied Music in Percussion</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 248</td>
<td>Applied Music in Composition</td>
<td>2</td>
</tr>
<tr>
<td>MUSI 442</td>
<td>Applied Music in Keyboard</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 443</td>
<td>Applied Music in Voice</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 444</td>
<td>Applied Music in Woodwind</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 445</td>
<td>Applied Music in Brass</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 446</td>
<td>Applied Music in String</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 447</td>
<td>Applied Music in Percussion</td>
<td>2-3</td>
</tr>
<tr>
<td>MUSI 448</td>
<td>Applied Music in Composition</td>
<td>2-3</td>
</tr>
</tbody>
</table>

Music Ensemble Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 380</td>
<td>Wind Symphony (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 381</td>
<td>University Chorale (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 382</td>
<td>Piano Ensemble (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 383</td>
<td>Symphonic Band (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 384</td>
<td>Symphonic Chorus (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 385</td>
<td>Chamber Singers (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 387</td>
<td>Symphony Orchestra (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
</tbody>
</table>

Accelerated Master's

Music, BM (Performance)/Music, Accelerated MM (Performance)

Overview

Students in the Music, BM (p. 819) (Performance concentration) have the option of obtaining an accelerated Music, MM (p. 828) (Performance concentration).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admissions Requirements

Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit the following:

- An Accelerated Master's Program Application, available from the College of Visual and Performing Arts (CVPA) Graduate Studies
- 1-2 page Goals Statement
- Two letters of recommendation
- In addition, all applicants must complete a live performance audition. Arrangements for an audition must be made in advance by contacting the School of Music before the scheduled audition date. Auditions are held approximately once per month. Audition dates and audition application forms are available through the School of Music website.

Interested students should contact the Senior Academic Advisor, School of Music, for more details about the application process.

Degree Requirements & Reserve Graduate Credit

After admission and having earned 90 undergraduate credits, accelerated master’s students complete 6 credits of graduate coursework in their field of study (with a 3.00 GPA or better in each course), specified by their undergraduate and graduate advisors. These credits will apply to the undergraduate degree and provide the student advanced standing in the MM Performance program. All graduate course prerequisites must be completed prior to enrollment. While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree.

To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

Students in the BM (Performance)/MM (Performance) accelerated degree program must fulfill all university requirements for the master’s degree, including a minimum of 18 applicable graduate credits taken after the bachelor’s degree has been completed and posted to the student’s academic record. Successful completion of the accelerated MM will require one summer of coursework between years 4 and 5.
As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete requirements.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 87). For policies governing all graduate degrees, see Academic Policies (p. 74).

Music, BM/Arts Management, Accelerated MA

Overview
Students choosing the accelerated option must fulfill all university requirements for the master’s degree. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete all requirements.

This accelerated option is offered through joint cooperation between the School of Music and the Arts Management Program.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees. For policies governing all graduate degrees, see the Academic Policies section of the catalog.

Admissions
Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit an Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Graduate Studies. It includes the proposed conferral date for the undergraduate degree and the two graduate courses that are to be applied to the undergraduate degree.

Interested students should contact the Arts Management Program Office for more details about the application process.

Accelerated Option Requirements
As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Option Requirements.

As an undergraduate, the accelerated master’s student is to complete the two graduate courses indicated on their Accelerated Master’s Program application with a minimum grade of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in all coursework and in coursework applied to their major. On completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form (which shall incorporate all of the Graduate Admission requirements of the university) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students will begin their master’s program in the semester immediately following conferral of the undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credits
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with permission of the School of Music. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation and must be approved by the Dean’s Office.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition Form.

Music, MM

Banner Code: AR-MM-MUSI

Melinda Wildman, Academic Advisor

A417 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

The MM degree is offered as an educational channel to meet the intellectual and career needs of qualified students. It is a comprehensive and advanced program of study with a choice of concentrations in performance, music education, composition, conducting, jazz studies, and pedagogy. The MM with a concentration in music education does not provide licensure to teach music in public or private schools.

Admissions & Policies

Admissions

Requirements
In addition to fulfilling admission requirements for graduate study, applicants are expected to hold a baccalaureate degree in music or another discipline, with courses equaling the music requirements (minus the 7- to 8-credit teaching sequence) for the BA in music offered at Mason.

The following admission requirements must also be met:

• Performance: pre-screening submitted through SlideRoom and audition
• Conducting: pre-screening submitted through SlideRoom and audition
• Composition: submission of a portfolio of compositions
• Music Education: interview with music faculty, a video of sample classroom teaching and submission of a two- to three-page paper on the applicant’s philosophy of music education.
• Pedagogy: audition in the primary applied teaching area is required. Applicants are expected to have large and small ensemble experience on the major instrument and should have presented a full solo recital or equivalent. All music teaching experience should be summarized.
Degree Requirements

Total credits: 30

- Jazz Studies: A portfolio of at least five jazz tunes in contrasting styles, as well as a complete repertoire list of all jazz tunes studied/ performed. Submit all jazz materials via SlideRoom and schedule audition.

Applicants should refer to the graduate admissions page of the School of Music website for specific details on what is required and how to submit their materials.

Diagnostic Entrance Exam

All students are required to complete diagnostic entrance examinations in music theory, music history, aural skills, and basic keyboard skills. These examinations must be taken prior to the beginning of the first semester of graduate study. A sufficient placement score can reduce or eliminate prerequisites for some of the 600-level and above courses in music theory and history. The exam is offered during a three-hour period prior to the beginning of classes of the fall and spring semesters.

Foreign Language Exams (Vocal Performance Emphasis)

Students in the MM degree program (emphasis in vocal performance) must take proficiency exams in French, German, Italian, and English to demonstrate diction competency. Students may be required to take MUSI 525 Performance Seminar and Vocal Literature for Singers and Accompanists I, MUSI 526 Performance Seminar and Vocal Literature for Singers and Accompanists II.

Comprehensive Exit Exam

All students are required to pass a comprehensive exit exam administered during the graduation semester or, in the case of students selecting the thesis option in the music education concentration, on completion of 24 credits of course work and immediately before beginning work on the thesis. August graduates must take this exam during the preceding spring term. This exam is usually a three-hour written test, with questions based primarily on course work the student has taken toward the degree at Mason.

Policies

For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87). See College of Visual and Performing Arts (p. 763) for policies specific to the college.

Program Requirements

A student must successfully complete the appropriate 30 credits in graduate music courses. With approval of the graduate advisor, 3 non-music graduate credits may be taken.

The student is admitted as concentrating in one of six areas: performance, music education, composition, conducting, jazz studies, or pedagogy. All students are required to complete the 11 credits described as General Requirements plus 19 credits in one of the six areas identified as Additional Requirements. There are some limited possibilities for double concentrations. For details, see the director of graduate studies.

Requirements

General Requirements for All Concentrations

Music Education students will have 9 credits of General Requirements and 21 credits of Concentration Requirements; all other concentrations will have 11 credits of General Requirements and 19 credits of Concentration Requirements.

Select 2 credits of Graduate Ensemble (all concentrations except Music Education) from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 681</td>
<td>Graduate Choral Ensembles</td>
</tr>
<tr>
<td>MUSI 682</td>
<td>Wind Symphony</td>
</tr>
<tr>
<td>MUSI 683</td>
<td>Symphonic Band</td>
</tr>
<tr>
<td>MUSI 685</td>
<td>Graduate Chamber Ensemble</td>
</tr>
<tr>
<td>MUSI 687</td>
<td>Symphony Orchestra</td>
</tr>
<tr>
<td>MUSI 688</td>
<td>Opera and Musical Theater Ensemble</td>
</tr>
<tr>
<td>MUSI 689</td>
<td>Jazz Ensemble</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>Analytical Techniques</td>
</tr>
<tr>
<td>MUSI 630</td>
<td>Topics in Music History and Literature</td>
</tr>
<tr>
<td>MUSI 662</td>
<td>Introduction to Research in Music</td>
</tr>
<tr>
<td>CVPA 600</td>
<td>CVPA Graduate ProSeminar</td>
</tr>
</tbody>
</table>

Total Credits: 11

Foreign Language Exams (Vocal Performance Emphasis)

Students in the MM degree program (emphasis in vocal performance) must take proficiency exams in French, German, Italian, and English to demonstrate diction competency. Students may be required to take MUSI 525 Performance Seminar and Vocal Literature for Singers and Accompanists I, MUSI 526 Performance Seminar and Vocal Literature for Singers and Accompanists II.

Comprehensive Exit Exam

All students are required to pass a comprehensive exit exam administered during the graduation semester or, in the case of students selecting the thesis option in the music education concentration, on completion of 24 credits of course work and immediately before beginning work on the thesis. August graduates must take this exam during the preceding spring term. This exam is usually a three-hour written test, with questions based primarily on course work the student has taken toward the degree at Mason.

Policies

For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87). See College of Visual and Performing Arts (p. 763) for policies specific to the college.

Program Requirements

A student must successfully complete the appropriate 30 credits in graduate music courses. With approval of the graduate advisor, 3 non-music graduate credits may be taken.

The student is admitted as concentrating in one of six areas: performance, music education, composition, conducting, jazz studies, or pedagogy. All students are required to complete the 11 credits described as General Requirements plus 19 credits in one of the six areas identified as Additional Requirements. There are some limited possibilities for double concentrations. For details, see the director of graduate studies.

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Music Education students will have 9 credits of General Requirements and 21 credits of Concentration Requirements; all other concentrations will have 11 credits of General Requirements and 19 credits of Concentration Requirements.

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<tr>
<td>MUSI 683</td>
<td>Symphonic Band</td>
</tr>
<tr>
<td>MUSI 685</td>
<td>Graduate Chamber Ensemble</td>
</tr>
<tr>
<td>MUSI 687</td>
<td>Symphony Orchestra</td>
</tr>
<tr>
<td>MUSI 688</td>
<td>Opera and Musical Theater Ensemble</td>
</tr>
<tr>
<td>MUSI 689</td>
<td>Jazz Ensemble</td>
</tr>
<tr>
<td>MUSI 611</td>
<td>Analytical Techniques</td>
</tr>
<tr>
<td>MUSI 630</td>
<td>Topics in Music History and Literature</td>
</tr>
<tr>
<td>MUSI 662</td>
<td>Introduction to Research in Music</td>
</tr>
<tr>
<td>CVPA 600</td>
<td>CVPA Graduate ProSeminar</td>
</tr>
</tbody>
</table>

Total Credits: 11

1 Must be taken within the student's first 2 semesters.

Concentration in Composition (CPO)

Nine credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 728</td>
<td>Applied Music in Composition</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>Graduate Orchestration</td>
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</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 630</td>
<td>Topics in Music History and Literature</td>
</tr>
<tr>
<td>MUSI 730</td>
<td>Advanced Topics in Music History</td>
</tr>
<tr>
<td>MUSI 610</td>
<td>Topics in Music Theory</td>
</tr>
<tr>
<td>MUSI 710</td>
<td>Advanced Topics in Music Theory</td>
</tr>
<tr>
<td>MUSI 790</td>
<td>Graduate Recital</td>
</tr>
</tbody>
</table>

Graduate Electives: 3

Total Credits: 19

1 Students may pass out of MUSI 613 Graduate Orchestration with a satisfactory score on the Graduate Orchestration Placement Exam. In this case, students will take an additional 3 credits of a theory or history elective chosen from: MUSI 610 Topics in Music Theory, MUSI 710 Advanced Topics in Music Theory, MUSI 630 Topics in Music History and Literature, or MUSI 730 Advanced Topics in Music History.

Concentration in Conducting (CDC)

The number of students accepted in the graduate conducting concentration is limited by the extent to which it is possible to provide students with practical experience.

Nine credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 729</td>
<td>Applied Music in Conducting</td>
</tr>
<tr>
<td>MUSI 613</td>
<td>Graduate Orchestration</td>
</tr>
<tr>
<td>MUSI 790</td>
<td>Graduate Recital</td>
</tr>
</tbody>
</table>

Select 3 credits of graduate electives: 3

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 610</td>
<td>Topics in Music Theory</td>
</tr>
</tbody>
</table>
### Concentration in Jazz Studies (JAZZ)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 615</td>
<td>Advanced Jazz Improvisation</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 650</td>
<td>Topics in Jazz Studies</td>
<td>3</td>
</tr>
</tbody>
</table>

Select 9 credits of Graduate Applied Music from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 721</td>
<td>Applied Music</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>Applied Music in Keyboard</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>Applied Music in Voice</td>
</tr>
<tr>
<td>MUSI 724</td>
<td>Applied Music in Woodwind</td>
</tr>
<tr>
<td>MUSI 725</td>
<td>Applied Music in Brass</td>
</tr>
<tr>
<td>MUSI 726</td>
<td>Applied Music in String</td>
</tr>
<tr>
<td>MUSI 727</td>
<td>Applied Music in Percussion</td>
</tr>
<tr>
<td>MUSI 790</td>
<td>Graduate Recital</td>
</tr>
</tbody>
</table>

Select 3 credits of graduate electives

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

### Concentration in Music Education (MUE)

Three credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 592</td>
<td>Topics in Music</td>
</tr>
</tbody>
</table>

Three credits of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 660</td>
<td>Topics in Music Education</td>
</tr>
<tr>
<td>MUSI 661</td>
<td>Psychology of Music Teaching and Learning</td>
</tr>
<tr>
<td>MUSI 663</td>
<td>Aesthetics of Music Education</td>
</tr>
</tbody>
</table>

Select 9 credits of 500 - 800 level MUSI courses

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
</tr>
</tbody>
</table>

### Concentration in Performance (PFM)

Select 1 credit of Graduate Ensemble from the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 681</td>
<td>Graduate Choral Ensembles</td>
</tr>
<tr>
<td>MUSI 682</td>
<td>Wind Symphony</td>
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<tr>
<td>MUSI 683</td>
<td>Symphonic Band</td>
</tr>
<tr>
<td>MUSI 685</td>
<td>Graduate Chamber Ensemble</td>
</tr>
<tr>
<td>MUSI 687</td>
<td>Symphony Orchestra</td>
</tr>
<tr>
<td>MUSI 688</td>
<td>Opera and Musical Theater Ensemble</td>
</tr>
<tr>
<td>MUSI 689</td>
<td>Jazz Ensemble</td>
</tr>
</tbody>
</table>

Select 8 credits of 500 - 800 level MUSI electives

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
</tr>
</tbody>
</table>

Select 9 credits of Graduate Applied Music from the following

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 721</td>
<td>Applied Music</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>Applied Music in Keyboard</td>
</tr>
<tr>
<td>MUSI 723</td>
<td>Applied Music in Voice</td>
</tr>
<tr>
<td>MUSI 724</td>
<td>Applied Music in Woodwind</td>
</tr>
<tr>
<td>MUSI 725</td>
<td>Applied Music in Brass</td>
</tr>
<tr>
<td>MUSI 726</td>
<td>Applied Music in String</td>
</tr>
<tr>
<td>MUSI 727</td>
<td>Applied Music in Percussion</td>
</tr>
</tbody>
</table>

### Accelerated Master's

#### Music, BM (Performance)/Music, Accelerated MM (Performance)

**Overview**

Students in the Music, BM (p. 819) (Performance concentration) have the option of obtaining an accelerated Music, MM (p. 828) (Performance concentration).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admissions Requirements**

Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits at Mason) and no more than 100 credits. Applicants should submit the following:

- An Accelerated Master’s Program Application, available from the College of Visual and Performing Arts (CVPA) Graduate Studies
• 1-2 page Goals Statement
• Two letters of recommendation
• In addition, all applicants must complete a live performance audition. Arrangements for an audition must be made in advance by contacting the School of Music before the scheduled audition date. Auditions are held approximately once per month. Audition dates and audition application forms are available through the School of Music website.

Interested students should contact the Senior Academic Advisor, School of Music, for more details about the application process.

**Degree Requirements & Reserve Graduate Credit**

After admission and having earned 90 undergraduate credits, accelerated master’s students complete 6 credits of graduate coursework in their field of study (with a 3.00 GPA or better in each course), specified by their undergraduate and graduate advisors. These credits will apply to the undergraduate degree and provide the student advanced standing in the MM Performance program. All graduate course prerequisites must be completed prior to enrollment. While still in undergraduate status, a maximum of 6 additional graduate credits may be taken as reserve graduate credit and applied to the master’s program. Reserve graduate credits do not apply to the undergraduate degree.

To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

Students in the BM (Performance)/MM (Performance) accelerated degree program must fulfill all university requirements for the master’s degree, including a minimum of 18 applicable graduate credits taken after the bachelor’s degree has been completed and posted to the student’s academic record. Successful completion of the accelerated MM will require one summer of coursework between years 4 and 5.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. The regular designed timeframe would be a start in the Fall and completion of all coursework in the Summer five years later with the exception of Capstone, which is only offered in Fall and Spring. Students may need a longer timeframe to complete requirements.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 87). For policies governing all graduate degrees, see Academic Policies (p. 74).

**Musical Arts, DMA**

**Banner Code:** AR-DMA-MUAR

**Melinda Wildman, Academic Advisor**

A417 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

The doctor of musical arts requires 90 credits, 60 credits beyond the Master’s degree in music. The doctor of musical arts concentrations are composition, conducting, and performance. While these concentrations share some of the required course work, each is also distinct in course requirements. Professional musicians earn the DMA to enhance and extend their knowledge and practice within their area of specialization. The DMA student focuses on the profession of music performance, as well as the theory and practice of the discipline.

**Admissions & Policies**

**Admissions**

**Requirements**

In addition to meeting all admission requirements for graduate study, applicants should submit the following:

• Master’s degree in music from an accredited university;
• GPA of 3.00 in master’s-level music course work, 3.50 in courses related to the prospective area of doctoral study (performance, composition, or conducting);
• Three recommendations;
• Satisfactory scores on GRE;
• A sample of academic writing such as a graduate-level paper from a (musicology or music history) course taken during MM studies;
• Audition (performance and conducting students only). Specific details of those requirements are available from the advisors.
• A portfolio of recent compositions and recordings of performances (composition students only).

Applicants should refer to the graduate admissions page of the School of Music website for specific details on what is required and how to submit their materials. There is no “provisional” admission. Students must meet appropriate standards prior to commencing doctoral studies.

**Policies**

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87). See College of Visual and Performing Arts (p. 763) for policies specific to the college.

**Reduction of Credit**

Students must have a master’s degree before being admitted to the Doctor of Musical Arts Program. Most students receive a reduction of study of 30 credits based on their previous master’s degree.

**Requirements**

**Degree Requirements**

Total credits: 90

The following degree plan is based on a student who receives a full 30 credit reduction. Students who do not receive a full credit reduction should choose additional credits in consultation with their advisor.

**Placement Examinations**

Prior to the beginning of the first semester of doctoral studies, the student must complete placement examinations in music theory, music history, and musicianship (including aural skills and keyboard skills). Positive scores on the placement exams may reduce or eliminate prerequisites for courses in music history and music theory. Recitals can be scheduled only after completion of any necessary prerequisites in music theory, music history, and musicianship.
Doctoral Coursework
The doctoral student must maintain a minimum of 3.00 GPA in courses presented on the degree plan, which may include no more than 6 credits with a grade of C. The GPA calculation excludes all transfer courses and Mason extended studies or non degree credits not formally approved for the degree.

Students must complete the following required courses as well as those in their chosen concentration:

Select 3 credits of Music Theory elective from the following: 3
- MUSI 610  Topics in Music Theory
- MUSI 613  Graduate Orchestration
- MUSI 614  Music Theory Pedagogy
- MUSI 640  Topics in World Musics
- MUSI 710  Advanced Topics in Music Theory
- MUSI 780  Doctoral Research Methods in Music
- MUSI 810  Doctoral Seminar in Analysis
- MUSI 830  Doctoral Seminar in Music History

Two credits of
- MUSI 890  Doctoral Recital
- CVPA 600  CVPA Graduate ProSeminar 1

Total Credits 8

1  Must be taken within the student's first 2 semesters.

Concentration in Composition (CPO)
Select 1 credit of approved graduate electives 1  1
- MUSI 610  Topics in Music Theory
- MUSI 614  Music Theory Pedagogy
- MUSI 710  Advanced Topics in Music Theory

Six credits of
- MUSI 685  Graduate Chamber Ensemble
- MUSI 810  Doctoral Seminar in Analysis

Fifteen credits of
- MUSI 828  Doctoral Applied Music in Composition
- MUSI 880  Doctoral Major Ensemble

Select 6 credits from the following: 6
- MUSI 630  Topics in Music History and Literature
- MUSI 640  Topics in World Musics
- MUSI 730  Advanced Topics in Music History

Total Credits 39

1  Approved electives could be from music history, music literature, world music, music theory, conducting, secondary Applied Music, ensemble (including chamber music), or relevant nonmusic courses.

Concentration in Conducting (CDC)
Select 5 credits of approved graduate electives 1  5

Select 6 credits from the following: 6
- MUSI 630  Topics in Music History and Literature
- MUSI 730  Advanced Topics in Music History
- MUSI 770  Advanced Topics in Pedagogy

Total Credits 39

1  Approved electives could be from music history, music literature, world music, music theory, conducting, secondary Applied Music, ensemble (including chamber music), or relevant nonmusic courses.

Concentration in Performance (PFM)
Select 15 credits of Graduate Applied Music from the following: 15
- MUSI 822  Doctoral Applied Music in Keyboard
- MUSI 823  Doctoral Applied Music in Voice
- MUSI 824  Doctoral Applied Music in Woodwind
- MUSI 825  Doctoral Applied Music in Brass
- MUSI 826  Doctoral Applied Music in String
- MUSI 827  Doctoral Applied Music in Percussion

Select 3 credits of approved graduate electives 1  3

Select 6 credits from the following: 6
- MUSI 630  Topics in Music History and Literature
- MUSI 730  Advanced Topics in Music History

Select 2 credits from the following: 2
- MUSI 685  Graduate Chamber Ensemble
- MUSI 720  Advanced Topics in Applied Music
- MUSI 770  Advanced Topics in Pedagogy
- MUSI 810  Doctoral Seminar in Analysis

Select 4 credits from the following: 4
- MUSI 880  Doctoral Major Ensemble
- & MUSI 720  Advanced Topics in Applied Music
- MUSI 880  Doctoral Major Ensemble
- or MUSI 720  Advanced Topics in Applied Music

Select 3 credits from the following: 3
- MUSI 610  Topics in Music Theory
- MUSI 710  Advanced Topics in Music Theory
- MUSI 712  Composition for Conductors and Performers

Total Credits 39

1  Approved electives could be from music history, music literature, world music, music theory, conducting, secondary Applied Music, ensemble (including chamber music), or relevant nonmusic courses.

Residency
More than half of all credits (minimum 72) must be taken in doctoral degree status, after admission to the degree program. One year (fall and
spring) of consecutive full-time study (9 credits per semester; 18 credits per year) is recommended. Or, the academic residency requirement may be fulfilled by earning 21 credits within 12 months (fall and spring semesters and summer term). Academic residency should be completed during the first year of study. Any necessary prerequisite courses at the 500 level can be included to meet the residency requirement. Language courses at the undergraduate level may not. Note: The academic residency does not imply meeting the standards of Virginia residency for tuition purposes.

Language Requirements
Reading proficiency is required in a language appropriate to the student's major area of study. Normally, this will be German, French, or Italian. The director of graduate studies and the Graduate Committee will determine the appropriate area of study. Reading proficiency may be accomplished by completing a reading examination provided by the music faculty. The reading examination provided by the faculty will normally consist of translation (with dictionary) of appropriate technical passages to the student's area of study within a two-hour period. The language reading proficiency should be completed prior to earning 12 credits of courses at the 600 level or above.

Graduate Committee
The Graduate Committee will evaluate the progress of the student annually. Continuation in the program is subject to the endorsement of this group.

Comprehensive Exams
After the completion of required courses (excluding dissertation credits) or during the semester when completion of those courses is anticipated, the student will take comprehensive examinations. The written exams will be followed by a one-hour oral exam to clarify issues included in the written exams.

Doctoral Research
Select 13 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 998</td>
<td>13 (Dissertation Proposal (a minimum of 3 credits))</td>
</tr>
<tr>
<td>MUSI 999</td>
<td>13 (Dissertation (a minimum of 7 credits))</td>
</tr>
</tbody>
</table>

Total Credits: 13

Advancement to Candidacy
Before doctoral students may be advanced to candidacy by the dean of the College of Visual and Performing Arts, they must complete all course work required by the program faculty, be certified in all relevant doctoral research skills, pass the comprehensive exams, and be recommended by the Graduate Committee, the director of graduate studies, and the director of the School of Music. Students advanced to candidacy after the add period for a given semester must wait until the following semester to register for MUSI 999 Dissertation.

Dissertation Committee
The dissertation is the capstone experience of doctoral study. The dissertation will be guided by the Dissertation Committee consisting of at least three members of the music faculty. The student's major professor will chair the committee. The director of graduate studies of the School of Music may be part of the committee; if not, he or she will serve ex officio. All Dissertation Committee members will be appointed by the dean of the College of Visual and Performing Arts and have graduate faculty status, as approved by the university provost. Performance and composition recitals are also subject to the approval of the Dissertation Committee.

Final Defense and Graduation
When all degree requirements have been satisfied, including completion of the doctoral dissertation, the doctoral candidate may request a doctoral defense. Approval for the defense must be obtained from the Dissertation Committee, the director of graduate studies and the director of the School of Music, and the dean of the College of Visual and Performing Arts. Notice of a defense must be circulated to the university community two weeks before the defense date.

All relevant rules regarding schedule, fees, and other matters as described in the catalog must be followed. All copies of the dissertation materials and fees must be paid before the doctoral degree is awarded.

Musical Theater Undergraduate Certificate: Music
Banner Code: AR-CERB-MTHR

Melinda Wildman, Academic Advisor
A417 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

Students fulfilling Musical Theater Undergraduate Certificate: Music must satisfy all requirements for a BA (p. 817) or BM (p. 819) in the School of Music. Students pursuing a certificate in Musical Theater Undergraduate Certificate: Theater (p. 838) must satisfy all requirements for a BA (p. 840) or BFA (p. 843) in the School of Theater with a concentration in performance.

The certificate may be completed under part or full time basis.

Admissions & Policies

Admissions
Auditions
Auditions are required for admission into the Musical Theater Undergraduate Certificate.

Policies
Program Requirements
Some credits required for this certificate may simultaneously fulfill learning requirements of the certificate in Musical Theater and Mason Core (p. 135) requirements. Some courses require placement. Depending on electives and other learning experiences, this certificate requires up to 30 credits beyond the requirements to complete a major in the School of Theater or the School of Music (dependent upon the chosen concentration). A minimum of 15 credits must be unique to the certificate and may not count toward the major, concentration, minor, another certificate or Mason Core (p. 135) requirements. At least 15 credits of the certificate must be earned at Mason. Students receiving the certificate must hold a baccalaureate degree or be earning a baccalaureate degree.
from Mason at the time they receive the certificate. Students with a previous bachelor’s degree, who are admitted to this certificate alone, have four years to complete the certificate requirements.

Only courses with a grade of C or better are counted toward the certificate.

Students should consult AP.5.3.5 Undergraduate Certificates (p. 86) for more information.

**Requirements**

**Certificate Requirements**

Total credits: 30

**Dance Courses**

Courses in DANC are selected from the following courses open to all non-dance majors. Courses may not be repeated in the certificate. At least 6 credits must be 200 level or above.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 125</td>
<td>Modern/Contemporary Dance I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 131</td>
<td>Beginning Jazz Technique (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 145</td>
<td>Ballet I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 161</td>
<td>Beginning Tap Dance (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 225</td>
<td>Modern/Contemporary Dance II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 231</td>
<td>Intermediate Jazz Technique (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 245</td>
<td>Ballet II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>DANC 331</td>
<td>Advanced Jazz Dance (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentration for Music Students (MUSS)**

**Theater Courses**

THR 300  Voice and Speech  3
or THR 301  Advanced Study in Voice  3
THR 310  Acting II  3
Six credits of

THR 427  Musical Theater Workshop  6

**Movement and Character Courses**

Select one from the following:  3

THR 304  Advanced Movement for Actors
THR 305  Unarmed Stage Combat
THR 365  Characterization
THR 405  Advanced Stage Combat
THR 421  One-Person Show

**Advanced Acting Courses**

Select one from the following:  3

THR 320  Performance Studio
THR 321  Acting Shakespeare

**Admissions & Policies**

**Admissions**

- An artist certificate application and current résumé
- A bachelor’s degree in music or equivalent (as evaluated by the School of Music Admissions Committee)
- Transcripts from previous educational institutions
- One-page written statement of student’s goals and interest in the program
- Two letters of recommendation
- Recording of a live performance of solo works from the standard repertory.

Applicants should refer to the graduate admissions page of the School of Music (http://music.gmu.edu) website for specific details on what is required and how to submit their materials. Applicants must perform an audition recital and be interviewed on the Mason Campus. Applicants will be notified of the date and time of the audition and interview.

**Requirements**

**Certificate Requirements**

Total credits: 32

**Studies in Performance**

Select 12 credits of Graduate Applied Music from the following:  12

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 721</td>
<td>Applied Music</td>
</tr>
<tr>
<td>MUSI 722</td>
<td>Applied Music in Keyboard (over four semesters)</td>
</tr>
</tbody>
</table>
Two credits of
MUSI 592 Topics in Music

Three credits of
MUSI 790 Graduate Recital

Total Credits 17

1 Two semesters of solo recital and one semester of chamber recital.

Support Studies in Literature and Pedagogy
MUSI 630 Topics in Music History and Literature
or MUSI 730 Advanced Topics in Music History

MUSI 551 Keyboard Pedagogy
or MUSI 553 Instrumental Pedagogy and Literature

MUSI 695 Teaching Internship

Total Credits 8

Support Studies in Accompanying or Ensemble plus Electives
Select Accompanying or Ensemble:

Accompanying:
MUSI 571 Techniques of Accompanying
MUSI 685 Graduate Chamber Ensemble

5 credits of MUSI 500 - MUSI 700 level electives

Ensemble:
MUSI 682 Wind Symphony
MUSI 683 Symphonic Band
MUSI 685 Graduate Chamber Ensemble
MUSI 687 Symphony Orchestra
MUSI 689 Jazz Ensemble

1 credit of MUSI 500 - MUSI 700 level electives

Total Credits 7

1 One of MUSI 682 Wind Symphony, MUSI 683 Symphonic Band, MUSI 685 Graduate Chamber Ensemble, MUSI 687 Symphony Orchestra or MUSI 689 Jazz Ensemble must be taken twice.

Vocal Performance Artist Graduate Certificate

Banner Code: AR-CERG-ACVP

Melinda Wildman, Academic Advisor
A417 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-1392
Email: music@gmu.edu
Website: music.gmu.edu/degree-programs/advising/

This certificate may be earned on a full time or part time basis.

Admissions & Policies

Admissions
Requirements
• An artist certificate application and current résumé
• A bachelor's degree in music or equivalent (as evaluated by the School of Music Admissions Committee)
• Transcripts from previous educational institutions
• One-page written statement of student’s goals and interest in the program
• Two letters of recommendation
• Recording of a live performance of solo works from the standard repertory.

Applicants should refer to the graduate admissions page of the School of Music website for specific details on what is required and how to submit their materials. Applicants must perform an audition recital and be interviewed on the Mason Campus. Applicants will be notified of the date and time of the audition and interview.

Requirements
Certificate Requirements
Total credits: 32

Studies in Performance
Twelve credits of

MUSI 723 Applied Music in Voice

Four credits of

MUSI 592 Topics in Music

MUSI 526 Performance Seminar and Vocal Literature for Singers and Accompanists

MUSI 541 Diction for Singers I: Italian Diction and English Diction
or MUSI 542 Diction for Singers II: German Diction and French Diction

Total Credits 20

Support Studies in Ensemble Performance plus Electives
Nine credits of

MUSI 685 & MUSI 688 Graduate Chamber Ensemble and Opera and Musical Theater Ensemble

One credit of

MUSI 690 Graduate Lecture Recital (1 credit)

MUSI 790 Graduate Recital

Select 1 credit of elective

Total Credits 12

School of Theater

Ken Elston, Director
The School of Theater offers BA and BFA degrees and prepares students for graduate study or entry into the profession through rigorous, concentrated, and individualized training; however, students are encouraged to maintain wide-ranging interests within the school and throughout the university’s extensive offerings. Theater majors organize their advanced work within the major to include classes in areas of emphasis including performance, design and technical theater, and other theater studies.

**Theater BA Concentrations**
Theater majors must choose to complete their Bachelor of Arts degree with a concentration in one of the following areas: Design and Technical Theater, Performance (Acting and Directing), Playwriting and Dramaturgy, Theater Education for Theater Arts PK-12, or Theater Studies. Students must earn a minimum 2.5 cumulative GPA to complete a BA with a concentration.

**Certification for Theater Education for Theater Arts PK-12**
The Theater Education for Theater Arts PK-12 certification is approved by the Virginia State Department of Education and administered through the College of Education and Human Development, which is accredited by the National Council for the Accreditation of Teacher Education (NCATE). Upon degree conferral and completion of all requirements, students may be eligible to apply for Virginia State Licensure Minimum scores on the Praxis Core and VCLA tests must be achieved before state licensure is granted.

Students must be formally accepted into the Theater Education for Theater Arts PK-12 concentration.

**Theater BFA Concentrations**
In addition to the Mason Core requirements for the Bachelor of Arts degree, students in the Theater BFA must complete a minimum of 76 credits in the major: 46 credits of required core courses and 30 credits in a concentration. Concentrations are: Design for Stage and Screen, Musical Theater Performance, Performance for Stage and Screen (Acting and Directing), Writing and Dramaturgy for Stage and Screen. All students pursuing a BFA in Theater must earn a minimum 2.5 cumulative GPA for graduation.

**Musical Theater Undergraduate Certificate**
Students pursuing a certification in Musical Theater must satisfy all requirements for a BA or BFA in the School of Theater, with a concentration in performance, or a BA or BM in the School of Music, as reflected in the university catalog. Some credits required for the certificate may simultaneously fulfill the learning requirements of the certificate in Musical Theater and fulfill Mason Core requirements. Some courses require placement. Thus, depending on electives and other learning experiences, this certification requires up to 30 credits beyond the requirements to complete a major in the School of Theater. See the College of Visual and Performing Arts website (http://cvpa.gmu.edu/admissions-u.html) for audition information.

Students receiving the certificate must hold a baccalaureate degree or be earning a baccalaureate degree from Mason at the time they receive the certificate. This program of study is coordinated between units within the College of Visual and Performing Arts.

**Theater Honors Program**
Highly-qualified students who have completed 75 credits may pursue advanced work leading to graduation with honors in the major. Students apply for Honors in Theater by submitting to the Director (by November 15 or April 15) a two-page written statement outlining their reasons for pursuing advanced coursework and specific professional goals, along with the names of two Mason theater faculty members who have agreed to serve as references.

Students satisfy the honors course sequence by taking three honors-specific courses from their chosen concentration. They must also maintain an overall GPA of 3.50 and a GPA of 3.75 within the major.

**Graduate Programs**

**Accelerated Master’s Program**
The School of Theater offers a Theater, BA/Arts Management, Accelerated MA option which allows undergraduate students to take graduate classes that can be used towards a designated Master’s degree. Undergraduates who wish to pursue the accelerated Master’s route should talk to their academic advisor first to see if they qualify. Students must be within 75-90 credits of their Bachelor’s program to be eligible to apply; those who have earned more than 90 credits will not be considered. Students must be approved by their academic advisor and formally apply and be accepted to the Master’s program through an Accelerated Master’s application. For more information about admissions requirements and the application process, students should visit the college website (http://cvpa.gmu.edu).

**Visual and Performing Arts, MFA**
The School of Theater offers one concentration under the Master of Fine Arts, Visual and Performing Arts degree: Theater. Applicants to the program must designate which concentration they intend to apply for on the application. Each concentration has its own unique set of admissions requirements and program requirements.

**Faculty**

**School Faculty**

**Professors**
D’Andrea (Robinson Professor), Davis, Kurtz, McDonald

**Associate Professors**
Elston (Director), Gero, Johnsen-Neshati

**Assistant Professor**
Casey

**Administrative Faculty (Instructional)**
Lechter, Murray
Adjunct Faculty
Alman, Cadby, Dunayer, Gaines, Gardner, Hart, Hurt, Kessinger, Lee, Maier, Nall, Nanni-Messegee

Requirements & Policies

Requirements

Admission Requirements
Admission to George Mason University requires application through Mason’s Admissions Office. Entrance into all Theater programs is by interview and audition or portfolio review. Information about the audition, portfolio review and interview process, including dates, can be found at the College of Visual and Performing Arts (http://cvpa.gmu.edu/admissions-u.html). Please note that these are two separate processes.

Interviews will be conducted by appointment and candidates must prepare an appropriate resume.

Contact the School of Theater to schedule your interview. Students who audition or present a portfolio at theater conferences (i.e. Virginia Theatre Association, Southeastern Theater Conference, etc.) before or after applying to Mason are required to attend a separate interview on campus.

Writing-Intensive Requirement
The university requires all students to complete at least one course designated writing-intensive in their major at the 300 level or above. Students seeking a BA or BFA in theater fulfill this requirement by successfully completing THR 350 Script Analysis or THR 482 Advanced Screenplay Workshop.

Production Requirements
Participation in Theater at Mason productions is expected of all declared majors. Students must have a minimum 2.5 cumulative GPA to participate in Theater at Mason productions.

Students must also earn four (4) practicum credits, one (1) credit for satisfactory completion (a minimum of 30 hours) of each of four (4) performance and production assignments in the major, including faculty or guest-directed Mason Players Mainstage, and student-directed Studio productions.

All freshmen, first year transfer, and new Theater majors must register for THR 198 Theatrical Construction Practicum and THR 199 Production Run Crew Practicum during their first academic year.

Assignments for THR 196 Performance or Design Practicum and THR 197 Stage or Literary Practicum will include a presentation of portfolio documents demonstrating a practical analysis of the role, design, or support position to subject area mentors.

• THR 196 Performance or Design Practicum assignments include actor, designer, assistant designer, stage manager, and assistant stage manager.

• THR 197 Stage or Literary Practicum assignments include director, assistant director, dramaturg, master electrician, technical director, playwright, house management, and publicity.

• THR 198 Theatrical Construction Practicum assignments include scenery construction and painting, costume construction, electrician, and props.

• THR 199 Production Run Crew Practicum assignments include stage crew, light board operator, sound board operator, wardrobe, and fly crew.

Unless registered for a Theater course approved as directly connected to production (i.e. THR 196 Performance or Design Practicum, THR 197 Stage or Literary Practicum, THR 198 Theatrical Construction Practicum, THR 199 Production Run Crew Practicum, THR 492 Studio Project or THR 495 Senior Capstone Project) all students (including non-Theater majors) electing to participate in a Theater at Mason production must register for THR 200 Play Production Practicum concurrent with participation.

Policies

BA/BFA Policies
Students seeking to earn a BA or BFA as a second bachelor’s degree, either concurrently or sequentially, must complete all theater degree requirements. Students must earn a minimum 2.00 cumulative GPA in their major. A student must earn a minimum cumulative GPA of 2.5 to complete a BA with a concentration or a BFA.

Programs

• Audio Production Minor
• Event Technical Production Minor (CVPA)
• Musical Theater Undergraduate Certificate: Theater
• Teaching Theatre PK-12 Graduate Certificate
• Theater Minor
• Theater, BA
• Theater, BFA

Audio Production Minor

Banner Code: AUPD

Sara Simanski, Academic Advisor
A407 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-6079
Email: ssimansk@gmu.edu
Website: http://theater.gmu.edu/academics/degrees.html

Those students interested in exploring audio production in a purely music-based experience should consider the minor in Music Technology (p. 815).

Admissions & Policies

Policies

University policy states that students must earn 8 distinct credits that are not used for their major toward their minor, with a minimum grade of 2.00 earned in all courses applied to the minor. For policies governing all minors, see AP. 5.3.4 Minors (p. 86).
Requirements

Minor Requirements

Total credits: 18

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 254</td>
<td>Music and Technology</td>
<td>3</td>
</tr>
<tr>
<td>THR 315</td>
<td>Sound Engineering</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Other Courses

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 374</td>
<td>Sound Art I</td>
</tr>
<tr>
<td>FAVS 333</td>
<td>Sound Editing and Recording</td>
</tr>
<tr>
<td>GAME 250</td>
<td>Music for Film and Video</td>
</tr>
<tr>
<td>MUSI 354</td>
<td>Electronic Composition</td>
</tr>
<tr>
<td>MUSI 355</td>
<td>Recording Techniques</td>
</tr>
<tr>
<td>THR 313</td>
<td>Event Technology</td>
</tr>
<tr>
<td>THR 337</td>
<td>Sound Design</td>
</tr>
<tr>
<td>THR 415</td>
<td>Advanced Sound Engineering</td>
</tr>
<tr>
<td>or courses as approved by Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
</tr>
</tbody>
</table>

Event Technical Production Minor (CVPA)

Banner Code: EVTP

Sara Simanski, Academic Advisor

A407 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-6079
Email: ssimansk@gmu.edu
Website: theater.gmu.edu/academics/degrees.html

This minor is offered by the College of Visual and Performing Arts (p. 763) (School of Theater (p. 835)) and the College of Education and Human Development (p. 154) (School of Recreation, Health, and Tourism (p. 211)). This minor, available to all Mason undergraduate students, offers the opportunity to study special event management and event technologies, design and production for installations and special events. Students will gain insights into industry standards and practices regarding planning, managing, and executing live events and presentations. The required courses in this minor provide students with a foundational overview of management and production. Students can complement that knowledge with specific electives that meet their individual interests in events and areas of design and technology.

Admissions & Policies

Admissions

Auditions
Auditions are required for admission into the Musical Theater Undergraduate Certificate.

Policies

Program Requirements

Some credits required for this certificate may simultaneously fulfill learning requirements of the certificate in Musical Theater and Mason Core (p. 135) requirements. Some courses require placement. Depending on electives and other learning experiences, this certificate requires up to 30 credits beyond the requirements to complete a major in the School of Theater or the School of Music (dependent upon the chosen concentration). A minimum of 15 credits must be unique to the certificate and may not count toward the major, concentration, minor, another
Certificate or Mason Core (p. 135) requirements. At least 15 credits of the certificate must be earned at Mason. Students receiving the certificate must hold a baccalaureate degree or be earning a baccalaureate degree from Mason at the time they receive the certificate. Students with a previous bachelor's degree, who are admitted to this certificate alone, have four years to complete the certificate requirements.

Only courses with a grade of C or better are counted toward the certificate.

Students should consult AP.5.3.5 Undergraduate Certificates (p. 86) for more information.

## Requirements

### Certificate Requirements

Total credits: 30

#### Dance Courses

Courses in DANC are selected from the following courses open to all non-dance majors. Courses may not be repeated in the certificate. At least 6 credits must be 200 level or above.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DANC 125</td>
<td>Modern/Contemporary Dance I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 131</td>
<td>Beginning Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 145</td>
<td>Ballet I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 161</td>
<td>Beginning Tap Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 225</td>
<td>Modern/Contemporary Dance II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 231</td>
<td>Intermediate Jazz Technique (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 245</td>
<td>Ballet II (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>DANC 331</td>
<td>Advanced Jazz Dance (Mason Core) (p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

Total credits: 12

#### Concentration for Theater Students (THRS)

MUSI 113  Aural Skills I  1

One credit of

MUSI 114  Aural Skills II  1

MUSI 115  Theory I  3

MUSI 171  Keyboard Skills I  1

Six credits of

MUSI 243  Applied Music in Voice  1

MUSI 301  Music in Motion Pictures (Mason Core) (p. 135)  3

MUSI 381  University Chorale (Mason Core) (p. 135)  1

or MUSI 385  Chamber Singers (Mason Core) (p. 135)  1

Two credits of

MUSI 485  Chamber Ensembles (Mason Core) (p. 135)  2

Total credits: 18

### Teaching Theatre PK-12 Graduate Certificate

Banner Code: AR-CERG-THRP

Kristin Johnsen-Neshati, Dramaturg

A407 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-1120
Email: kneshati@gmu.edu
Website: theater.gmu.edu/academics/degrees.html

This certificate can be earned on a full-time or part-time basis.

#### Admissions & Policies

**Admissions**

To apply to the program, candidates must have first completed a major in theater or 33 semester hours distributed among the following areas:

- Directing 6
- Technical theater 9
- Cultural context and theater history 3
- Performance 6
- Dramatic literature 9

Total credits: 33

Students who have completed ALL endorsements, including Praxis Core, are eligible for enrollment into the Graduate Certificate Program for Teaching Theatre PK-12. All Virginia requirements must be met to achieve licensure.

**Policies**

Students must earn a B- or higher in all coursework.

#### Requirements

### Certificate Requirements (Licensure)

Total credits: 21

#### Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 548</td>
<td>Advanced Foundations of Theater Education</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 501</td>
<td>Literacy and Curriculum Integration, PK-12</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 539</td>
<td>Human Development and Learning PK-12</td>
<td>3</td>
</tr>
<tr>
<td>THR 549</td>
<td>Advanced Elementary Theater Ed</td>
<td>3</td>
</tr>
<tr>
<td>THR 550</td>
<td>Advanced Secondary Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Six credits of

Total credits: 6
Theater Minor

Banner Code: THR

Sara Simanski, Academic Advisor
A407 deLaski Performing Arts Building
Fairfax Campus

Phone: 703-993-6079
Email: ssimansk@gmu.edu
Website: theater.gmu.edu/academics/degrees.html

Admissions & Policies

Policies

University policy states that students must earn 8 distinct credits that are not used for their major toward their minor, with a minimum grade of 2.00 earned in all courses applied to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Coursework

THR 230 Fundamentals of Production (Mason Core) (p. 135) 3
THR 310 Acting II 3
or THR 339 Principles of Design
THR 350 Script Analysis 3
Select one from the following: 3
THR 150 Greeks to Restoration (Mason Core) (p. 135)
THR 151 Romanticism to Present (Mason Core) (p. 135)
THR 380 Playwriting I
or other courses with permission of Director
Select 6 credits of 100-400 level THR coursework (p. 2007) 6
Total Credits 18

The BA degree stresses the breadth of a liberal arts education in the belief that such study, combined with serious practical training and experience, offers the best preparation for a life in theater and screen.

Students complete the theater core. To organize their advanced work within the major, students select 24 credits of 300-400-level courses, chosen from any area of emphasis in Theater or students elect a course of study from four concentrations:

- Performance (Acting and Directing)
- Design and Technical Theater
- Playwriting and Dramaturgy
- Theater Education for Theater Arts PK-12
- Theater Studies

Requirements

Degree Requirements

Total credits: 120

Mason Core

Foundation Requirements

Oral Communication (p. 136) 3
Information Technology (p. 136) 3
Quantitative Reasoning (p. 136) 3
ENGH 101 Composition (Mason Core) (p. 135) 3

ENGH 302 Advanced Composition (Mason Core) (p. 135) 3

Core Requirements

Literature (p. 140) 3
Arts (p. 137) 2
Natural Science (p. 141) 3 7
Western Civilization/World History (p. 143) 3
Global Understanding (p. 139) 3
Social and Behavioral Sciences (p. 142) 3

Total Credits 37

1 Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as in ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

2 Course must fall outside the major. Students earning a concentration in Design and Technical Theater must take ARTH 101 Introduction to the Visual Arts (Mason Core) (p. 135), ARTH 102 Symbols and Stories in Art (Mason Core) (p. 135), ARTH 200 History of Western Art I (Mason Core) (p. 135), or ARTH 201 History of Western Art II (Mason Core) (p. 135).
Must include at least one laboratory science course.

Major

Theater Core Requirements

Note: All THR majors may not double count THR courses within the major. All THR courses count either towards the degree core or the concentration, but not both.

THR 150  Greeks to Restoration (Mason Core) (p. 135)  3
THR 151  Romanticism to Present (Mason Core) (p. 135)  3
THR 191  Practical Theater Seminar  1  0
THR 196  Performance or Design Practicum  1
THR 197  Stage or Literary Practicum  1
THR 198  Theatrical Construction Practicum  1
THR 199  Production Run Crew Practicum  1
THR 201  Stage Management  3
THR 210  Acting I (Mason Core) (p. 135)  3
THR 230  Fundamentals of Production (Mason Core) (p. 135)  3
THR 300  Voice and Speech  3
Select one course from the following:  3
   THR 303  Movement for Actors
   THR 304  Advanced Movement for Actors
   THR 305  Unarmed Stage Combat
   THR 329  Directing
   THR 350  Script Analysis
   THR 411  Great Film Directors (Mason Core) (p. 135)  3
   or THR 412  Great Film Performances (Mason Core) (p. 135)
Synthesis  3
   THR 440  Advanced Studies in Directing/ Dramaturgy (Mason Core) (p. 135)
   or THR 496  Text in Production (Mason Core) (p. 135)

Design in the Discipline  3
Select one course from the following:
   THR 333  Scenic Design
   THR 334  Lighting Design
   THR 335  Costume Design
   THR 339  Principles of Design
   THR 345  Puppetry
   or permission of Director

Writing in the Discipline  3
Select one course from the following:
   THR 380  Playwriting I
   THR 381  Playwriting II
   THR 382  Screenplay Workshop
   THR 482  Advanced Screenplay Workshop
   THR 484  Translation Adaptation for Stage Screen
   or permission of Director

Dramatic Literature  3
   THR 351  Dramatic Theory and Criticism  2
   THR 352  Dramatic Literature Seminar  2

THR 355  Moral Vision in American Theater
THR 359  World Stages (Mason Core) (p. 135)  3
THR 395  Theater as the Life of the Mind (Mason Core) (p. 135)
THR 424  Contemporary Women Playwrights

or permission of Director

Total Credits  46

1  Must be taken four times during course of study.
2  May fulfill either dramatic literature requirement or PWD concentration requirement but not both.
3  May fulfill either Mason Core (p. 135) Global Understanding requirement or dramatic literature requirement but not both.

Theater Concentrations

Theater majors earning a BA in Theater must select one of the following concentrations:

Concentration in Design and Technical Theater (DTT)
Provides a foundation of knowledge, technique, and experience in one or more areas of theater design and technology in preparation for advanced study and professional work in the field.

THR 339  Principles of Design  3
Select two courses from the following:  6
   THR 235  Costume Crafts
   THR 313  Event Technology
   THR 314  Lighting Stagecraft
   THR 315  Sound Engineering
   THR 332  History of Fashion and Dress
   THR 343  Costume Pattern Drafting
   or permission of Director
Select one course from the following:  3
   THR 316  Scene Painting
   THR 330  Seminar in Technical Theater
   THR 331  Drafting and Model Making
   THR 333  Scenic Design
   THR 334  Lighting Design
   THR 335  Costume Design
   THR 337  Sound Design
   THR 342  Makeup Design
   THR 434  Advanced Lighting Design
   or permission of Director

Upper-Level Theater Electives  12
12 credits of 300-400 level THR coursework

Total Credits  24

Concentration in Performance (PFM)
Designed for the serious student of acting and directing with professional aspirations. Solid grounding in the fundamentals of performance analysis and basic training of the actor’s instrument are complemented by a rigorous, sequential instruction in the various facets of the actor’s craft.

At its core, the Performance Concentration is a blend of Modern and Classical actor training using a Stanislavski-grounded approach balanced with techniques for understanding texts written two hundred years before "motivation" and "characterization" entered the critical vocabulary.
Rounding out the curriculum is specialized study in vocal production and movement technique. Matriculation in this program expresses a profound commitment to a rigorous intellectual, physical and emotional investigation of the discipline of performance over a two-year period. Professional development is enhanced with ongoing student progress reviews, support and advising from Performance Concentration faculty.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 301</td>
<td>Advanced Study in Voice</td>
<td>3</td>
</tr>
<tr>
<td>THR 310</td>
<td>Acting II</td>
<td>3</td>
</tr>
<tr>
<td>or permission of Director</td>
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Select one course from the following: 3

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>THR 320</td>
<td>Performance Studio</td>
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</tr>
<tr>
<td>THR 321</td>
<td>Acting Shakespeare</td>
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<tr>
<td>THR 340</td>
<td>Advanced Studies in Directing</td>
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<tr>
<td>THR 410</td>
<td>Acting for the Camera</td>
<td></td>
</tr>
<tr>
<td>THR 420</td>
<td>Advanced Performance Studio</td>
<td></td>
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</table>

or permission of Director

Select one course from the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>THR 304</td>
<td>Advanced Movement for Actors</td>
<td></td>
</tr>
<tr>
<td>THR 305</td>
<td>Unarmed Stage Combat</td>
<td></td>
</tr>
<tr>
<td>THR 365</td>
<td>Characterization</td>
<td></td>
</tr>
<tr>
<td>THR 405</td>
<td>Advanced Stage Combat</td>
<td></td>
</tr>
<tr>
<td>THR 421</td>
<td>One-Person Show</td>
<td></td>
</tr>
<tr>
<td>THR 423</td>
<td>Audition Techniques: Stage and Camera</td>
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</tr>
<tr>
<td>THR 427</td>
<td>Musical Theater Workshop</td>
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</table>

or permission of Director

Upper-Level Theater Electives 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 202</td>
<td>Literary Management</td>
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</tr>
<tr>
<td>THR 351</td>
<td>Dramatic Theory and Criticism</td>
<td></td>
</tr>
<tr>
<td>THR 352</td>
<td>Dramatic Literature Seminar</td>
<td></td>
</tr>
<tr>
<td>THR 355</td>
<td>Moral Vision in American Theater</td>
<td></td>
</tr>
<tr>
<td>THR 359</td>
<td>World Stages (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>THR 365</td>
<td>Characterization</td>
<td></td>
</tr>
<tr>
<td>THR 380</td>
<td>Playwriting I</td>
<td></td>
</tr>
<tr>
<td>THR 381</td>
<td>Playwriting II</td>
<td></td>
</tr>
<tr>
<td>THR 382</td>
<td>Screenplay Workshop</td>
<td></td>
</tr>
<tr>
<td>THR 395</td>
<td>Theater as the Life of the Mind (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>THR 411</td>
<td>Great Film Directors (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>THR 412</td>
<td>Great Film Performances (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>THR 421</td>
<td>One-Person Show</td>
<td></td>
</tr>
<tr>
<td>THR 440</td>
<td>Advanced Studies in Directing/ Dramaturgy (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>THR 480</td>
<td>Advanced Playwriting</td>
<td></td>
</tr>
<tr>
<td>THR 482</td>
<td>Advanced Screenplay Workshop</td>
<td></td>
</tr>
<tr>
<td>THR 484</td>
<td>Translation Adaptation for Stage Screen</td>
<td></td>
</tr>
<tr>
<td>THR 493</td>
<td>Collaborative Lab Experience</td>
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</tr>
<tr>
<td>THR 495</td>
<td>Senior Capstone Project</td>
<td></td>
</tr>
</tbody>
</table>

Upper-Level Theater Electives 12
12 credits of 300-400 level THR coursework

Total Credits 24

1 May fulfill concentration requirement or dramatic literature requirement but not both.

**Concentration in Playwriting and Dramaturgy (PWD)**

Acknowledges a creative and practical connection between the work of the playwright and dramaturg. Students choosing this area of specialization will focus on the literary aspects of theater, such as playwriting, dramaturgy, screenwriting, translation, adaptation, season planning, and theater criticism. Students seeking specialized experience as a playwright or dramaturg will choose from a selection of required and recommended courses designed to expose students to a broad range of contemporary and classical texts, deepen their understanding of dramatic structure, encourage collaboration, and foster opportunities for new play development. Students are encouraged to consult their advisors on complementary courses of interest outside the major, such as in the visual and performing arts, Film and Video Studies, English and Foreign Language. This concentration gives students access to a variety of hands-on opportunities within the School of Theater and the professional world.

12 credits of required coursework chosen from the following in consultation with a faculty adviser based on the student’s area of interest.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 202</td>
<td>Literary Management</td>
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</tr>
<tr>
<td>THR 351</td>
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<tr>
<td>THR 359</td>
<td>World Stages (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>THR 365</td>
<td>Characterization</td>
<td></td>
</tr>
<tr>
<td>THR 380</td>
<td>Playwriting I</td>
<td></td>
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<tr>
<td>THR 381</td>
<td>Playwriting II</td>
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<tr>
<td>THR 382</td>
<td>Screenplay Workshop</td>
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<td>THR 395</td>
<td>Theater as the Life of the Mind (Mason Core)</td>
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<td>Great Film Directors (Mason Core) (p. 135)</td>
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<td>THR 421</td>
<td>One-Person Show</td>
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<td>Collaborative Lab Experience</td>
<td></td>
</tr>
<tr>
<td>THR 495</td>
<td>Senior Capstone Project</td>
<td></td>
</tr>
</tbody>
</table>

**Concentration in Theater Education for Theater Arts PK-12 (THEA)**

Designed for students interested in pursuing theater education. In addition to transcript review and the submission of an essay detailing goals for the concentration, students must:

- Have earned 45 to 60 credits.
- Submit scores for the Praxis Core (Reading, Writing, and Mathematics) tests to the committee. (It is strongly recommended that students take the Praxis Core tests as soon as ENGH 302 Advanced Composition (Mason Core) (p. 135), a course in literature, and a course in mathematics have been completed.)
- Maintain an overall GPA of 2.80 in all course work completed at Mason and in course work at all institutions of higher learning combined.
- Earn no grade lower than a C in theater and professional education courses needed for graduation.

Upon fulfilling THR 448 Foundations of Theater Education, THR 449 Elementary Theater Education, THR 450 Secondary Theater Education, EDRD 300 Literacy and Curriculum Integration, EDCU 301 Educationally Diverse Populations: Handicapped, Gifted, Multicultural, and EDCU 302 Human Growth and Development students must complete 15 weeks of a full-time student teaching internship (THR 455 Theater Education Internship). Applications for placement, subject to approval of the unit, are submitted to the Field Placement Specialist in the College of Education and Human Development at the beginning of the previous semester. In addition, students must pass the VCLA before student teaching.

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 448</td>
<td>Foundations of Theater Education</td>
<td>3</td>
</tr>
<tr>
<td>THR 449</td>
<td>Elementary Theater Education</td>
<td>3</td>
</tr>
<tr>
<td>THR 450</td>
<td>Secondary Theater Education</td>
<td>3</td>
</tr>
<tr>
<td>EDRD 300</td>
<td>Literacy and Curriculum Integration</td>
<td>3</td>
</tr>
</tbody>
</table>
requirements for the master's degree. The regular designed timeframe
Students choosing the accelerated option must fulfill all university
satisfactory completion of 150 credits.
in Theater (p. 840) and an MA in Arts Management (p. 774) after
in Arts Management. If accepted, students will be able to earn a BA
Undergraduates in Theater may apply to the accelerated master's degree
Overview
Accelerated MA
Theater, BA/Arts Management,
Accelerated MA
Overview
Undergraduates in Theater may apply to the accelerated master's degree
in Arts Management. If accepted, students will be able to earn a BA
in Theater (p. 840) and an MA in Arts Management (p. 774) after
satisfactory completion of 150 credits.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 301</td>
<td>Educationally Diverse Populations:</td>
<td>3</td>
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<tr>
<td>Handicapped, Gifted, Multicultural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDUC 302</td>
<td>Human Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>Six credits of</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>THR 455</td>
<td>Theater Education Internship</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

Concentration in Theater Studies (THST)
Designed for the Theater generalist. Students pursuing a concentration
in Theater Studies will have an individualized program of study focused
on the discipline. Students engage with both creative and conceptual
inquiry in the development of artistic practice. In consultation with a
faculty adviser, the student drafts a curriculum contract outlining an
individualized program of courses for a total of 24 credits of upper-
division THR courses (300-400 level).

General Electives
BA students must use general electives for one of the
following. After fulfilling one of these options, the remaining
general electives may be taken inside or outside of the
department. All students are required to take a minimum of
45 credits of upper-division courses (300-400 level).

- Demonstrate intermediate-level proficiency in one foreign
  language (0-9 credits)
- Complete a minor (15-21 credits)
- Complete a double major outside their primary field of
  study (15-21 credits)

Honors

Honors in the Major
Highly-qualified students who have completed 75 credits may pursue
advanced work leading to graduation with honors in the major. Students apply
for Honors in Theater by submitting to the Director (by November 15 or April 15) a two-page written statement outlining their reasons for
pursuing advanced coursework and specific professional goals, along
with the names of two Mason theater faculty members who have agreed
to serve as references.

Students satisfy the honors course sequence by taking three honors-
specific courses from their chosen concentration. They must also
maintain an overall GPA of 3.50 and a GPA of 3.75 within the major.

Accelerated Master's

Theater, BA/Arts Management,
Accelerated MA
Overview
Undergraduates in Theater may apply to the accelerated master's degree
in Arts Management. If accepted, students will be able to earn a BA
in Theater (p. 840) and an MA in Arts Management (p. 774) after
satisfactory completion of 150 credits.

Students choosing the accelerated option must fulfill all university
requirements for the master’s degree. The regular designed timeframe
would be a start in the Fall and the completion in the Summer five years
later, but longer time frames may also be available.

See AP.6.7 Bachelor's/Accelerated Master's Degree (p. 89) for policies
related to this program. For policies governing all graduate degrees,
see AP.6 Graduate Policies (p. 87).

Admission Requirements
Applicants to accelerated master's programs must have completed at
least 75 credits that apply to their undergraduate degree (with at least
24 credits at Mason) and no more than 90 credits. Applicants should
submit an Accelerated Master's Program Application, available from
the College of Visual and Performing Arts (CVPA) Graduate Studies. It
includes the proposed conferral date for the undergraduate degree and
the two graduate courses that are to be applied to the undergraduate
degree.

Interested students should contact the Arts Management Program Office
for more details about the application process.

Accelerated Option Requirements
As an undergraduate, the accelerated master's student is to complete the
two graduate courses indicated on their Accelerated Master's Program
application with a minimum grade of 3.00 in each course. Students must
maintain a minimum GPA of 3.00 in all coursework and in coursework
applied to their major. On completion and conferral of the undergraduate
degree in the semester indicated in the application, they submit the
Bachelor's/Accelerated Master's Transition Form (which shall incorporate
all of the Graduate Admission requirements of the university) and are
admitted to graduate status.

As graduate students, accelerated master's students have an advanced
standing. They must meet all master's degree requirements except for the
two courses (6 credits) they completed as undergraduates. The
Internal Internship (AMGT 740 Internal Internship) will be within Theater
at Mason (generally with the School of Theater). Students will begin their
master's program in the semester immediately following conferral of the
undergraduate degree, and they may also begin in the summer term.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve
graduate credit. These credits do not apply to the undergraduate degree.
The ability to take courses for reserve graduate credit is available to all
high achieving undergraduates with permission of the School of Theater.
Permission to take a graduate course for reserve graduate credit is
normally granted only to Mason seniors within 15 hours of graduation
and must be approved by the Dean's Office.

To apply these credits to the master's degree, students must request
that the credits be moved from the undergraduate degree to the graduate
degree using the Bachelor's/Accelerated Master's Transition Form.

Theater, BFA
Banner Code: AR-BFA-THR
Sara Simanski, Academic Advisor
A407 deLaski Performing Arts Building
Fairfax Campus
Phone: 703-993-6079
Email: ssimansk@gmu.edu
Website: theater.gmu.edu/academics/degrees.html

Admissions & Policies

Policies

Program Requirements

In addition to the Mason Core (p. 135) requirements, Theater majors must complete a minimum of 76 credits in the major: 46 credits of required Theater core courses plus 30 credits in the selected concentration. Concentrations are: Design for Stage and Screen, Musical Theater Performance, Performance for Stage and Screen (Acting and Directing), Writing and Dramaturgy for Stage and Screen.

Requirements

Degree Requirements

Total credits: 120

Mason Core

Foundation Requirements

- Oral Communication (p. 136) 3
- Information Technology (p. 136) 3
- Quantitative Reasoning (p. 136) 3
- ENGH 101 Composition (Mason Core) (p. 135) 3
- ENGH 302 Advanced Composition (Mason Core) (p. 135) 3

Core Requirements

- Literature (p. 140) 3
- Arts (p. 137) 3
- Natural Science (p. 141) 7
- Western Civilization/World History (p. 143) 3
- Global Understanding (p. 139) 3
- Social and Behavioral Sciences (p. 142) 3

Total Credits 37

1 Nonnative speakers of English with limited proficiency in the language may substitute ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) for ENGH 101 Composition (Mason Core) (p. 135). Students must attain a minimum grade of C in ENGH 100 Composition for Multilingual Writers (Mason Core) (p. 135) or ENGH 101 Composition (Mason Core) (p. 135), as well as in ENGH 302 Advanced Composition (Mason Core) (p. 135), to fulfill degree requirements.

2 Outside the major. Students earning a concentration in Musical Theater Performance must take DANC 125 Modern/Contemporary Dance I (Mason Core) (p. 135), DANC 131 Beginning Jazz Technique (Mason Core) (p. 135), DANC 145 Ballet I (Mason Core) (p. 135), DANC 161 Beginning Tap Dance (Mason Core) (p. 135), DANC 225 Modern/Contemporary Dance II (Mason Core) (p. 135), DANC 231 Intermediate Jazz Technique (Mason Core) (p. 135), DANC 245 Ballet II (Mason Core) (p. 135), or DANC 331 Advanced Jazz Dance (Mason Core) (p. 135).

3 Including one laboratory science

4 Writing and Dramaturgy for Stage and Screen Concentration requires THR 440 Advanced Studies in Directing/Dramaturgy (Mason Core) (p. 135)

Major

Theater Core Requirements

Note: All THR majors may not double count THR courses within the major. All THR courses count either towards the degree core or the concentration, but not both.

- THR 150 Greeks to Restoration (Mason Core) (p. 135) 3
- THR 151 Romanticism to Present (Mason Core) (p. 135) 3
- THR 191 Practical Theater Seminar 1 0
- THR 196 Performance or Design Practicum 1
- THR 197 Stage or Literary Practicum 1
- THR 198 Theatrical Construction Practicum 1
- THR 199 Production Run Crew Practicum 1
- THR 201 Stage Management 3
- THR 210 Acting I (Mason Core) (p. 135) 3
- THR 230 Fundamentals of Production (Mason Core) (p. 135) 3
- THR 300 Voice and Speech 3

Select one from the following:

- THR 303 Movement for Actors
- THR 304 Advanced Movement for Actors
- THR 305 Unarmed Stage Combat
- THR 329 Directing 3
- THR 350 Script Analysis 3
- THR 411 Great Film Directors (Mason Core) (p. 135) 3
- THR 412 Great Film Performances (Mason Core) (p. 135)

Synthesis 3

Select one course from the following:

- THR 440 Advanced Studies in Directing/Dramaturgy (Mason Core) (p. 135)
- THR 496 Text in Production (Mason Core) (p. 135)

Design in the Discipline 3

Select one course from the following:

- THR 333 Scenic Design
- THR 334 Lighting Design
- THR 335 Costume Design
- THR 339 Principles of Design
- THR 345 Puppetry

or permission of Director

Writing in the Discipline 3

Select one course from the following:

- THR 380 Playwriting I
- THR 381 Playwriting II
- THR 382 Screenplay Workshop
- THR 482 Advanced Screenplay Workshop
- THR 484 Translation Adaptation for Stage Screen

Dramatic Literature 3

Select one course from the following:

- THR 380 Scenic Design
- THR 334 Lighting Design
- THR 335 Costume Design
- THR 339 Principles of Design
- THR 345 Puppetry
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 351</td>
<td>Dramatic Theory and Criticism</td>
<td></td>
</tr>
<tr>
<td>THR 352</td>
<td>Dramatic Literature Seminar</td>
<td></td>
</tr>
<tr>
<td>THR 355</td>
<td>Moral Vision in American Theater</td>
<td></td>
</tr>
<tr>
<td>THR 359</td>
<td>World Stages (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>THR 395</td>
<td>Theater as the Life of the Mind (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>THR 424</td>
<td>Contemporary Women Playwrights</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or permission of Director</td>
<td></td>
</tr>
<tr>
<td>THR 427</td>
<td>Musical Theater Workshop</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or permission of Director</td>
<td></td>
</tr>
<tr>
<td>THR 428</td>
<td>Performance for Stage and Screen (Acting and Directing) Concentration (PSS)</td>
<td>30</td>
</tr>
<tr>
<td>THR 405</td>
<td>Advanced Stage Combat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or permission of Director</td>
<td></td>
</tr>
<tr>
<td>THR 427</td>
<td>Musical Theater Workshop</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or permission of Director</td>
<td></td>
</tr>
<tr>
<td>THR 428</td>
<td>Performance for Stage and Screen (Acting and Directing) Concentration (PSS)</td>
<td>30</td>
</tr>
<tr>
<td>THR 405</td>
<td>Advanced Stage Combat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or permission of Director</td>
<td></td>
</tr>
</tbody>
</table>

**Theater BFA Concentrations**

Theater majors earning a BFA in Theater must select one of the following concentrations:

### Design for Stage and Screen Concentration (DSS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 339</td>
<td>Principles of Design</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select 5 courses from the following:</td>
<td>15</td>
</tr>
<tr>
<td>THR 235</td>
<td>Costume Crafts</td>
<td></td>
</tr>
<tr>
<td>THR 313</td>
<td>Event Technology</td>
<td></td>
</tr>
<tr>
<td>THR 314</td>
<td>Lighting Stagecraft</td>
<td></td>
</tr>
<tr>
<td>THR 315</td>
<td>Sound Engineering</td>
<td></td>
</tr>
<tr>
<td>THR 330</td>
<td>Seminar in Technical Theater</td>
<td></td>
</tr>
<tr>
<td>THR 331</td>
<td>Drafting and Model Making</td>
<td></td>
</tr>
<tr>
<td>THR 332</td>
<td>History of Fashion and Dress</td>
<td></td>
</tr>
<tr>
<td>THR 343</td>
<td>Costume Pattern Drafting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>or permission of Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Select 4 courses from the following:</td>
<td>12</td>
</tr>
<tr>
<td>THR 316</td>
<td>Scene Painting</td>
<td></td>
</tr>
<tr>
<td>THR 333</td>
<td>Scenic Design</td>
<td></td>
</tr>
<tr>
<td>THR 334</td>
<td>Lighting Design</td>
<td></td>
</tr>
<tr>
<td>THR 335</td>
<td>Costume Design</td>
<td></td>
</tr>
<tr>
<td>THR 337</td>
<td>Sound Design</td>
<td></td>
</tr>
<tr>
<td>THR 342</td>
<td>Makeup Design</td>
<td></td>
</tr>
<tr>
<td>THR 345</td>
<td>Puppetry</td>
<td></td>
</tr>
<tr>
<td>THR 434</td>
<td>Advanced Lighting Design</td>
<td></td>
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<tr>
<td></td>
<td>or permission of Director</td>
<td></td>
</tr>
</tbody>
</table>

**Musical Theater Performance Concentration (MTPF)**

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 113</td>
<td>Aural Skills I</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 115</td>
<td>Theory I</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 116</td>
<td>Theory II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>8 credits in</td>
<td>8</td>
</tr>
<tr>
<td>MUSI 243</td>
<td>Applied Music in Voice (must be taken four times for a total of 8 credits)</td>
<td></td>
</tr>
<tr>
<td>THR 310</td>
<td>Acting II</td>
<td>3</td>
</tr>
<tr>
<td>THR 320</td>
<td>Performance Studio</td>
<td>3</td>
</tr>
<tr>
<td>THR 410</td>
<td>Acting for the Camera</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or THR 420</td>
<td></td>
</tr>
</tbody>
</table>

**Writing and Dramaturgy for Stage and Screen Concentration (WDSS)**

30 credits of required coursework chosen from the following in consultation with a faculty adviser based on the student’s area of interest.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>THR 202</td>
<td>Literary Management</td>
<td></td>
</tr>
<tr>
<td>THR 310</td>
<td>Acting II</td>
<td></td>
</tr>
<tr>
<td>THR 340</td>
<td>Advanced Studies in Directing</td>
<td></td>
</tr>
<tr>
<td>THR 351</td>
<td>Dramatic Theory and Criticism</td>
<td></td>
</tr>
<tr>
<td>THR 352</td>
<td>Dramatic Literature Seminar</td>
<td></td>
</tr>
<tr>
<td>THR 355</td>
<td>Moral Vision in American Theater</td>
<td></td>
</tr>
<tr>
<td>THR 359</td>
<td>World Stages (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>THR 365</td>
<td>Characterization</td>
<td></td>
</tr>
<tr>
<td>THR 380</td>
<td>Playwriting I</td>
<td></td>
</tr>
<tr>
<td>THR 381</td>
<td>Playwriting II</td>
<td></td>
</tr>
<tr>
<td>THR 382</td>
<td>Screenplay Workshop</td>
<td></td>
</tr>
</tbody>
</table>
General Electives
BFA students pursuing a concentration in Musical Theater Performance must use 7 credits of general electives to complete:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSI 114</td>
<td>Aural Skills II</td>
</tr>
<tr>
<td>THR 306</td>
<td>Movement in Musical Theater</td>
</tr>
<tr>
<td>THR 428</td>
<td>Musical Theater Ensemble</td>
</tr>
<tr>
<td>or THR 495</td>
<td>Senior Capstone Project</td>
</tr>
</tbody>
</table>

After fulfilling degree requirements, BFA students may use remaining general electives credits inside or outside of the department. All students are required to take a minimum of 45 credits of upper-division courses (300-400 level).

Total Credits 7

Honors

Honors in the Major
Highly-qualified students who have completed 75 credits may pursue advanced work leading to graduation with honors in the major. Students apply for Honors in Theater by submitting to the Director (by November 15 or April 15) a two-page written statement outlining their reasons for pursuing advanced coursework and specific professional goals, along with the names of two Mason theater faculty members who have agreed to serve as references.

Students satisfy the honors course sequence by taking three honors-specific courses from their chosen concentration. They must also maintain an overall GPA of 3.50 and a GPA of 3.75 within the major.
Undergraduate
The programs in business education culminate in a BS degree with a major from one of five areas: accounting, finance, information systems and operations management, management, or marketing.

Graduate
The School of Business offers an MBA, Executive MBA, and MS degrees in Accounting, Management, Real Estate Development, Technology Management, and Management of Secure Information Systems.

Highly-qualified Mason Accounting majors may apply to the accelerated master's degree program and obtain both Accounting, BS (p. 850) and Accounting, MS (p. 855) degrees after satisfactory completion of a total of 144 credits.

Students that earn a BS within the School of Business may be eligible for the following Accelerated Master's Program within the Volgenau School of Engineering: BS (selected)/Data Analytics Engineering, Accelerated MS (p. 963).

For policies governing all accelerated degree programs, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Centers
The School of Business houses four centers. The Center for Innovation and Entrepreneurship provides experiential learning through academic programs as well as hands-on programs for Mason students interested in innovation, invention, early stage startups, and entrepreneurship. The Center for Real Estate Entrepreneurship focuses on real estate research and education in real estate development and finance. The Investor Protection & Corporate Fraud Research Center strives to provide thought leadership on investor protection and fraud risk by sponsoring, conducting, and disseminating research in these areas. The Center for Infrastructure Protection & Homeland Security conducts research, develops projects, and provides expert analysis and insight into policy across a variety of infrastructure sectors and related fields, including energy, transportation, cyber-security, defense and finance. In addition, the School's Government Contracting Initiative is building a competency in the business of government and government contracting.

Faculty
Accounting

Business Foundations
Austin, Brown, D’Antonio, Demory, Gring-Pemble, Harris, Hendricks, Mungai, Perilla, Pierce, Seidel, Zylstra

Finance

Information Systems and Operations Management
Abdelfattah, Aydin, Bellos, Chen, Das, Deans, Druhel, Dutt, Dutta, Garcia, Jung, J. Lee, Mehta, Menon, Mishra, Porter, Sanyal, Singer, Ye

Management
Cramton, Cronin, Grady, Hillen, Joshi, Klimoski, Kravitz, Langfred, C. Lee, H. Lee, Ling, Miller, O'Neil, Parker, Rockmann, Rosenbusch, Soleymani, Theeke, Wolf, Wolfe, Yasai

Marketing
Cheng, Harvey, Hock, Hoppner, Joiner, Josephson, Kulick, McCrohan, Meamber, Shaner, Tretola, Vadakkepatt

Requirements & Policies
Policies
Academic Policies
Students should become familiar with the university's general academic policies (p. 74) in addition to those specific to each academic unit.

E-mail
George Mason University uses only Mason e-mail accounts to communicate with enrolled students. Students should activate their Mason e-mail, use it to communicate with their school/department/program and other administrative units, and check it regularly for important information.

Study Elsewhere Policy
A student who has matriculated at Mason may transfer a limited number of hours (9 for undergraduates, 6 for graduates) of coursework in School of Business disciplines from another institution (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education). Any course attempted elsewhere must take place more than 50 miles from the George Mason University Fairfax campus.

Special instructions for School of Business students: courses that are attempted at a two-year institution may not be used to fulfill upper-level requirements. Any course that a student wished to transfer to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

For additional information, see AP.1.4.2 Permission to Study Elsewhere (p. 76).

Undergraduate Internship Policy
The School of Business recognizes the importance of experiential education in both learning to apply theory to practice and positioning students for success in their careers. Because the School of Business is committed to supporting students' professional success, the School requires that all student internships for credit be registered with the School of Business as either BUS 492 Undergraduate Internship or ACCT 492 Internship in Accounting. Students may enroll in a maximum of 6 credits for these courses. For students in catalog years Fall 2016 and beyond, one internship course may apply to the major, and a second internship course would apply as elective credit. For students in catalog years prior to Fall 2016, a maximum of 6 credits of internship may apply to general electives.
Termination from the Major
A grade of C or higher is required in each of the School of Business listed core courses. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses: ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I, BULE 303 Legal Environment of Business, BUS 303 Develop Professional Skills II: Advanced Elements, FNAN 303 Financial Management, MGMT 303 Principles of Management, MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135), MKTG 303 Principles of Marketing and OM 303 Operations Management. Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.S.2.4 Termination from the Major (p. 85).

University Consortium
Students should review university policies regarding the University Consortium under Special Registration Procedures in the Academic Policies section of this catalog. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstance. All consortium registration requests must be submitted to the dean's office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

Any consortium course that a student wishes to register for to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Undergraduate Course Overload Policy
The School of Business recommends that undergraduate students attempt no more than 18 credits in an academic semester and no more than 14 credits in a summer term. Students wishing to attempt more than 18 credits must submit a Permission to Overload form to their academic advisor.

To be eligible for a course overload, a student must fulfill all of the following criteria:
- At least a 3.0 cumulative GPA at Mason
- Have completed all courses successfully in his/her previous semester with no Fs or incompletes (IN)
- Complete the Permission to Overload form and obtain an academic advisor's signature

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

Appeals Process
The School of Business strives to maintain policies and procedures that are consistent with those of the University, as well as in the best interest of our students. If you have any questions concerning a particular policy or procedure, contact the Office of Student Success & Academic Services, Room 008 of Enterprise Hall (703-993-1880) or visit the website (http://business.gmu.edu).

Courses Excluded from any School of Business BS Degree

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE 401</td>
<td>Internship Reflection</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 394</td>
<td>Ethnomusicology Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>COMM 450</td>
<td>Internship in Communication</td>
<td>3</td>
</tr>
<tr>
<td>FAVS 450</td>
<td>Internship in Film and Video Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 496</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>1-9</td>
</tr>
<tr>
<td>PHIL 306</td>
<td>Philosophy Internship</td>
<td>3</td>
</tr>
<tr>
<td>RELI 426</td>
<td>Religious Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 393</td>
<td>Art History Internships</td>
<td>3-6</td>
</tr>
<tr>
<td>GCH 498</td>
<td>Global and Community Health Internship</td>
<td>3,6</td>
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<td>GAME 491</td>
<td>Internship</td>
<td>3-4</td>
</tr>
<tr>
<td>HAP 498</td>
<td>Health Administration Internship (Mason Core)</td>
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<tr>
<td>HDFS 499</td>
<td>Advanced Internship Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>ENGH 459</td>
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<td>1-3</td>
</tr>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>INTS 290</td>
<td>Internship</td>
<td>1-6</td>
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<td>INTS 390</td>
<td>International Internship</td>
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<td>INTS 490</td>
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<tr>
<td>ECON 498</td>
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</tr>
<tr>
<td>ASTR 409</td>
<td>Astronomy Internship</td>
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<tr>
<td>SPMT 490</td>
<td>Internship (Mason Core)</td>
<td>1-9</td>
</tr>
<tr>
<td>TOUR 490</td>
<td>Hospitality, Tourism, and Events Management Internship (Mason Core) (p. 135)</td>
<td>12</td>
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<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
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<td>CHIN 490</td>
<td>Internship in Chinese Studies</td>
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<tr>
<td>CONS 498</td>
<td>Internship</td>
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</tr>
<tr>
<td>THR 455</td>
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<td>AFAM 490</td>
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<td>2-6</td>
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<tr>
<td>KINE 490</td>
<td>Kinesiology Internship III (Mason Core)</td>
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<tr>
<td>AMGT 489</td>
<td>Internship in Arts Management</td>
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<tr>
<td>HDFS 498</td>
<td>Internship and Analysis in Human Development and Family Science</td>
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<td>ANTH 495</td>
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</tr>
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<td>PRLS 490</td>
<td>Recreation Management Internship (Mason Core)</td>
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<td>GGS 480</td>
<td>GGS Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>SPAN 490</td>
<td>Internship in Spanish</td>
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<tr>
<td>AVT 489</td>
<td>Internship in Art and Visual Technology</td>
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<tr>
<td>USST 490</td>
<td>Internship</td>
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<tr>
<td>WMST 400</td>
<td>Internship in Women and Gender Studies</td>
<td>1-3</td>
</tr>
<tr>
<td>CDS 491</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>HHS 480</td>
<td>Research Internship in Health and Human Services</td>
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</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>CRIM 480</td>
<td>Internship</td>
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</tr>
<tr>
<td>HIST 399</td>
<td>Internship</td>
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<tr>
<td>RHBS 490</td>
<td>RS: Clinical Research Internship</td>
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<tr>
<td>LAS 490</td>
<td>Internship</td>
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<tr>
<td>HAP 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
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<tr>
<td>KINE 341</td>
<td>Kinesiology Internship I</td>
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</tr>
<tr>
<td>SOCW 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 495</td>
<td>Internship in Music Education (Mason Core) (p. 135)</td>
<td>6-12</td>
</tr>
<tr>
<td>KINE 441</td>
<td>Kinesiology Internship II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 409</td>
<td>Physics Internship</td>
<td>3</td>
</tr>
<tr>
<td>HHS 492</td>
<td>RS: Internship in Clinical Research</td>
<td>3</td>
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<tr>
<td>SOCI 416</td>
<td>Internship in Sociology</td>
<td>1-6</td>
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<tr>
<td>FRLN 490</td>
<td>Internship in Foreign Language Studies</td>
<td>1-6</td>
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<td>ENGR 395</td>
<td>Engineering Internship</td>
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<td>GEOL 480</td>
<td>Internship</td>
<td>1-3</td>
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<tr>
<td>AVT 453</td>
<td>Professional Practices</td>
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<td>CVPA 489</td>
<td>Field Experience in the Arts</td>
<td>3-6</td>
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<tr>
<td>GLOA 495</td>
<td>Global Experiential Learning</td>
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<tr>
<td>KINE 330</td>
<td>Seminar in Kinesiology</td>
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<td>ECED 490</td>
<td>Internship in Early Childhood Education</td>
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<tr>
<td>FRSC 406</td>
<td>Forensic Internship</td>
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</tbody>
</table>

## Programs

- Accounting Undergraduate Certificate
- Accounting, BS
- Accounting, MS
- Business Administration, MBA
- Business Analytics Graduate Certificate
- Business Analytics Minor
- Business Minor
- Chief Information Officer Graduate Certificate
- Chief Learning Officer Graduate Certificate
- Entrepreneurship Minor
- Executive MBA
- Finance, BS
- Forensic Accounting Graduate Certificate
- Information Systems and Operations Management, BS
- International Business Minor
- Management of Secure Information Systems, MS (School of Business)
- Management, BS
- Management, MS
- Marketing, BS
- Real Estate Development, MS
- Technology Management, MS

## Accounting Undergraduate Certificate

**Banner Code:** BU-CERB-ACCT

**Academic Advising**

Phone: 703-993-1880  
Email: masonbus@gmu.edu

This program provides an opportunity for nondegree-seeking students to earn the academic credit necessary to sit for the Uniform CPA Examination in Virginia.

This undergraduate certificate may be pursued on a part-time basis. Maintaining full-time status is not guaranteed.

This certificate program qualifies for Title IV Federal Financial Aid. For more information about program graduation rates, the median debt of students who completed the program, and other important information, please visit our disclosure page. ([https://irr2.gmu.edu/gedt/Accounting/Gedt.html](https://irr2.gmu.edu/gedt/Accounting/Gedt.html))

## Admissions & Policies

### Admissions

The requirement for enrollment is a bachelor's degree or higher from an accredited college or university.

### Policies

#### Certificate Completion

Students are required to complete a minimum of 30 credits of accounting courses. At least 16 required credits must be taken at Mason after acceptance to the certificate program. Students have four years to complete certificate requirements. Students who are given permission to re-enroll following an absence from Mason may not count the four-year time limit as beginning on the date of re-enrollment.

Successful completion of the certificate program requires a grade of C or better in accounting courses and a GPA of at least 2.00 in all courses. Students are only permitted three attempts to pass each course with a C or better, following a third unsuccessful attempt the student will no longer be able pursue the certificate program.

#### Virginia Uniform CPA Examination

All students who wish to sit for the Uniform CPA Examination in Virginia are required to have completed 150 college-level credits, including at least 30 credits of accounting with courses in financial accounting, auditing, taxation, and management accounting; and at least 24 credits of non-accounting business courses.

## Requirements

### Certificate Requirements

Total credits: 30

### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
<td>3</td>
</tr>
</tbody>
</table>
The Accounting degree (ACCT) prepares students for professional careers in the private and public sectors. The accounting major is designed to produce accounting professionals who can both generate and apply financial information to solve business problems. Our students learn principles of business and accounting as well as the specific skills and specialized technical knowledge necessary for success in the dynamic field of accounting. Our program emphasizes ethics, critical thinking, written and verbal communication, and effective use and understanding of technology. Our graduates are employed by the assurance, tax advisory, and consulting groups of the top accounting firms as well as Fortune 100 companies. Our proximity to the nation’s capitol provides unique opportunities for our graduates to work in government and in the federal practices of public accounting firms. The accounting degree program is separately accredited by AACSB International.

Students interested in CPA certification can apply to the MSA (p. 855) degree to meet the 150 hour requirement for CPA certification in most states. The MSA (p. 855) allows students to meet the 150 hour requirement for CPA certification in most states in only nine months.

Admissions & Policies

Policies

Academic Policies

Students should become familiar with the university’s general academic policies (p. 74) in addition to those specific to each academic unit.

E-mail

George Mason University uses only Mason e-mail accounts to communicate with enrolled students. Students should activate their Mason e-mail, use it to communicate with their school/department/program and other administrative units, and check it regularly for important information.

Study Elsewhere Policy

A student who has matriculated at Mason may transfer a limited number of hours (9 for undergraduates, 6 for graduates) of coursework in School of Business disciplines from another institution (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education). Any course attempted elsewhere must take place more than 50 miles from the George Mason University Fairfax campus.

Special instructions for School of Business students: courses that are attempted at a two-year institution may not be used to fulfill upper-level requirements. Any course that a student wished to transfer to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

For additional information, see AP.1.4.2 Permission to Study Elsewhere (p. 76).

Undergraduate Internship Policy

The School of Business recognizes the importance of experiential education in both learning to apply theory to practice and positioning students for success in their careers. Because the School of Business is committed to supporting students' professional success, the School requires that all student internships for credit be registered.
with the School of Business as either BUS 492 Undergraduate Internship or ACCT 492 Internship in Accounting. Students may enroll in a maximum of 6 credits for these courses. For students in catalog years Fall 2016 and beyond, one internship course may apply to the major, and a second internship course would apply as elective credit. For students in catalog years prior to Fall 2016, a maximum of 6 credits of internship may apply to general electives.

Termination from the Major
A grade of C or higher is required in each of the School of Business listed core courses. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses:

- ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I
- BULE 303 Legal Environment of Business
- BUS 303 Develop Professional Skills II: Advanced Elements
- FNAN 303 Financial Management
- MGMT 303 Principles of Management
- MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135)
- MKTG 303 Principles of Marketing
- OM 303 Operations Management

Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

University Consortium
Students should review university policies regarding the University Consortium under Special Registration Procedures in the Academic Policies section of this catalog. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstance. All consortium registration requests must be submitted to the dean’s office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

Any consortium course that a student wishes to register for to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Undergraduate Course Overload Policy
The School of Business recommends that undergraduate students attempt no more than 18 credits in an academic semester and no more than 14 credits in a summer term. Students wishing to attempt more than 18 credits must submit a Permission to Overload form to their academic advisor.

To be eligible for a course overload, a student must fulfill all of the following criteria:

- Complete the Permission to Overload form and obtain an academic advisor’s signature

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

Appeals Process
The School of Business strives to maintain policies and procedures that are consistent with those of the University, as well as in the best interest of our students. If you have any questions concerning a particular policy or procedure, please contact the Office of Student Success & Academic Services, Room 008 of Enterprise Hall (703-993-1880) or visit business.gmu.edu (http://business.gmu.edu).

Courses Excluded from any School of Business BS Degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE 401</td>
<td>Internship Reflection</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 394</td>
<td>Ethnomusicology Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>COMM 450</td>
<td>Internship in Communication</td>
<td>3</td>
</tr>
<tr>
<td>FAVS 450</td>
<td>Internship in Film and Video Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship glo</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 496</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>1-9</td>
</tr>
<tr>
<td>PHIL 306</td>
<td>Philosophy Internship</td>
<td>3</td>
</tr>
<tr>
<td>RELI 426</td>
<td>Religious Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 393</td>
<td>Art History Internships</td>
<td>3-6</td>
</tr>
<tr>
<td>GCH 498</td>
<td>Global and Community Health Internship</td>
<td>3,6</td>
</tr>
<tr>
<td>GAME 491</td>
<td>Internship</td>
<td>3-4</td>
</tr>
<tr>
<td>HAP 498</td>
<td>Health Administration Internship (Mason Core) (p. 135)</td>
<td>4</td>
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<tr>
<td>HDFS 499</td>
<td>Advanced Internship Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>INTS 290</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 390</td>
<td>International Internship</td>
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<tr>
<td>INTS 490</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>ECON 498</td>
<td>Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>ASTR 409</td>
<td>Astronomy Internship</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 490</td>
<td>Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>TOUR 490</td>
<td>Hospitality, Tourism, and Events Management Internship (Mason Core) (p. 135)</td>
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<td>CLIM 409</td>
<td>Research Internship</td>
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<td>CHIN 490</td>
<td>Internship in Chinese Studies</td>
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<td>CONS 498</td>
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<td>THR 455</td>
<td>Theater Education Internship</td>
<td>6-12</td>
</tr>
<tr>
<td>AFAM 490</td>
<td>Internship</td>
<td>2-6</td>
</tr>
</tbody>
</table>
Requirements

Degree Requirements

Total credits: 120

School of Business students pursuing a BS degree must complete a minimum of 120 credits, including the Mason Core requirements, business foundations, business core and major requirements. In addition, the following requirements must be met:

- A minimum of 45 credits at the 300- or 400-level.
- A minimum of 30 credits of School of Business core and major courses at Mason.

- At least 9 credits required for the specific major and BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135) taken at Mason.
- A grade of C or higher earned in the business foundations, business core and major requirements.

Students should carefully examine prerequisites for School of Business courses. Students may be removed from a course if they enroll without having fulfilled the prerequisites.

Mason Core Requirements

Some Mason Core requirements may already be fulfilled by the major requirements listed below. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
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<tr>
<td>or ACCT 204</td>
<td>Honors Survey of Accounting</td>
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<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 103</td>
<td>Develop Professional Skills I: Foundational Elements</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>BUS 210</td>
<td>Business Analytics I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 310</td>
<td>Business Analytics II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
</tbody>
</table>

1. The School of Business natural science requirement must be fulfilled by completing two 4-credit laboratory sciences.

2. School of Business students required to complete 8 credits of natural science by completing two 4-credit laboratory sciences.

Note:

Remaining Mason Core requirements are fulfilled with major course work.

Business Foundations

<table>
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<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 204</td>
<td>Honors Survey of Accounting</td>
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</tr>
<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 103</td>
<td>Develop Professional Skills I: Foundational Elements</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>BUS 210</td>
<td>Business Analytics I</td>
<td>3</td>
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<tr>
<td>BUS 310</td>
<td>Business Analytics II</td>
<td>3</td>
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<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
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<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
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<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
</tbody>
</table>
Business Core

A grade of C or higher is required in each of the School of Business core courses listed below. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses: ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I, BULE 303 Legal Environment of Business, BUS 303 Develop Professional Skills II: Advanced Elements, FNAN 303 Financial Management, MGMT 303 Principles of Management, MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135), MKTG 303 Principles of Marketing and OM 303 Operations Management. Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

General Electives

General electives may be selected from any University or School of Business course, except courses designated for the Business minor (MBUS). Credits awarded as Associate Degree Elective Credit (ADEC) as part of a student’s transfer evaluation are also excluded from general electives.

Major Requirements in Accounting

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>ACCT 303</td>
<td>Financial Accounting I</td>
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</tr>
<tr>
<td>BULE 303</td>
<td>Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 303</td>
<td>Develop Professional Skills II: Advanced Elements</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 303</td>
<td>Financial Management</td>
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</tr>
<tr>
<td>MGMT 303</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>MIS 303</td>
<td>Introduction to Business Information Systems (Mason Core) (p. 135) (Satisfies Mason Core Information Technology requirement)</td>
<td>3</td>
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<tr>
<td>MKTG 303</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>OM 303</td>
<td>Operations Management</td>
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</table>

Total Credits 24

Electives

Select one of the following electives:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>ACCT 370</td>
<td>Accounting in a Global Economy</td>
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<tr>
<td>ACCT 372</td>
<td>Financial Statement Analysis</td>
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<tr>
<td>ACCT 411</td>
<td>Advanced Managerial Accounting</td>
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<td>ACCT 433</td>
<td>Advanced Financial Accounting</td>
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<tr>
<td>ACCT 451</td>
<td>Advanced Federal Taxation</td>
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<tr>
<td>ACCT 462</td>
<td>Honors Seminar in Accounting</td>
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</tr>
<tr>
<td>ACCT 472</td>
<td>Government and Not-for-Profit Accounting</td>
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<tr>
<td>ACCT 491</td>
<td>Seminar in Accounting</td>
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<tr>
<td>ACCT 492</td>
<td>Internship in Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 499</td>
<td>Independent Study</td>
<td></td>
</tr>
<tr>
<td>BULE 402</td>
<td>Commercial Law</td>
<td></td>
</tr>
<tr>
<td>ACCT 611</td>
<td>Advanced Managerial Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 630</td>
<td>Advanced Financial Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 633</td>
<td>Identifying and Resolving Advanced Issues in Financial Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 636</td>
<td>Fraud Examination</td>
<td></td>
</tr>
<tr>
<td>ACCT 651</td>
<td>Identifying and Resolving Advanced Issues in Taxation</td>
<td></td>
</tr>
<tr>
<td>ACCT 672</td>
<td>Governmental and Nonprofit Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 690</td>
<td>Professional Accounting Colloquium</td>
<td></td>
</tr>
<tr>
<td>ACCT 696</td>
<td>Directed Studies in Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 697</td>
<td>Special Topics in Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 698</td>
<td>Directed Studies in Accounting</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 21

Special Topics in Accounting

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 331</td>
<td>Financial Accounting II</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 332</td>
<td>Financial Accounting III</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 351</td>
<td>Taxation and Managerial Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 361</td>
<td>Accounting Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 461</td>
<td>Assurance and Audit Services</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 27-28

1 A grade of C or higher is required in each of the upper-level accounting major courses listed below. Students will not be permitted to make more than three attempts to achieve a C or higher in the following required Accounting courses: ACCT 311 Managerial and Cost Accounting, ACCT 331 Financial Accounting II, ACCT 332 Financial Accounting III, ACCT 351 Taxation and Managerial Decision Making, ACCT 361 Accounting Information Systems, and ACCT 461 Assurance and Audit Services. Those who do not successfully complete these required courses within three attempts will not be eligible to receive a degree in Accounting from the School of Business. Students terminated from the BS Accounting program are prohibited from enrolling in any Accounting course.

2 Students who anticipate taking the CPA, CMA, CIA, or other professional exam should consult the applicable regulations and meet with their advisor. State regulations regarding professional examinations may dictate course selections.

3 Students in the MSAccel program and select high performing undergraduates may take graduate courses for undergraduate credit. Enrollment in a graduate level course in not guaranteed. Please contact an academic advisor for additional information.
Capstone
Students must successfully complete all Business Core courses to be eligible to enroll in BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135).

<table>
<thead>
<tr>
<th>BUS 498</th>
<th>Capstone Course: Advanced Business Models (Mason Core) (p. 135)</th>
<th>3</th>
</tr>
</thead>
</table>

Total Credits 3

Second Majors in Accounting
Students declaring a second major in Accounting must complete the 18 required courses for the major in addition to ACCT 330 Financial Accounting I.

Second Major Requirements

| ACCT 330 | Financial Accounting I | 3 |
| ACCT 311 | Managerial and Cost Accounting | 3 |
| ACCT 331 | Financial Accounting II | 3 |
| ACCT 332 | Financial Accounting III | 3 |
| ACCT 351 | Taxation and Managerial Decision Making | 3 |
| ACCT 361 | Accounting Information Systems | 3 |
| ACCT 461 | Assurance and Audit Services | 3 |

Total Credits 21

Honors in the Major

The School of Business Accounting Honors Program provides highly motivated students majoring in accounting with an enriched academic experience integrating curricular, co-curricular and extra-curricular development. Admission to the Honors Program is by invitation only. Students who have been found responsible for an Honor Code violation are not eligible for the program.

Admission Requirements

1. Minimum 3.0 cumulative GPA and 3.5 GPA in ACCT major.
2. Two academic/professional references.
3. Once admitted to the program, students with a cumulative GPA below 3.0 will be dropped from the program.

Curricular Requirements

1. ACCT 330 Financial Accounting I with an A- or better.
3. Honors students must graduate with a 3.0 cumulative GPA and 3.5 GPA in the major.

Co-Curricular Requirements

The student must complete ONE of the following in addition to the curriculum requirements:

1. ACCT 462 Honors Seminar in Accounting or a 600-level ACCT course.
2. Study abroad (e.g., Aachen Dual Degree, Oxford Honors, China, South America).
3. Internship (ACCT 492 Internship in Accounting) Internships where no credit is earned also qualify.
4. Significant work experience (e.g., an experience that is comparable to an internship).
5. Research paper/Thesis as an independent study (ACCT 499 Independent Study) course. (e.g., faculty research, Mason undergraduate apprentice program, QEP).

Extra-Curricular Requirements

1. Attendance at Honors Events, as determined by the Honors Program Director.
2. The student must show a high degree of engagement in a School of Business student organization, preferably in a leadership role.

Requirements for Students to Obtain the Honors Designation

1. Honors students must meet all curricular, co-curricular, and extracurricular requirements mentioned above at graduation.

Accelerated Master's

Accounting, BS/Accounting, Accelerated MS

Overview

Highly-qualified Mason Accounting majors may apply to the accelerated master’s degree program and obtain both Accounting, BS (p. 850) and Accounting, MS (p. 855) degrees after satisfactory completion of a total of 144 credits. Graduates will be exceptionally well-prepared for professional school or a PhD program in accounting or a related discipline.

In the accelerated program, six credits of ACCT 600-level courses can be used to meet both bachelor’s and master’s degree requirements. These six credits will replace six credits of general electives in the student’s undergraduate program. Students in the Accelerated MSA program may take any 600-level courses while an undergraduate.

For policies governing all accelerated degree programs, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Application Requirements

Applicants to accelerated master’s programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits earned at Mason).

Students submit an application online through the Office of Graduate Admissions.

Admission requirements are as follows:

1. A minimum GPA of 3.00 in at least three accounting courses (e.g. ACCT 330 Financial Accounting I, ACCT 331 Financial Accounting II and ACCT 332 Financial Accounting III) with no grade less than a B- in those accounting courses.¹
2. Review and approval by the MSA program director.

GMAT is not required.
Interested students should contact the MSA program office for more details about the application process.

Accelerated Option Requirements

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

On completion and conferral of the undergraduate degree in the semester indicated in the application, the student submits the Bachelor's/Accelerated Master's Transition Form and is admitted to graduate standing. As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program director. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Accounting, MS

Banner Code: BU-MS-ACCT

Graduate Program Office
Phone: 703-993-2136
Email: msa@gmu.edu

The MSA is designed to meet the needs of new professionals entering the accounting profession. The program allows students to earn a state-of-the-art graduate degree in accounting and also meet requirements to take the Uniform CPA Examination in Virginia and in most other states. The program integrates fundamental business skills and specialized knowledge and acumen required by the accounting profession. The MSA program is pursued as a face to face or an online option.

Admissions & Policies

Admissions

Admission and Eligibility Requirements

All students registering for School of Business graduate courses must have graduate standing. Nondegree student status is not available. To be eligible for our MS in Accounting (the full-time, part-time and accelerated accounting programs), you must have a bachelor's degree in accounting or equivalent from an accredited institution or have completed 27 college credits in accounting.

Applicants who have a business degree, but do not have an accounting degree or equivalent will be provisionally admitted until they have completed the following courses or equivalents with a grade of B- or better:

- ACCT 531 Foundations of Financial Reporting I
- ACCT 532 Foundations of Financial Reporting II
- ACCT 551 Foundations of Taxation of Business Entities
- ACCT 561 Foundations of Assurance Services

The prerequisites are currently only available in-person, not online. Online students with business degree backgrounds are eligible to take these prerequisite courses in-person if admitted provisionally to the MS in Accounting program.

Applicants who do not have an accounting degree or business degree will be provisionally admitted until they have completed the following courses or equivalents with a grade of B- or better:

- ACCT 330 Financial Accounting I
- ACCT 531 Foundations of Financial Reporting I
- ACCT 532 Foundations of Financial Reporting II
- ACCT 551 Foundations of Taxation of Business Entities
- ACCT 561 Foundations of Assurance Services

The prerequisites are currently only available in-person, not online. Online students with business degree backgrounds are eligible to take these prerequisite courses in-person if admitted provisionally to the MS in Accounting program.

International students with accounting degrees that lack a course in U.S. tax will be required to take ACCT 351 prior to matriculation.

Full admission requirements can be viewed at the school's website. (http://business.gmu.edu/masters-in-accounting/admissions/requirements)

Policies

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 30

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 633</td>
<td>Identifying and Resolving Advanced Issues in Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 636</td>
<td>Fraud Examination</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 651</td>
<td>Identifying and Resolving Advanced Issues in Taxation</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 690</td>
<td>Professional Accounting Colloquium</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 795</td>
<td>Global Accounting Environment</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15

Electives

Select 15 credits of electives from any 600- or 700-level ACCT course (p. 1111) 1

Total Credits: 15
Electives cannot duplicate coursework taken as an undergraduate

Accelerated Master's

Accounting, BS/Accounting, Accelerated MS

Overview
Highly-qualified Mason Accounting majors may apply to the accelerated master's degree program and obtain both Accounting, BS (p. 850) and Accounting, MS (p. 855) degrees after satisfactory completion of a total of 144 credits. Graduates will be exceptionally well-prepared for professional school or a PhD program in accounting or a related discipline.

In the accelerated program, six credits of ACCT 600-level courses can be used to meet both bachelor's and master's degree requirements. These six credits will replace six credits of general electives in the student's undergraduate program. Students in the Accelerated MSA program may take any 600-level courses while an undergraduate.

For policies governing all accelerated degree programs, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Application Requirements
Applicants to accelerated master's programs must have completed at least 75 credits that apply to their undergraduate degree (with at least 24 credits earned at Mason).

Students submit an application online through the Office of Graduate Admissions.

Admission requirements are as follows:

1. A minimum GPA of 3.00 in at least three accounting courses (e.g. ACCT 330 Financial Accounting I, ACCT 331 Financial Accounting II and ACCT 332 Financial Accounting III) with no grade less than a B- in those accounting courses.¹
2. Review and approval by the MSA program director.

GMAT is not required.

Interested students should contact the MSA program office for more details about the application process.

¹ Excluding ACCT 203 Survey of Accounting

Accelerated Option Requirements
Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

On completion and conferral of the undergraduate degree in the semester indicated in the application, the student submits the Bachelor's/Accelerated Master's Transition Form and is admitted to graduate standing. As graduate students, accelerated master's students have an advanced standing. They must meet all master's degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit
Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program director. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. To apply these credits to the master's degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor's/Accelerated Master's Transition Form.

Business Administration, MBA

Banner Code: BU-MBA-BUAD

Graduate Program Office
Phone: 703-993-2136
Email: mba@gmu.edu

Administration

• Victoria Grady, Academic Director, MBA and MS in Management Programs

The degree prepares the next generation of world leaders through a rigorous, stimulating business and management curriculum based on a global perspective, industry demand and leadership.

The MBA core curriculum effectively integrates functional areas with the use of IT, oral and written communication, and teamwork. The MBA program requires 48 credits: 30 credits of core courses, 3 credits of Global coursework and 15 credits of elective courses. Students complete the degree program in two years. Because of the cohort structure, students commit to attending classes a minimum of two times per week. The MBA program operates on a module structure, with four modules each year. Modules are 11 weeks long, 10 evening, weekday class sessions with a final exam on Saturday.

JD/MBA Dual Degree Students can apply 15 credits of Law Elective coursework toward the MBA Elective degree requirement. See the Antonin Scalia Law School (http://www.law.gmu.edu/academics/degrees) for more details.

Admissions & Policies

Admissions

Admissions and Eligibility Requirements

• All students registering for School of Business graduate courses must have graduate standing. Non-degree student status is not available.
• An earned baccalaureate degree from a regionally-accredited institution of higher education, or international equivalent, verified from official transcripts.
• A minimum of two years of full-time, post-baccalaureate professional employment.
• One college-level calculus course prior to enrolling (recommended but not required).
Full admission requirements can be viewed and are available on the program website (http://business.gmu.edu/mba-programs/admissions).

Policies
For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements

Degree Requirements
Total credits: 48

Core Courses
Students enroll in 6 credits per module for a total of 24 credits a year.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>MBA 603</td>
<td>Managerial Economics and Decisions of the Firm</td>
<td>3</td>
</tr>
<tr>
<td>MBA 612</td>
<td>Managing Costs and Evaluating Performance</td>
<td>3</td>
</tr>
<tr>
<td>MBA 613</td>
<td>Financial Reporting and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>MBA 623</td>
<td>Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>MBA 633</td>
<td>Statistics for Business Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>MBA 638</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>MBA 643</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>MBA 653</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MBA 662</td>
<td>Management of Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>MBA 678</td>
<td>Strategic Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 30

Global Requirement
Students must take ONE of the following global courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBA 795</td>
<td>Global Business Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>MBA 716</td>
<td>International Business Strategy</td>
<td></td>
</tr>
<tr>
<td>MBA 717</td>
<td>International Finance</td>
<td></td>
</tr>
<tr>
<td>MBA 718</td>
<td>International Marketing</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 3

1. Travel outside the United States is required. Most travel costs, excluding cost of airfare, are included in the MBA program tuition and fees.

Electives
Select 15 credits of market-driven electives (MBA 700-level) (p. 1698) 1, 2, 3, 4

Total Credits: 15

1. 6 credit hours of electives may be taken outside the MBA Program or through the Consortium of Universities of the Washington Metropolitan Area with the permission of the program director.
2. JD/MBA Dual Degree Students can apply 15 credits of Law Elective coursework toward the MBA Elective degree requirement. See the Antonin Scalia Law School (http://www.law.gmu.edu/academics/degrees) for more details.
3. Must be taken after completion of the core courses.

Business Analytics Graduate Certificate

Banner Code: BU-CERG-BUSA
Graduate Program Office
Phone: 703-993-2136
Email: mba@gmu.edu

Administration

- Victoria Grady, Academic Director, MBA and MS in Management Programs

Business analytics graduate certificate will help analysts and professionals from diverse domains to effectively analyze data through the hands-on use of decision modeling and other techniques using popular software tools. The program covers a wide array of methodologies and techniques — from data collection, organization, reporting and mining to extraction of useful and actionable information for decision makers.

This certificate may be completed on a part-time or full-time basis.

Admissions & Policies

Admissions
Eligibility Requirements
All students registering for School of Business graduate courses must have graduate standing. Non-degree student status is not available.

Full eligibility and admission requirements can be viewed at on the program website (http://business.gmu.edu/mba-programs/analytics).

Policies
Students may use the credits completed as part of their graduate degree requirements in accordance with program requirements and AP.6 Graduate Policies (p. 87). A maximum of 3 graduate credits taken at another institution can be transferred to the graduate certificate. The time limit for completion is four years from the date of admission to the graduate certificate. Students must have a minimum GPA of 3.00 to complete the certificate.

Requirements

Certificate Requirements
Total credits: 12

Required Course
MBA 738 Data Mining for Business Analytics 3

Total Credits: 3

Electives
Select three courses from the following:
The amount of data flowing from, to, and through enterprises of all sorts is enormous, and growing rapidly—more rapidly than the capabilities of organizations to use it. Successful enterprises are those that make effective use of the abundance of data to which they have access: to make better predictions, better decisions, and form better strategies. Business analytics—which encompasses a variety of techniques to extract useful information from different sources of data—is being embraced at an increasing rate by organizations that need to gain actionable and forward-looking insight from their data. This minor in business analytics will provide students with the cutting-edge knowledge and skills they need to use and gather data to identify, understand, and deliver insights that internal and external clients find vital to organizational success.

Admissions & Policies

Policies

At least eight credits of the minor courses must be unique to the Business Analytics Minor and not applied toward any other major, minor, or concentration. Students must achieve a grade of C or better in each course that is applied toward the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).
MBUS 301  Managing People and Organizations in a Global Economy
MBUS 302  Managing Information in a Global Economy
MBUS 303  Marketing in a Global Economy
MBUS 308  Corporate Finance and Investments in a Global Economy

Total Credits 12-15

Electives
Select the fifth course from the following: 0-3

- MBUS 304  Entrepreneurship: Starting and Managing a New Enterprise
- MBUS 305  Introduction to International Business (Mason Core) (p. 135)
- MBUS 306  Managing Projects and Operations
- MBUS 491  Special Topics: Business Minor

Total Credits 0-3

Excluded Courses
These courses may not be taken for credit by School of Business majors.

Students who have already taken and received credit for relevant School of Business foundation or core course(s) shall substitute courses as follows and cannot receive credit for the equivalent MBUS course:

- ACCT 203 Survey of Accounting for MBUS 300 Accounting in a Global Economy
- FNAN 301 Financial Management or FNAN 303 Financial Management for MBUS 308 Corporate Finance and Investments in a Global Economy
- MGMT 303 Principles of Management for MBUS 301 Managing People and Organizations in a Global Economy
- MIS 301 Introduction to Business Information Systems or MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135) for MBUS 302 Managing Information in a Global Economy
- MKTG 301 Principles of Marketing or MKTG 303 Principles of Marketing for MBUS 303 Marketing in a Global Economy
- OM 301 Operations Management or OM 303 Operations Management for MBUS 306 Managing Projects and Operations

Students may transfer a maximum of six credits toward the business minor.

Chief Information Officer Graduate Certificate
Banner Code: BU-CERG-CIO

Graduate Program Office
Phone: 703-993-2136
Email: techman@gmu.edu

Administration
- Candace Deans, Academic Director, MS in Technology Management Program & Co-Academic Director, MS in Management of Secure Information Systems Programs

The program helps IT professionals gain core competencies necessary for advancement into executive level roles that manage IT resources and strategy within organizations. The program specifically focuses on Enterprise Architecture and IT Governance, Management of Information Security, IT Project Management, Managing IT Investments, Managing IT Operations, and Emerging Technologies.

This certificate may be pursued on a part or full time basis.

Admissions & Policies

Admissions
Applicants are expected to be current students in the MS Technology Management (p. 881) program. This is a 15 credit program and students may use the credits completed as part of their graduate degree requirements in accordance with AP.6.8.1 Students in Master's or Doctoral Programs also Pursuing Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 15

Coursework

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECM 601</td>
<td>HiTech Business Models</td>
<td>1</td>
</tr>
<tr>
<td>TECM 602</td>
<td>Emerging Technologies and the New CIO</td>
<td>1</td>
</tr>
<tr>
<td>TECM 611</td>
<td>Leadership and Change Management</td>
<td>2</td>
</tr>
<tr>
<td>TECM 704</td>
<td>Management of Technology Projects and Portfolios</td>
<td>2</td>
</tr>
<tr>
<td>TECM 711</td>
<td>Deriving Strategic Value from IT Investments</td>
<td>2</td>
</tr>
<tr>
<td>TECM 745</td>
<td>Leading and Managing IT Operations</td>
<td>2</td>
</tr>
<tr>
<td>TECM 746</td>
<td>Enterprise Architecture and IT Governance</td>
<td>2</td>
</tr>
<tr>
<td>TECM 747</td>
<td>Information Assurance and Security Management</td>
<td>2</td>
</tr>
<tr>
<td>TECM 760</td>
<td>CIO Consulting Project</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 15

Chief Learning Officer Graduate Certificate
Banner Code: BU-CERG-CLO

Graduate Program Office
Phone: 703-993-2136

The 18-credit Chief Learning Officer certificate prepares Chief Learning Officers and other senior level executives for success as learning and
entrepreneurship minor

This minor will prepare students to exploit potential entrepreneurial opportunities while allowing them to explore different interests they have in the entrepreneurial realm.

Admissions & Policies

Admissions

Applicants must have a U.S. equivalent bachelor degree from an accredited college or university. Applicants must have a minimum of three years of experience in a position with responsibilities for talent development or talent management.

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Students are responsible for familiarization and compliance with the university's Graduate Policies (p. 87). A maximum of 3 graduate credits taken at another institution can be transferred to the graduate certificate. The time limit for completion is six years from the date of admission to the graduate certificate. Students must have a minimum GPA of 3.00 to complete the certificate.

Requirements

Minor Requirements

Total credits: 15-18

Required Courses

Business major students should take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 451</td>
<td>Introduction to Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Non-business major students should take one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBUS 304</td>
<td>Entrepreneurship: Starting and Managing a New Enterprise</td>
<td>3</td>
</tr>
<tr>
<td>or IT 495</td>
<td>Turning Ideas into Successful Companies</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

All students must take the following course:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 452</td>
<td>Experiential Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Select three courses from any of the following interests:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 311</td>
<td>Managerial and Cost Accounting</td>
<td></td>
</tr>
<tr>
<td>ACCT 351</td>
<td>Taxation and Managerial Decision Making</td>
<td></td>
</tr>
<tr>
<td>MGMT 453</td>
<td>Starting a Business</td>
<td></td>
</tr>
<tr>
<td>OM 493</td>
<td>Management of Technology Projects</td>
<td></td>
</tr>
<tr>
<td>OM 320</td>
<td>Supply Chain Management in a Global Economy</td>
<td></td>
</tr>
<tr>
<td>FNAN 341</td>
<td>Introduction to Firm Valuation</td>
<td></td>
</tr>
<tr>
<td>FNAN 431</td>
<td>Venture Capital and Private Financing of Startups</td>
<td></td>
</tr>
<tr>
<td>MKTG 352</td>
<td>Marketing Analytics for New Product Development</td>
<td></td>
</tr>
<tr>
<td>MKTG 353</td>
<td>New Product Development</td>
<td></td>
</tr>
</tbody>
</table>

Entrepreneurship Minor

Banner Code: ENTR

Academic Advising

Phone: 703-993-1880
Email: masonbus@gmu.edu

Administration

- David Gallay, Assistant Director, School of Business Minor Programs
Executive MBA

Banner Code: BU-MBA-BUEX

Graduate Program Office

Phone: 703-993-2136
Website: emba@gmu.edu

Administration

• Claus Langfred, Academic Director, Executive MBA Program

The Executive MBA is designed for those with a minimum of 7 years of significant business and professional experience. The program’s focus is management decision making, strategic management of business resources, and leadership. Dedicated faculty, an innovative and relevant curriculum, a global focus, a student-centered program team, and great colleagues contribute to the learning experience of a lifetime. The program is carefully designed to help students master a broad range of executive-level competencies while cultivating expert business-related knowledge of the global economy. Students complete the program as a cohort with the exception of track-specific coursework. The program is completed in 20 months, starting in August and classes are held approximately three Saturdays per month. Students enrolling in both the in-class and online versions must have the support of their organizations to participate in global and domestic residencies.

Diversity in Learning

Students encounter multiple approaches to learning in the Program. Classroom discussions, team projects, individual reading, team presentations, team problem solving, business simulations, business case analyses, coaching, and domestic and international residencies all contribute to the creative learning environment delivered by the Mason Executive MBA Program.

Tracks

The program offers three tracks to complement core business courses. These tracks include: Global, National Security, and Critical Infrastructure Protection and Management. A brief overview of these tracks is below. Please visit the website (http://business.gmu.edu) for further information.

Global Track

Rapid changes in technology and geopolitics have transformed the world of commerce—every company today truly competes on a global stage. The “globalization” of business demands new kinds of leadership skills and richer multicultural perspectives. It also demands a different kind of executive MBA training. The Global track is designed to prepare today’s executives for the new competitive realities. The program develops real-world skills that translate into real-world business decisions.

National Security Track

With America’s role in the world continually evolving to meet new global challenges, the role of leadership in the security industry has never been more vital. The need for military leaders, government executives and corporate defense contractors who can provide mission critical products and services— and who understand the unique demands of the complex and dynamic national security sector—has never been more critical.

Dedicated faculty from the Mason School of Business and adjunct faculty working in specialty areas of the security sector; as well as accomplished government, military, and corporate guest speakers, technical experts, and Mason alumni employed in the security industry; are a part of the National Security track. The dynamic learning environment brings contemporary challenges of the national security industry right into the classroom.

Critical Infrastructure Protection and Management Track

In partnership with George Mason University’s Center for Infrastructure Protection and Homeland Security, our Critical Infrastructure Protection and Management track addresses the critical areas of risk analysis and management, systems analysis, and cyber security within critical infrastructure sectors such as energy, telecommunications, medical response, and critical manufacturing. The program emphasizes interagency action and intergovernmental coordination to achieve business efficiency and develop capacities to create industry/government cooperation.

Admissions & Policies

Admissions

Full eligibility and admission requirements can be viewed at the program’s website. (http://business.gmu.edu/emba/admissions)

Policies

All students registering for School of Business graduate courses must have graduate standing. Non-degree student status is not available.

Requirements

Degree Requirements

Total credits: 48

Modules

Students complete seven 10-week modules. During each ten-week module, students complete two to three courses in an applications-oriented sequence that takes them from developing core management
skills through the understanding and application of the tools of business performance to the talents of leadership.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMBA 603</td>
<td>Managerial Economics</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 612</td>
<td>Cost Accounting (must take 3 credits)</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 613</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 623</td>
<td>Marketing</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 633</td>
<td>Statistics for Business Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 638</td>
<td>Services and Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 643</td>
<td>Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 653</td>
<td>Organizational Behavior and Teams</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 660</td>
<td>Management of Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 678</td>
<td>Business Strategy</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 703</td>
<td>Financial Markets (must take 3 credits)</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 718</td>
<td>Leadership and Change Management</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 735</td>
<td>Systems Thinking and Dynamics (must take 1.5 credits)</td>
<td>1.5</td>
</tr>
<tr>
<td>EMBA 750</td>
<td>Capstone Project: Part 1</td>
<td>1.5</td>
</tr>
<tr>
<td>EMBA 754</td>
<td>Capstone Project: Part 2</td>
<td>1.5</td>
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<tr>
<td>EMBA 751</td>
<td>Corporate Global Strategy (must take 1.5 credits)</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**Total Credits** 42

**Electives**
The 6 credits of electives may be selected by students based on their chosen track. Courses for three tracks are provided below.

Select 6 credits from the following electives based on the chosen track:

**Global Track:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMBA 740</td>
<td>Introduction to Global Business</td>
</tr>
<tr>
<td>EMBA 742</td>
<td>Advanced Topics in Global Business</td>
</tr>
<tr>
<td>EMBA 795</td>
<td>Global Residency</td>
</tr>
</tbody>
</table>

**National Security Track:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMBA 741</td>
<td>Introduction to National Security</td>
</tr>
<tr>
<td>EMBA 743</td>
<td>Advanced Topics in National Security</td>
</tr>
<tr>
<td>EMBA 790</td>
<td>National Security Residency</td>
</tr>
</tbody>
</table>

**Critical Infrastructure Protection and Management Track:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMBA 729</td>
<td>Introduction to Critical Infrastructure Protection</td>
</tr>
<tr>
<td>EMBA 733</td>
<td>Advanced Topics in Critical Infrastructure Protection</td>
</tr>
<tr>
<td>EMBA 734</td>
<td>Critical Infrastructure Protection Residency</td>
</tr>
</tbody>
</table>

**Other EMBA Courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMBA 730</td>
<td>Assessing and Managing Risk to Critical Infrastructure Systems</td>
</tr>
<tr>
<td>EMBA 731</td>
<td>Partnering and Information Sharing for Critical Infrastructure Security and Resilience</td>
</tr>
<tr>
<td>EMBA 732</td>
<td>Critical Infrastructure Security and Resilience and Cybersecurity</td>
</tr>
</tbody>
</table>

**Total Credits** 6

---

**Finance, BS**

**Banner Code:** BU-BS-FNAN

**Academic Advising**

Phone: 703-993-1880
Email: masonbus@gmu.edu

**Administration**

- Alexander Philipov, Chair, Finance Area

The Finance degree (FNAN) prepares students for professional careers by providing a solid foundation in the principles necessary to make operating decisions for an organization and in financial market analysis. We educate our finance majors to understand, evaluate, and manage risk. In addition, students learn to conduct and effectively present financial analysis and research valuing complex projects, assets, securities, and firms. Finance majors explore the relationships among investors, firms, financial institutions, markets, and regulators. Students majoring in Finance have a unique opportunity to compete globally, as well as regionally, for unique and diverse job opportunities, including government (U.S. Treasury and the Board of Governors), large financial corporations (Fannie Mae and Freddie Mac), international organizations (World Bank and IMF), and other careers related to Finance.

**Admissions & Policies**

**Policies**

**Academic Policies**

Students should become familiar with the university's general academic policies (p. 74) in addition to those specific to each academic unit.

**E-mail**

George Mason University uses only Mason e-mail accounts to communicate with enrolled students. Students should activate their Mason e-mail, use it to communicate with their school/department/program and other administrative units, and check it regularly for important information.

**Study Elsewhere Policy**

A student who has matriculated at Mason may transfer a limited number of hours (9 for undergraduates, 6 for graduates) of coursework in School of Business disciplines from another institution (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education). Any course attempted elsewhere must take place more than 50 miles from the George Mason University Fairfax campus.

Special instructions for School of Business students: courses that are attempted at a two-year institution may not be used to fulfill upper-level requirements. Any course that a student wished to transfer to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

For additional information, see AP.1.4.2 Permission to Study Elsewhere (p. 76).
Undergraduate Internship Policy
The School of Business recognizes the importance of experiential education in both learning to apply theory to practice and positioning students for success in their careers. Because the School of Business is committed to supporting students' professional success, the School requires that all student internships for credit be registered with the School of Business as either BUS 492 Undergraduate Internship or ACCT 492 Internship in Accounting. Students may enroll in a maximum of 6 credits for these courses. For students in catalog years Fall 2016 and beyond, one internship course may apply to the major, and a second internship course would apply as elective credit. For students in catalog years prior to Fall 2016, a maximum of 6 credits of internship may apply to general electives.

Termination from the Major
A grade of C or higher is required in each of the School of Business listed core courses. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses:

- ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I
- BULE 303 Legal Environment of Business
- BUS 303 Develop Professional Skills II: Advanced Elements
- FNAN 303 Financial Management
- MGMT 303 Principles of Management
- MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135)
- MKTG 303 Principles of Marketing
- OM 303 Operations Management

Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

University Consortium
Students should review university policies regarding university Consortium under Special Registration Procedures in the Academic Policies section of this catalog. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstance. All consortium registration requests must be submitted to the dean’s office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

Any consortium course that a student wishes to register for to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Undergraduate Course Overload Policy
The School of Business recommends that undergraduate students attempt no more than 18 credits in an academic semester and no more than 14 credits in a summer term. Students wishing to attempt more than 18 credits must submit a Permission to Overload form to their academic advisor.

To be eligible for a course overload, a student must fulfill all of the following criteria:

- At least a 3.0 cumulative GPA at Mason
- Have completed all courses successfully in his/her previous semester with no Fs or incompletes (IN)
- Complete the Permission to Overload form and obtain an academic advisor’s signature

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

Appeals Process
The School of Business strives to maintain policies and procedures that are consistent with those of the University, as well as in the best interest of our students. If you have any questions concerning a particular policy or procedure, please contact the Office of Student Success & Academic Services, Room 008 of Enterprise Hall (703-993-1880) or visit business.gmu.edu (http://business.gmu.edu).

Courses Excluded from any School of Business BS Degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE 401</td>
<td>Internship Reflection</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 394</td>
<td>Ethnomusicology Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>COMM 450</td>
<td>Internship in Communication</td>
<td>3</td>
</tr>
<tr>
<td>FAVS 450</td>
<td>Internship in Film and Video Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 496</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>1-9</td>
</tr>
<tr>
<td>PHIL 306</td>
<td>Philosophy Internship</td>
<td>3</td>
</tr>
<tr>
<td>RELI 426</td>
<td>Religious Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 393</td>
<td>Art History Internships</td>
<td>3-6</td>
</tr>
<tr>
<td>GCH 498</td>
<td>Global and Community Health Internship</td>
<td>3,6</td>
</tr>
<tr>
<td>GAME 491</td>
<td>Internship</td>
<td>3-4</td>
</tr>
<tr>
<td>HAP 498</td>
<td>Health Administration Internship (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 499</td>
<td>Advanced Internship Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>INTS 290</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 390</td>
<td>International Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 490</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>ECON 498</td>
<td>Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>ASTR 409</td>
<td>Astronomy Internship</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 490</td>
<td>Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>TOUR 490</td>
<td>Hospitality, Tourism, and Events Management Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
</tr>
</tbody>
</table>
### Requirements

#### Degree Requirements

Total credits: 120

School of Business students pursuing a BS degree must complete a minimum of 120 credits, including the Mason Core requirements, business foundations, business core and major requirements. In addition, the following requirements must be met:

- A minimum of 45 credits at the 300- or 400-level.
- A minimum of 30 credits of School of Business core and major courses at Mason.
- At least 9 credits required for the specific major and BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135) taken at Mason.
- A grade of C or higher earned in the business foundations, business core and major requirements.

Students should carefully examine prerequisites for School of Business courses. Students may be removed from a course if they enroll without having fulfilled the prerequisites.

#### Mason Core Requirements

Some Mason Core requirements may already be fulfilled by the major requirements listed below. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 204</td>
<td>Honors Survey of Accounting</td>
<td></td>
</tr>
<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 103</td>
<td>Develop Professional Skills I: Foundational Elements</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 210</td>
<td>Business Analytics I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 310</td>
<td>Business Analytics II</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:

Remaining Mason Core requirements are fulfilled with major course work.

#### Business Foundations

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHIN 490</td>
<td>Internship in Chinese Studies</td>
<td>1-9</td>
</tr>
<tr>
<td>CONS 498</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>THR 455</td>
<td>Theater Education Internship</td>
<td>6-12</td>
</tr>
<tr>
<td>AFAM 490</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>KINE 490</td>
<td>Kinesiology Internship III (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>AMGT 489</td>
<td>Internship in Arts Management</td>
<td>1-4</td>
</tr>
<tr>
<td>HDFF 498</td>
<td>Internship and Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 495</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>PRLS 490</td>
<td>Recreation Management Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>GGS 480</td>
<td>GGS Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>SPAN 490</td>
<td>Internship in Spanish</td>
<td>1-6</td>
</tr>
<tr>
<td>AVT 489</td>
<td>Internship in Art and Visual Technology</td>
<td>1-6</td>
</tr>
<tr>
<td>USST 490</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>WMST 400</td>
<td>Internship in Women and Gender Studies</td>
<td>1-3</td>
</tr>
<tr>
<td>CDS 491</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>HHS 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 480</td>
<td>Internship</td>
<td>6-12</td>
</tr>
<tr>
<td>HIST 399</td>
<td>Internship</td>
<td>1-9</td>
</tr>
<tr>
<td>RHBS 490</td>
<td>RS: Clinical Research Internship</td>
<td>3</td>
</tr>
<tr>
<td>LAS 490</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>HAP 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>KINE 341</td>
<td>Kinesiology Internship I</td>
<td>3</td>
</tr>
<tr>
<td>SDCW 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 495</td>
<td>Internship in Music Education (Mason Core) (p. 135)</td>
<td>6-12</td>
</tr>
<tr>
<td>KINE 441</td>
<td>Kinesiology Internship II</td>
<td>3</td>
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<tr>
<td>PHYS 409</td>
<td>Physics Internship</td>
<td>3</td>
</tr>
<tr>
<td>HHS 492</td>
<td>RS: Internship in Clinical Research</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 416</td>
<td>Internship in Sociology</td>
<td>1-6</td>
</tr>
<tr>
<td>FRLN 490</td>
<td>Internship in Foreign Language Studies</td>
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</tr>
<tr>
<td>ENGR 395</td>
<td>Engineering Internship</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 480</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>AVT 453</td>
<td>Professional Practices</td>
<td>3</td>
</tr>
<tr>
<td>CVPA 489</td>
<td>Field Experience in the Arts</td>
<td>3-6</td>
</tr>
<tr>
<td>GLOA 495</td>
<td>Global Experiential Learning</td>
<td>1-18</td>
</tr>
<tr>
<td>KINE 330</td>
<td>Seminar in Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>ECED 490</td>
<td>Internship in Early Childhood Education</td>
<td>1-6</td>
</tr>
<tr>
<td>FRSC 406</td>
<td>Forensic Internship</td>
<td>3</td>
</tr>
</tbody>
</table>
ECON 103 Contemporary Microeconomic Principles (Mason Core) (p. 135) 3
ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135) 3

Select one of the following: 1 3-4
MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135)
MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135)
MATH 114 Analytic Geometry and Calculus II
HNRT 225 Applied Calculus

Total Credits 27-28

1 MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135) or MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) satisfies the Mason Core quantitative reasoning requirement.

Business Core
A grade of C or higher is required in each of the School of Business core courses listed below. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses: ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I, BULE 303 Legal Environment of Business, BUS 303 Develop Professional Skills II: Advanced Elements, FNAN 303 Financial Management, MGMT 303 Principles of Management, MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135), MKTG 303 Principles of Marketing and OM 303 Operations Management. Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 330</td>
<td>Financial Accounting I</td>
<td>3</td>
</tr>
<tr>
<td>BULE 303</td>
<td>Legal Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>BUS 303</td>
<td>Develop Professional Skills II: Advanced Elements</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 303</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 303</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>MIS 303</td>
<td>Introduction to Business Information Systems (Mason Core) (Satisfies Mason Core Information Technology requirement)</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 303</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>OM 303</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
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<td>24</td>
</tr>
</tbody>
</table>

General Electives
General electives may be selected from any University or School of Business course, except courses designated for the Business minor (MBUS). Credits awarded as Associate Degree Elective Credit (ADEC) as part of a student’s transfer evaluation are also excluded from general electives.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FNAN 311</td>
<td>Principles of Investment</td>
<td>3</td>
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<tr>
<td>FNAN 321</td>
<td>Financial Institutions</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 341</td>
<td>Introduction to Firm Valuation</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 401</td>
<td>Advanced Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 411</td>
<td>Investment Analysis and Portfolio Management</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 412</td>
<td>Futures and Options Markets</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 421</td>
<td>Money and Capital Markets</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 430</td>
<td>Empirical Methods in Finance</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 431</td>
<td>Venture Capital and Private Financing of Startups</td>
<td>3</td>
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<td>FNAN 432</td>
<td>Fixed-Income Securities</td>
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<tr>
<td>FNAN 436</td>
<td>Probability Methods for Finance</td>
<td>3</td>
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<td>FNAN 440</td>
<td>International Financial Management</td>
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<tr>
<td>FNAN 451</td>
<td>Real Estate Finance</td>
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<td>FNAN 454</td>
<td>Real Estate Development</td>
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<tr>
<td>FNAN 462</td>
<td>Honors Seminar in Finance</td>
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</tr>
<tr>
<td>FNAN 491</td>
<td>Special Topics in Finance</td>
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</tr>
<tr>
<td>FNAN 499</td>
<td>Independent Study</td>
<td>3</td>
</tr>
<tr>
<td>BUS 492</td>
<td>Undergraduate Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9
Forensic Accounting Graduate Certificate

Students must successfully complete all Business Core courses to be eligible to enroll in BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135).

BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135)

Total Credits 3

Second Majors in Finance

Students declaring a second major in Finance must complete the four required courses and two elective courses for the major.

Forensic Accounting Graduate Certificate

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 737</td>
<td>Fraud and the Law</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 738</td>
<td>Advanced Topics in Fraud</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 636</td>
<td>Fraud Examination</td>
<td>3</td>
</tr>
<tr>
<td>or CFRS 770</td>
<td>Fraud and Forensics in Accounting</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 9

Elective

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 701</td>
<td>Business Valuation</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 742</td>
<td>Corporate Governance and Ethics</td>
<td></td>
</tr>
<tr>
<td>CFRS 500</td>
<td>Introduction to Forensic Technology and Analysis</td>
<td></td>
</tr>
<tr>
<td>CFRS 510</td>
<td>Digital Forensics Analysis</td>
<td></td>
</tr>
<tr>
<td>CFRS 660</td>
<td>Network Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 661</td>
<td>Digital Media Forensics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

Students in the MS in Accounting (MSA) program are required to take ACCT 636 Fraud Examination and can take ACCT 701 Business Valuation, ACCT 737 Fraud and the Law and ACCT 738 Advanced Topics in Fraud as electives.

Information Systems and Operations Management, BS

Admissions

Eligibility Requirements

All students registering for School of Business graduate courses must have graduate standing. Non-degree student status is not available. Full eligibility and admission requirements can be viewed at the school's website (http://business.gmu.edu/masters-in-accounting/forensic-accounting).

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Students are responsible for familiarization and compliance with the university’s Graduate Policies (p. 87) contained in this catalog. A maximum of 3 graduate credits taken at another institution can be transferred to the graduate certificate. The time limit for completion is four years from the date of admission to the graduate certificate. Students must have a minimum GPA of 3.0 to complete the certificate.

Requirements

Certificate Requirements

Total credits: 12
Policies

Academic Policies
Students should become familiar with the university’s general academic policies (p. 74) in addition to those specific to each academic unit.

E-mail
George Mason University uses only Mason e-mail accounts to communicate with enrolled students. Students should activate their Mason e-mail, use it to communicate with their school/department/program and other administrative units, and check it regularly for important information.

Study Elsewhere Policy
A student who has matriculated at Mason may transfer a limited number of hours (9 for undergraduates, 6 for graduates) of coursework in School of Business disciplines from another institution (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education). Any course attempted elsewhere must take place more than 50 miles from the George Mason University Fairfax campus.

Special instructions for School of Business students: courses that are attempted at a two-year institution may not be used to fulfill upper-level requirements. Any course that a student wished to transfer to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

For additional information, see AP.1.4.2 Permission to Study Elsewhere (p. 76).

Undergraduate Internship Policy
The School of Business recognizes the importance of experiential education in both learning to apply theory to practice and positioning students for success in their careers. Because the School of Business is committed to supporting students’ professional success, the School requires that all student internships for credit be registered with the School of Business as either BUS 492 Undergraduate Internship or ACCT 492 Internship in Accounting. Students may enroll in a maximum of 6 credits for these courses. For students in catalog years Fall 2016 and beyond, one internship course may apply to the major, and a second internship course would apply as elective credit. For students in catalog years prior to Fall 2016, a maximum of 6 credits of internship may apply to general electives.

Termination from the Major
A grade of C or higher is required in each of the School of Business listed core courses. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses:

- ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I
- BULE 303 Legal Environment of Business
- BUS 303 Develop Professional Skills II: Advanced Elements
- FNAN 303 Financial Management
- MGMT 303 Principles of Management
- MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135)
- MKTG 303 Principles of Marketing
- OM 303 Operations Management

Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

University Consortium
Students should review university policies regarding the University Consortium under Special Registration Procedures in the Academic Policies section of this catalog. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstance. All consortium registration requests must be submitted to the dean’s office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

Any consortium course that a student wishes to register for to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Undergraduate Course Overload Policy
The School of Business recommends that undergraduate students attempt no more than 18 credits in an academic semester and no more than 14 credits in a summer term. Students wishing to attempt more than 18 credits must submit a Permission to Overload form to their academic advisor.

To be eligible for a course overload, a student must fulfill all of the following criteria:

- At least a 3.0 cumulative GPA at Mason
- Have completed all courses successfully in his/her previous semester with no Fs or incompletes (IN)
- Complete the Permission to Overload form and obtain an academic advisor’s signature

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

Appeals Process
The School of Business strives to maintain policies and procedures that are consistent with those of the University, as well as in the best interest of our students. If you have any questions concerning a particular policy or procedure, please contact the Office of Student Success & Academic Services, Room 008 of Enterprise Hall (703-993-1880) or visit business.gmu.edu (http://business.gmu.edu).
Courses Excluded from any School of Business BS Degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE 401</td>
<td>Internship Reflection</td>
<td>1</td>
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<tr>
<td>MUSI 394</td>
<td>Ethnomusicology Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>COMM 450</td>
<td>Internship in Communication</td>
<td>3</td>
</tr>
<tr>
<td>FAVS 450</td>
<td>Internship in Film and Video Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 496</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>1-9</td>
</tr>
<tr>
<td>PHIL 306</td>
<td>Philosophy Internship</td>
<td>3</td>
</tr>
<tr>
<td>RELI 426</td>
<td>Religious Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 393</td>
<td>Art History Internships</td>
<td>3-6</td>
</tr>
<tr>
<td>GCH 498</td>
<td>Global and Community Health Internship</td>
<td>3,6</td>
</tr>
<tr>
<td>GAME 491</td>
<td>Internship</td>
<td>3-4</td>
</tr>
<tr>
<td>HAP 498</td>
<td>Health Administration Internship (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 499</td>
<td>Advanced Internship Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>1-4</td>
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<tr>
<td>INTS 290</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 390</td>
<td>International Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 490</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>ECON 498</td>
<td>Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>ASTR 409</td>
<td>Astronomy Internship</td>
<td>3</td>
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<tr>
<td>SPMT 490</td>
<td>Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>TOUR 490</td>
<td>Hospitality, Tourism, and Events Management Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
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<tr>
<td>CHIN 490</td>
<td>Internship in Chinese Studies</td>
<td>1-9</td>
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<tr>
<td>CONS 498</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>THR 455</td>
<td>Theater Education Internship</td>
<td>6-12</td>
</tr>
<tr>
<td>AFAM 490</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>KINE 490</td>
<td>Kinesiology Internship III (Mason Core) (p. 135)</td>
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<tr>
<td>AMGT 489</td>
<td>Internship in Arts Management</td>
<td>1-4</td>
</tr>
<tr>
<td>HDFS 498</td>
<td>Internship and Analysis in Human Development and Family Science</td>
<td>3</td>
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<tr>
<td>ANTH 495</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>PRLS 490</td>
<td>Recreation Management Internship (Mason Core)</td>
<td>12</td>
</tr>
<tr>
<td>GGS 480</td>
<td>GGS Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>SPAN 490</td>
<td>Internship in Spanish</td>
<td>1-6</td>
</tr>
<tr>
<td>AVT 489</td>
<td>Internship in Art and Visual Technology</td>
<td>1-6</td>
</tr>
<tr>
<td>USST 490</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>WMST 400</td>
<td>Internship in Women and Gender Studies</td>
<td>1-3</td>
</tr>
<tr>
<td>CDS 491</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>HHS 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 480</td>
<td>Internship</td>
<td>6-12</td>
</tr>
</tbody>
</table>

HIST 399  | Internship                                     | 1-9     |
| RHBS 490  | RS: Clinical Research Internship                | 3       |
| LAS 490   | Internship                                     | 1-6     |
| HAP 480   | Research Internship in Health and Human Services | 3       |
| KINE 341  | Kinesiology Internship I                       | 3       |
| SOCW 480  | Research Internship in Health and Human Services | 3       |
| MUSI 495  | Internship in Music Education (Mason Core) (p. 135) | 6-12    |
| KINE 441  | Kinesiology Internship II                      | 3       |
| PHYS 409  | Physics Internship                              | 3       |
| HHS 492   | RS: Internship in Clinical Research             | 3       |
| SOCI 416  | Internship in Sociology                        | 1-6     |
| FRLN 490  | Internship in Foreign Language Studies          | 1-6     |
| ENGR 395  | Engineering Internship                         | 3       |
| GEOL 480  | Internship                                     | 1-3     |
| AVT 453   | Professional Practices                         | 3       |
| CVPA 489  | Field Experience in the Arts                   | 3-6     |
| GLOA 495  | Global Experiential Learning                   | 1-18    |
| KINE 330  | Seminar in Kinesiology                         | 3       |
| ECED 490  | Internship in Early Childhood Education         | 1-6     |
| FRSC 406  | Forensic Intershial                             | 3       |

Requirements

Degree Requirements

Total credits: 120

School of Business students pursuing a BS degree must complete a minimum of 120 credits, including the Mason Core requirements, business foundations, business core and major requirements. In addition, the following requirements must be met:

- A minimum of 45 credits at the 300- or 400-level.
- A minimum of 30 credits of School of Business core and major courses at Mason.
- At least 9 credits required for the specific major and BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135) taken at Mason.
- A grade of C or higher earned in the business foundations, business core and major requirements.

Students should carefully examine prerequisites for School of Business courses. Students may be removed from a course if they enroll without having fulfilled the prerequisites.

Mason Core Requirements

School of Business students must complete the Mason Core (p. 135) requirements, plus 1 additional credit of natural science (the School of Business natural science requirement must be fulfilled by completing two 4-credit laboratory sciences). Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed below. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.
Foundation Requirements

Written Communication (p. 135) 6
Oral Communication (p. 136) 3

Core Requirements

Arts (p. 137) 3
Literature (p. 140) 3
Natural Science (p. 141) 1 8
Western Civilization/World History (p. 143) 3

Total Credits 26

1 School of Business students required to complete 8 credits of natural science by completing two 4-credit laboratory sciences.

Note:

Remaining Mason Core (p. 135) requirements are fulfilled with major coursework.

Business Foundations

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 204</td>
<td>Honors Survey of Accounting</td>
<td></td>
</tr>
<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>(p. 135)</td>
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<tr>
<td>BUS 103</td>
<td>Develop Professional Skills I: Foundational Elements</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 210</td>
<td>Business Analytics I</td>
<td>3</td>
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<tr>
<td>BUS 310</td>
<td>Business Analytics II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
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<tr>
<td>Select one from the following:</td>
<td>3-4</td>
<td></td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
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<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
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<tr>
<td>HNRT 225</td>
<td>Applied Calculus</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 27-28

1 MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135) or MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) satisfies the Mason Core quantitative reasoning requirement.

Business Core

A grade of C or higher is required in each of the School of Business listed core courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ACCT 303</td>
<td>Accounting for Decision Making 1</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 330</td>
<td>Financial Accounting I</td>
<td></td>
</tr>
<tr>
<td>BULE 303</td>
<td>Legal Environment of Business 1</td>
<td>3</td>
</tr>
</tbody>
</table>

BUS 303 Develop Professional Skills II: Advanced Elements 3
FNAN 303 Financial Management 1 3
MGT 303 Principles of Management 1 3
MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135) 1 3
MKTG 303 Principles of Marketing 1 3
OM 303 Operations Management 1 3

Total Credits 24

1 Students will not be permitted to make more than three attempts to achieve a C or higher in this course. Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

General Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 18-19 credits</td>
<td>18-19</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 18-19

1 General electives may be selected from any University or School of Business course, except courses designated for the Business minor (MBUS). Credits awarded as Associate Degree Elective Credit (ADEC) as part of a student's transfer evaluation are also excluded from general electives.

Major Requirements in Information Systems and Operations Management

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS 310</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>MIS 330</td>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>OM 493</td>
<td>Management of Technology Projects</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Select 12 credits from the following list to fulfill the elective requirement as well as any other 300-400 level MIS or OM courses 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIS 302</td>
<td>Introduction to Programming for Business Applications 2</td>
<td></td>
</tr>
<tr>
<td>MIS 320</td>
<td>Networks and Security</td>
<td></td>
</tr>
<tr>
<td>MIS 410</td>
<td>Advanced Database Systems</td>
<td></td>
</tr>
<tr>
<td>MIS 412</td>
<td>E-Business Systems Development</td>
<td></td>
</tr>
<tr>
<td>MIS 415</td>
<td>Information Systems Audit and Control</td>
<td></td>
</tr>
<tr>
<td>MIS 420</td>
<td>Information Security and Assurance</td>
<td></td>
</tr>
<tr>
<td>MIS 430</td>
<td>Data Warehousing</td>
<td></td>
</tr>
<tr>
<td>MIS 431</td>
<td>Data Mining for Business Applications</td>
<td></td>
</tr>
<tr>
<td>MIS 462</td>
<td>Honors Seminar in Management Information Systems (Topic Varies)</td>
<td></td>
</tr>
<tr>
<td>MIS 491</td>
<td>Seminar in Management Information Systems</td>
<td></td>
</tr>
<tr>
<td>MIS 499</td>
<td>Independent Study in Management Information Systems</td>
<td></td>
</tr>
</tbody>
</table>
Information Systems and Operations Management, BS

**OM 320** Supply Chain Management in a Global Economy
**OM 352** Management Science
**OM 435** Business Process Analysis and Simulation
**OM 452** Business Forecasting
**OM 456** Quality Management
**OM 462** Honors Seminar in Operations Management (Topic Varies)
**OM 499** Independent Study in Operations Management
**BUS 492** Undergraduate Internship

Total Credits 21

1 Excluding MIS 301 Introduction to Business Information Systems or MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135) or OM 301 Operations Management or OM 303 Operations Management

2 It is strongly recommended that students planning to major in ISOM take MIS 302 Introduction to Programming for Business Applications as part of their program.

**Optional Concentrations**

Students have considerable flexibility in their choice of electives and may choose from two concentrations of study: one in Operations and Supply Chain Management (OSCM) and the other in Management Information Systems (MIS). Students are strongly urged to discuss their choice of electives and programs of study with their academic advisor and an ISOM faculty member. Concentrations must be declared prior to a student filing an intent to graduate.

**Concentration in Operations and Supply Chain Management (OSCM)**
If a student has taken any four of the following seven electives, beyond the ISOM required courses, s/he can declare an OSCM concentration.

OM 320 Supply Chain Management in a Global Economy 3
OM 352 Management Science 3
OM 435 Business Process Analysis and Simulation 3
OM 452 Business Forecasting 3
OM 456 Quality Management 3
OM 462 Honors Seminar in Operations Management (Topic Varies) 3
OM 491 Seminar in Operations Management 3

Total Credits 21

**Concentration in Management Information Systems (MIS)**
If a student has taken any four of the following eight electives, beyond the ISOM required courses, he/she can declare an MIS concentration.

MIS 302 Introduction to Programming for Business Applications 3
MIS 320 Networks and Security 3
MIS 412 E-Business Systems Development 3
MIS 430 Data Warehousing 3
MIS 462 Honors Seminar in Management Information Systems (Topic Varies) 3
MIS 491 Seminar in Management Information Systems 3

Total Credits 18

**Capstone**

Students must successfully complete all Business Core courses to be eligible to enroll in BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135).

BUS 498 Capstone Course: Advanced Business Models (Mason Core) 3

Total Credits 3

**Second Majors in Information Systems and Operations Management**

Students declaring a second major in Information Systems and Operations Management must complete the three required courses and three elective courses for the major.

**Honors**

**Honors in the Major**

The School of Business Information Systems and Operations Management Honors Program provides highly motivated students majoring in ISOM with an enriched academic experience integrating curricular, co-curricular and extra-curricular development. Admission to the Honors Program is by invitation only. Students who have been found responsible for an Honor Code violation are not eligible for the program.

**Admission Requirements**

- Minimum 3.0 cumulative GPA and 3.5 GPA in the ISOM major.
- Two academic/professional references.
- Once admitted to the program, students with a cumulative GPA below 3.0 will be dropped from the program.

**Curricular Requirements**

- MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135) earning a grade of A- or better.
- OM 303 Operations Management earning a grade of A- or better.
- A grade of B or better in Business Core curriculum courses:
  - ACCT 303 Accounting for Decision Making 3
  - or ACCT 330 Financial Accounting I
  - BULE 303 Legal Environment of Business 3
  - BUS 303 Develop Professional Skills II: Advanced Elements 3
  - FNAN 303 Financial Management 3
  - MGMT 303 Principles of Management 3
  - MKTG 303 Principles of Marketing 3
- One of the two ISOM Honors seminars: MIS 462 Honors Seminar in Management Information Systems (Topic Varies) or OM 462 Honors Seminar in Operations Management (Topic Varies).
Extra-Curricular Requirements

- The student must show a high degree of engagement in MISOMA or another School of Business student organization, preferably in a leadership role.

Requirements for the Honors Designation:

- Honors students must graduate with a minimum 3.00 cumulative GPA and 3.50 GPA in the major.
- Honors students must meet all curricular and extra-curricular requirements mentioned previously at graduation.

International Business Minor

Banner Code: IB

Academic Advising

Phone: 703-993-1880
Email: masonbus@gmu.edu

Administration

- David Gallay, Assistant Director, School of Business Minor Programs

The minor in International Business for School of Business majors provides an introduction for those students interested in learning more about elements of business unique to international organizations or in pursuing a career in international business. With a strong set of business skills developed through the core undergraduate curriculum and their majors, students in the International Business Minor can further develop their skills in managing and communicating across different cultures, improve their understanding of how specific business disciplines vary in an international setting, and cultivate an appreciation for international monetary issues.

Admissions & Policies

Policies

Students must complete five courses for a total of 15 credits. At least eight credits of the minor courses must be unique to the International Business Minor and not applied toward any other major, minor, or concentration. Students must achieve a grade of C or better in each course that is applied to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86). The School of Business residency requirement for this minor supersedes the university requirement: at least nine credits must be earned at Mason.

Requirements

Minor Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 461</td>
<td>Cross Cultural and Global Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Electives

Select four electives from the following: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 370</td>
<td>Accounting in a Global Economy</td>
</tr>
<tr>
<td>FNAN 440</td>
<td>International Financial Management</td>
</tr>
<tr>
<td>MGMT 441</td>
<td>International Strategy</td>
</tr>
<tr>
<td>MKTG 407</td>
<td>Global Marketing</td>
</tr>
<tr>
<td>OM 320</td>
<td>Supply Chain Management in a Global Economy</td>
</tr>
<tr>
<td>ECON 360</td>
<td>Economics of Developing Areas (Mason Core)</td>
</tr>
<tr>
<td>ECON 361</td>
<td>Economic Development of Latin America (Mason Core)</td>
</tr>
<tr>
<td>ECON 362</td>
<td>African Economic Development (Mason Core)</td>
</tr>
<tr>
<td>ECON 380</td>
<td>Economies in Transition (Mason Core)</td>
</tr>
<tr>
<td>ECON 390</td>
<td>International Economics (Mason Core)</td>
</tr>
<tr>
<td>ECON 420</td>
<td>International Money and Finance</td>
</tr>
<tr>
<td>GOVT 343</td>
<td>International Political Economy</td>
</tr>
<tr>
<td>GOVT 367</td>
<td>Money, Markets and Economic Policy</td>
</tr>
</tbody>
</table>

Total Credits 12

1 A maximum of one ECON or GOVT course may count towards the minor. The other three electives must be School of Business coursework.

Co-Curricular Requirement

Students must complete one of the following in addition to the curriculum requirements:

Global Experience
- Global residency course;
- An international internship abroad;
- A domestic internship with significant international experience;
- An approved study abroad program; or
- Study at a Mason campus or a Mason joint program overseas

OR

Foreign Language
- One language study course; or
- A course taught in foreign literature when taught in a foreign language

Management of Secure Information Systems, MS (School of Business)

Banner Code: BU-MS-MSIS

Graduate Program Office

Phone: 703-993-2136
Email: cyber@gmu.edu
Management, BS

Management, BS

Banner Code: BU-BS-MGMT

Academic Advising

Phone: 703-993-1188
Email: masonbus@gmu.edu

Admissions & Policies

Admissions

All students must have graduate standing. Non-degree student status is not available.

Full eligibility and admission requirements can be viewed online (http://business.gmu.edu/cyber-security-degree/admissions).

Requirements

Degree Requirements

Total credits: 36

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSEC 510</td>
<td>Foundations of Cyber Security</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 511</td>
<td>Security Practices in the Enterprise</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 520</td>
<td>Networking Principles</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 620</td>
<td>Networking Security</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 630</td>
<td>Secure Information System Governance, Regulation, and Compliance</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 641</td>
<td>Enterprise Security Threats</td>
<td>1</td>
</tr>
<tr>
<td>MSEC 642</td>
<td>Enterprise Security Technologies</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 650</td>
<td>Seminar: Enterprise Security Case Studies</td>
<td>1</td>
</tr>
<tr>
<td>PUBP 610</td>
<td>Organizations, Management, and Work: Theory and Practice</td>
<td>2</td>
</tr>
<tr>
<td>PUBP 611</td>
<td>Critical Infrastructure Protection in Theory, Policy and Practice</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 611</td>
<td>Leadership and Change Management</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 614</td>
<td>Financial and Cost Accounting</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 620</td>
<td>Economics of Technology Management</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 635</td>
<td>Decision Models and Methods</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 643</td>
<td>Managerial Finance</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 747</td>
<td>Enterprise Information Security Audit</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 735</td>
<td>Capstone Project</td>
<td>3</td>
</tr>
<tr>
<td>or MSEC 720</td>
<td>Capstone Project in Management of Secure Information Systems</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 36

MSIS 750 Global Practices in Security of Information Systems 3
or MSEC 710 Global Residency

Study Elsewhere Policy

A student who has matriculated at Mason may transfer a limited number of hours (9 for undergraduates, 6 for graduates) of coursework in School of Business disciplines from another institution (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education). Any course attempted elsewhere must take place more than 50 miles from the George Mason University Fairfax campus.

Special instructions for School of Business students: courses that are attempted at a two-year institution may not be used to fulfill upper-level requirements. Any course that a student wished to transfer to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

For additional information, see AP.1.4.2 Permission to Study Elsewhere (p. 76).
Undergraduate Internship Policy
The School of Business recognizes the importance of experiential education in both learning to apply theory to practice and positioning students for success in their careers. Because the School of Business is committed to supporting students' professional success, the School requires that all student internships for credit be registered with the School of Business as either BUS 492 Undergraduate Internship or ACCT 492 Internship in Accounting. Students may enroll in a maximum of 6 credits for these courses. For students in catalog years Fall 2016 and beyond, one internship course may apply to the major, and a second internship course would apply as elective credit. For students in catalog years prior to Fall 2016, a maximum of 6 credits of internship may apply to general electives.

Termination from the Major
A grade of C or higher is required in each of the School of Business listed core courses. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses:

- ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I
- BULE 303 Legal Environment of Business
- BUS 303 Develop Professional Skills II: Advanced Elements
- FNAN 303 Financial Management
- MGMT 303 Principles of Management
- MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135)
- MKTG 303 Principles of Marketing
- OM 303 Operations Management

Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

University Consortium
Students should review university policies regarding the University Consortium under Special Registration Procedures in the Academic Policies section of this catalog. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstance. All consortium registration requests must be submitted to the dean’s office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

Any consortium course that a student wishes to register for to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSB).

Undergraduate Course Overload Policy
The School of Business recommends that undergraduate students attempt no more than 18 credits in an academic semester and no more than 14 credits in a summer term. Students wishing to attempt more than 18 credits must submit a Permission to Overload form to their academic advisor.

To be eligible for a course overload, a student must fulfill all of the following criteria:
- At least a 3.0 cumulative GPA at Mason
- Have completed all courses successfully in his/her previous semester with no Fs or incompletes (IN)
- Complete the Permission to Overload form and obtain an academic advisor’s signature

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

Appeals Process
The School of Business strives to maintain policies and procedures that are consistent with those of the University, as well as in the best interest of our students. If you have any questions concerning a particular policy or procedure, please contact the Office of Student Success & Academic Services, Room 008 of Enterprise Hall (703-993-1880) or visit business.gmu.edu (http://business.gmu.edu).

Courses Excluded from any School of Business BS Degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tr>
<td>SWE 401</td>
<td>Internship Reflection</td>
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<tr>
<td>MUSI 394</td>
<td>Ethnomusicology Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>COMM 450</td>
<td>Internship in Communication</td>
<td>3</td>
</tr>
<tr>
<td>FAVS 450</td>
<td>Internship in Film and Video Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 496</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>1-9</td>
</tr>
<tr>
<td>PHIL 306</td>
<td>Philosophy Internship</td>
<td>3</td>
</tr>
<tr>
<td>RELI 426</td>
<td>Religious Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 393</td>
<td>Art History Internships</td>
<td>3-6</td>
</tr>
<tr>
<td>GCH 498</td>
<td>Global and Community Health Internship</td>
<td>3,6</td>
</tr>
<tr>
<td>GAME 491</td>
<td>Internship</td>
<td>3-4</td>
</tr>
<tr>
<td>HAP 498</td>
<td>Health Administration Internship (Mason Core) (p. 135)</td>
<td>4</td>
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<tr>
<td>HDFS 499</td>
<td>Advanced Internship Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>INTS 290</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 390</td>
<td>International Internship</td>
<td>1-6</td>
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<tr>
<td>INTS 490</td>
<td>Internship</td>
<td>1-6</td>
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<tr>
<td>ECON 498</td>
<td>Internship</td>
<td>3-6</td>
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<tr>
<td>ASTR 409</td>
<td>Astronomy Internship</td>
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<td>SPMT 490</td>
<td>Internship (Mason Core) (p. 135)</td>
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<tr>
<td>TOUR 490</td>
<td>Hospitality, Tourism, and Events</td>
<td>12</td>
</tr>
<tr>
<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
</tr>
</tbody>
</table>
Degree Requirements

Total credits: 120

School of Business students pursuing a BS degree must complete a minimum of 120 credits, including the Mason Core requirements, business foundations, business core and major requirements. In addition, the following requirements must be met:

- A minimum of 45 credits at the 300- or 400-level.
- A minimum of 30 credits of School of Business core and major courses at Mason.
- At least 9 credits required for the specific major and BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135) taken at Mason.
- A grade of C or higher earned in the business foundations, business core and major requirements.

Students should carefully examine prerequisites for School of Business courses. Students may be removed from a course if they enroll without having fulfilled the prerequisites.

### Mason Core Requirements

School of Business students must complete the Mason Core (p. 135) requirements, plus 1 additional credit of natural science (the School of Business natural science requirement must be fulfilled by completing two 4-credit laboratory sciences). Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed below. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT</td>
<td>Survey of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS</td>
<td>Business and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS</td>
<td>Develop Professional Skills I: Foundational Elements</td>
<td>3</td>
</tr>
<tr>
<td>BUS</td>
<td>Global Environment of Business (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS</td>
<td>Business Analytics I</td>
<td>3</td>
</tr>
<tr>
<td>BUS</td>
<td>Business Analytics II</td>
<td>3</td>
</tr>
<tr>
<td>ECON</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>
ECON 104 Contemporary Macroeconomic Principles (Mason Core) (p. 135) 3

Select one from the following: 1

MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135) 3-4

MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135)

MATH 114 Analytic Geometry and Calculus II

HNRT 225 Applied Calculus

Total Credits 27-28

1 MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135) or MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) satisfies the Mason Core quantitative reasoning requirement.

Business Core
A grade of C or higher is required in each of the School of Business listed core courses.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ACCT 303</td>
<td>Accounting for Decision Making 1</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 330</td>
<td>Financial Accounting I</td>
<td></td>
</tr>
<tr>
<td>BULE 303</td>
<td>Legal Environment of Business 1</td>
<td>3</td>
</tr>
<tr>
<td>BUS 303</td>
<td>Develop Professional Skills II: Advanced Elements 1</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 303</td>
<td>Financial Management 1</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 303</td>
<td>Principles of Management 1</td>
<td>3</td>
</tr>
<tr>
<td>MIS 303</td>
<td>Introduction to Business Information Systems (Mason Core) (p. 135) 1</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 303</td>
<td>Principles of Marketing 1</td>
<td>3</td>
</tr>
<tr>
<td>OM 303</td>
<td>Operations Management 1</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 24

1 Students will not be permitted to make more than three attempts to achieve a C or higher in this course. Those who do not successfully complete these core courses within three attempts will be terminated from the School of Business. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

General Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 18-19 credits 1</td>
<td>18-19</td>
</tr>
</tbody>
</table>

Total Credits 18-19

1 General electives may be selected from any University or School of Business course, except courses designated for the Business minor (MBUS). Credits awarded as Associate Degree Elective Credit (ADEC) as part of a student's transfer evaluation are also excluded from general electives.

Major Requirements in Management

Required Courses

MGMT 313 Organizational Behavior 3

MGMT 321 Introduction to Human Resource Management 3

Electives Courses
Select 15 credits from the following list to fulfill the elective requirement as well as any other 300-400 level MGMT courses 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 412</td>
<td>Diversity in Organizations</td>
<td>3</td>
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<tr>
<td>MGMT 413</td>
<td>Organizational Development and Management Consulting</td>
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<tr>
<td>MGMT 421</td>
<td>Advanced Human Resource Management</td>
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<tr>
<td>MGMT 431</td>
<td>The Legal Environment for Employee and Labor Relations</td>
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</tr>
<tr>
<td>MGMT 441</td>
<td>International Strategy</td>
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<tr>
<td>MGMT 451</td>
<td>Introduction to Entrepreneurship</td>
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<tr>
<td>MGMT 452</td>
<td>Experiential Entrepreneurship</td>
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</tr>
<tr>
<td>MGMT 453</td>
<td>Starting a Business</td>
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<tr>
<td>MGMT 454</td>
<td>Social Impact and Entrepreneurship</td>
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<tr>
<td>MGMT 461</td>
<td>Cross Cultural and Global Management</td>
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<tr>
<td>MGMT 462</td>
<td>Honors Seminar in Management (Topic Varies)</td>
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<td>MGMT 463</td>
<td>Negotiations in Organizations</td>
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<tr>
<td>MGMT 464</td>
<td>Teamwork and Interpersonal Skills</td>
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</tr>
<tr>
<td>MGMT 471</td>
<td>Competitive Strategy</td>
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<tr>
<td>MGMT 491</td>
<td>Current Topics in Management</td>
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</tr>
<tr>
<td>MGMT 499</td>
<td>Independent Study</td>
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</tr>
<tr>
<td>BULE 402</td>
<td>Commercial Law</td>
<td></td>
</tr>
<tr>
<td>BUS 492</td>
<td>Undergraduate Internship</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 21

1 Except MGMT 301 People and Organizations or MGMT 303 Principles of Management or MGMT 312 Principles and Practices of Management or MGMT 313 Organizational Behavior

Capstone
Students must successfully complete all Business Core courses to be eligible to enroll in BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135).

BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135) 3

Total Credits 3

Notes:
Management majors may focus their careers in several areas. In selecting five elective courses, students may want to consider a likely career path. Recommended courses for three possible careers are provided below.

Human Resource Management

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 421</td>
<td>Advanced Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 431</td>
<td>The Legal Environment for Employee and Labor Relations</td>
<td></td>
</tr>
</tbody>
</table>

Management Consulting

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 412</td>
<td>Diversity in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 463</td>
<td>Negotiations in Organizations</td>
<td>3</td>
</tr>
</tbody>
</table>
Honors Seminar
Students with a GPA of at least 3.00 are offered the opportunity to further distinguish their record by participating in MGMT 462 Honors Seminar in Management (Topic Varies), which addresses a key contemporary management issue in an intensive small group format.

To be eligible for enrollment in MGMT 462 Honors Seminar in Management (Topic Varies), students must be a declared management major, have a cumulative GPA of at least 3.00 with a minimum of 75 semester hours of course work, have a minimum GPA of 3.00 in course work completed for the management major, and be recommended by faculty. The class size of the Honors Seminar will be kept small. If the number of interested and qualified students exceeds the number of available spots, management area faculty will select the most qualified students to participate.

Second Majors in Management
Students declaring a second major in Management must complete the two required courses and four elective courses for the major.

Honors

Honors in the Major
The Management Honors Program in the School of Business provides highly motivated students majoring in management with an enriched academic experience integrating curricular, co-curricular and extra-curricular development. Admission to the Honors Program is by invitation only. Students who have been found responsible for an Honor Code violation are not eligible for the program.

Admission Requirements
- Minimum 3.0 cumulative GPA and 3.5 GPA in the major
- Submission of a personal statement/essay (topic to be determined)
- Two academic/professional references
- Once admitted to the program, students with a cumulative GPA below a 3.0 will be dropped from the program.

Curricular Requirements
- MGMT 303 Principles of Management earning a grade of A- or better.
- A grade of B or better in Business Core curriculum courses:
  - ACCT 303 or ACCT 330: Accounting for Decision Making 3
  - BULE 303: Legal Environment of Business 3
  - BUS 303: Develop Professional Skills II: Advanced Elements 3
  - FNAN 303: Financial Management 3
  - MKTG 303: Principles of Marketing 3
  - MIS 303: Introduction to Business Information Systems (Mason Core) (p. 135) 3

Co-Curricular or Work Experience Requirements
The student must complete ONE of the following in addition to the curriculum requirements:
- MGMT 462 Honors Seminar in Management (Topic Varies) (Honors seminar traditionally offered each Spring.)
- Study abroad (e.g., Aachen Dual Degree, Oxford Honors, China, South America)
- Internship (Internships where no credit is earned also qualify, if approved by the Management Honors Program administrator.)
- Research paper/Thesis as an independent study (MGMT 499 Independent Study) course (e.g., faculty research, Mason undergraduate apprentice program, QEP.)

Extra-Curricular Requirements
The student must show a high degree of engagement in a School of Business student organization, or other on-campus student organization, preferably in a leadership role.

Requirements for students to obtain the honors designation:
- Honors students must graduate with a minimum 3.0 cumulative GPA and 3.5 GPA in the MGMT major.
- Honors students must meet all curricular, co-curricular, and extra-curricular requirements mentioned above at graduation.

Management, MS
Banner Code: BU-MS-MGMT
Graduate Program Office
Phone: 703-993-2136
Email: msmgt@gmu.edu

Administration
- Victoria Grady, Academic Director, MBA and MS in Management Programs

The program prepares recent graduates of non-business majors for success in business fields. The program offers the fundamentals of business management in a global environment and is composed of the core discipline areas common to all business graduate programs that are accredited by the Association to Advance Collegiate Schools of Business (AACSB). It is a full time, daytime program. Students will enter as a cohort and complete all degree requirements within 11 months.

Admissions & Policies

Admissions
Admissions and Eligibility Requirements
All students registering for School of Business graduate courses must have graduate standing. Non degree student status is not available. Admission to the Master of Science in Management is contingent on applicants having completed an undergraduate degree program within 24 months prior to when they would enroll in the program.
Full eligibility and admission requirements can be viewed at our website. (http://business.gmu.edu/masters-in-management/admissions)

Policies
For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Requirements
Degree Requirements
Total credits: 36

Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMGT 603</td>
<td>Economics for Successful Firm Management</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 612</td>
<td>Performance Evaluation Through Cost Management</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 613</td>
<td>Financial Reporting and Firm Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 623</td>
<td>Marketing and Firm Performance</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 633</td>
<td>Statistical Analysis for Management</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 638</td>
<td>Managing Business Operations in a Global Environment</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 643</td>
<td>Financial Management in a Global Environment</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 653</td>
<td>Fundamentals of Behavior in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 662</td>
<td>Management of Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>BMGT 678</td>
<td>Business Strategy and Firm Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 30

Global Requirement
Students must take ONE of the following global courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMGT 695</td>
<td>Global Business Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>MBA 716</td>
<td>International Business Strategy</td>
<td></td>
</tr>
<tr>
<td>MBA 718</td>
<td>International Marketing</td>
<td></td>
</tr>
<tr>
<td>MBA 717</td>
<td>International Finance</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

Elective
Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMGT 692</td>
<td>Professional Development Experience</td>
<td>3</td>
</tr>
<tr>
<td>700-level MBA course, as approved by department (p. 1698)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>600 or 700 level ACCT course, as approved by department (p. 1111)</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

1. Course options not used to fulfill the Global requirement can be applied toward the Elective requirement.

Marketing, BS
Banner Code: BU-BS-MKTG

Administrative Staff
Chair, Marketing Area: Laurie Meamber

Marketing, BS
Banner Code: BU-BS-MKTG

Academic Advising
Phone: 703-993-1880
Email: masonbus@gmu.edu

Policies
Academic Policies
Students should become familiar with the university's general academic policies (p. 74) in addition to those specific to each academic unit.

E-mail
George Mason University uses only Mason e-mail accounts to communicate with enrolled students. Students should activate their Mason e-mail, use it to communicate with their school/department/program and other administrative units, and check it regularly for important information.

Study Elsewhere Policy
A student who has matriculated at Mason may transfer a limited number of hours (9 for undergraduates, 6 for graduates) of coursework in School of Business disciplines from another institution (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through the Center for Global Education). Any course attempted elsewhere must take place more than 50 miles from the George Mason University Fairfax campus.

Special instructions for School of Business students: courses that are attempted at a two-year institution may not be used to fulfill upper-level requirements. Any course that a student wished to transfer to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance Collegiate Schools of Business (AACSBS).

For additional information, see AP.1.4.2 Permission to Study Elsewhere (p. 76).

Undergraduate Internship Policy
The School of Business recognizes the importance of experiential education in both learning to apply theory to practice and positioning students for success in their careers. Because the School of Business is committed to supporting students' professional success, the
School requires that all student internships for credit be registered with the School of Business as either BUS 492 Undergraduate Internship or ACCT 492 Internship in Accounting. Students may enroll in a maximum of 6 credits for these courses. For students in catalog years Fall 2016 and beyond, one internship course may apply to the major, and a second internship course would apply as elective credit. For students in catalog years prior to Fall 2016, a maximum of 6 credits of internship may apply to general electives.

**Termination from the Major**
A grade of C or higher is required in each of the School of Business listed core courses. Students will not be permitted to make more than three attempts to achieve a C or higher in the following School of Business core courses:

- ACCT 303 Accounting for Decision Making or ACCT 330 Financial Accounting I
- BULE 303 Legal Environment of Business
- BUS 303 Develop Professional Skills II: Advanced Elements
- FNAN 303 Financial Management
- MGMT 303 Principles of Management
- MIS 303 Introduction to Business Information Systems (Mason Core) (p. 135)
- MKTG 303 Principles of Marketing
- OM 303 Operations Management

Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

**University Consortium**
Students should review university policies regarding the University Consortium under Special Registration Procedures in the Academic Policies section of this catalog. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstance. All consortium registration requests must be submitted to the dean’s office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

Any consortium course that a student wishes to register for to fulfill major or graduate-level course requirements in the School of Business must be attempted at an institution accredited by the Association to Advance College Schools of Business (AACSB).

**Undergraduate Course Overload Policy**
The School of Business recommends that undergraduate students attempt no more than 18 credits in an academic semester and no more than 14 credits in a summer term. Students wishing to attempt more than 18 credits must submit a Permission to Overload form to their academic advisor.

To be eligible for a course overload, a student must fulfill all of the following criteria:

- At least a 3.0 cumulative GPA at Mason
- Have completed all courses successfully in his/her previous semester with no Fs or incompletes (IN)
- Complete the Permission to Overload form and obtain an academic advisor’s signature

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

**Appeals Process**
The School of Business strives to maintain policies and procedures that are consistent with those of the University, as well as in the best interest of our students. If you have any questions concerning a particular policy or procedure, please contact the Office of Student Success & Academic Services, Room 008 of Enterprise Hall (703-993-1880) or visit business.gmu.edu (http://business.gmu.edu).

**Courses Excluded from any School of Business BS Degree**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE 401</td>
<td>Internship Reflection</td>
<td>1</td>
</tr>
<tr>
<td>MUSI 394</td>
<td>Ethnomusicology Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>COMM 450</td>
<td>Internship in Communication</td>
<td>3</td>
</tr>
<tr>
<td>FAVS 450</td>
<td>Internship in Film and Video Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 496</td>
<td>Internship</td>
<td>2-6</td>
</tr>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>1-9</td>
</tr>
<tr>
<td>PHIL 306</td>
<td>Philosophy Internship</td>
<td>3</td>
</tr>
<tr>
<td>RELI 426</td>
<td>Religious Studies Internship</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 393</td>
<td>Art History Internships</td>
<td>3-6</td>
</tr>
<tr>
<td>GCH 498</td>
<td>Global and Community Health Internship</td>
<td>3,6</td>
</tr>
<tr>
<td>GAME 491</td>
<td>Internship</td>
<td>3-4</td>
</tr>
<tr>
<td>HAP 498</td>
<td>Health Administration Internship (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>HDFS 499</td>
<td>Advanced Internship Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 494</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>ENGH 459</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>MUSI 395</td>
<td>Teaching Internship</td>
<td>1-4</td>
</tr>
<tr>
<td>INTS 290</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 390</td>
<td>International Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>INTS 490</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>ECON 498</td>
<td>Internship</td>
<td>3-6</td>
</tr>
<tr>
<td>ASTR 409</td>
<td>Astronomy Internship</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 490</td>
<td>Internship (Mason Core)</td>
<td>12</td>
</tr>
<tr>
<td>TOUR 490</td>
<td>Hospitality, Tourism, and Events Management Internship (Mason Core)</td>
<td>12</td>
</tr>
<tr>
<td>CLIM 409</td>
<td>Research Internship</td>
<td>3</td>
</tr>
<tr>
<td>CHIN 490</td>
<td>Internship in Chinese Studies</td>
<td>1-9</td>
</tr>
<tr>
<td>CONS 498</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>THR 455</td>
<td>Theater Education Internship</td>
<td>6-12</td>
</tr>
<tr>
<td>AFAM 490</td>
<td>Internship</td>
<td>2-6</td>
</tr>
</tbody>
</table>
Requirements

Degree Requirements

Total credits: 120

School of Business students pursuing a BS degree must complete a minimum of 120 credits, including the Mason Core requirements, business foundations, business core and major requirements. In addition, the following requirements must be met:

- A minimum of 45 credits at the 300- or 400-level.
- A minimum of 30 credits of School of Business core and major courses at Mason.

- At least 9 credits required for the specific major and BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135) taken at Mason.
- A grade of C or higher earned in the business foundations, business core and major requirements.

Students should carefully examine prerequisites for School of Business courses. Students may be removed from a course if they enroll without having fulfilled the prerequisites.

Mason Core Requirements

School of Business students must complete the Mason Core (p. 135) requirements, plus 1 additional credit of natural science (the School of Business natural science requirement must be fulfilled by completing two 4-credit laboratory sciences). Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed below. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>KINE 490</td>
<td>Kinesiology Internship III (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>AMGT 489</td>
<td>Internship in Arts Management</td>
<td>1-4</td>
</tr>
<tr>
<td>HDIFS 498</td>
<td>Internship and Analysis in Human Development and Family Science</td>
<td>3</td>
</tr>
<tr>
<td>ANTH 495</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>PRLS 490</td>
<td>Recreation Management Internship (Mason Core) (p. 135)</td>
<td>12</td>
</tr>
<tr>
<td>GGS 480</td>
<td>GGS Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>SPAN 490</td>
<td>Internship in Spanish</td>
<td>1-6</td>
</tr>
<tr>
<td>AVT 489</td>
<td>Internship in Art and Visual Technology</td>
<td>1-6</td>
</tr>
<tr>
<td>USST 490</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>WMST 400</td>
<td>Internship in Women and Gender Studies</td>
<td>1-3</td>
</tr>
<tr>
<td>HHS 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 480</td>
<td>Internship</td>
<td>6-12</td>
</tr>
<tr>
<td>HIST 399</td>
<td>Internship</td>
<td>1-9</td>
</tr>
<tr>
<td>RHBS 490</td>
<td>RS: Clinical Research Internship</td>
<td>3</td>
</tr>
<tr>
<td>LAS 490</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>HAP 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>KINE 341</td>
<td>Kinesiology Internship I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 480</td>
<td>Research Internship in Health and Human Services</td>
<td>3</td>
</tr>
<tr>
<td>MUSI 495</td>
<td>Internship in Music Education (Mason Core) (p. 135)</td>
<td>6-12</td>
</tr>
<tr>
<td>KINE 441</td>
<td>Kinesiology Internship II</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 409</td>
<td>Physics Internship</td>
<td>3</td>
</tr>
<tr>
<td>HHS 492</td>
<td>RS: Internship in Clinical Research</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 416</td>
<td>Internship in Sociology</td>
<td>1-6</td>
</tr>
<tr>
<td>FRLN 490</td>
<td>Internship in Foreign Language Studies</td>
<td>1-6</td>
</tr>
<tr>
<td>ENGR 395</td>
<td>Engineering Internship</td>
<td>3</td>
</tr>
<tr>
<td>GEOL 480</td>
<td>Internship</td>
<td>1-3</td>
</tr>
<tr>
<td>AVT 453</td>
<td>Professional Practices</td>
<td>3</td>
</tr>
<tr>
<td>CVPA 489</td>
<td>Field Experience in the Arts</td>
<td>3-6</td>
</tr>
<tr>
<td>GLOA 495</td>
<td>Global Experiential Learning</td>
<td>1-18</td>
</tr>
<tr>
<td>KINE 330</td>
<td>Seminar in Kinesiology</td>
<td>3</td>
</tr>
<tr>
<td>ECED 490</td>
<td>Internship in Early Childhood Education</td>
<td>1-6</td>
</tr>
<tr>
<td>FRSC 406</td>
<td>Forensic Internship</td>
<td>3</td>
</tr>
</tbody>
</table>

- School of Business students required to complete 8 credits of natural science by completing two 4-credit laboratory sciences.

Note:

Remaining Mason Core (p. 135) requirements are fulfilled with major coursework.

Business Foundations

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 203</td>
<td>Survey of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 204</td>
<td>Honors Survey of Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUS 100</td>
<td>Business and Society (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 103</td>
<td>Develop Professional Skills I: Foundational Elements</td>
<td>3</td>
</tr>
<tr>
<td>BUS 200</td>
<td>Global Environment of Business (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BUS 210</td>
<td>Business Analytics I</td>
<td>3</td>
</tr>
<tr>
<td>BUS 310</td>
<td>Business Analytics II</td>
<td>3</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 104</td>
<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3-4</td>
</tr>
</tbody>
</table>
MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135)

MATH 114 Analytic Geometry and Calculus II

HNRT 225 Applied Calculus

Total Credits 27-28

1 MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135) or MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) satisfies the Mason Core quantitative reasoning requirement.

Business Core

A grade of C or higher is required in each of the School of Business listed core courses.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 303</td>
<td>Accounting for Decision Making ¹</td>
<td>3</td>
</tr>
<tr>
<td>or ACCT 330</td>
<td>Financial Accounting I</td>
<td></td>
</tr>
<tr>
<td>BULE 303</td>
<td>Legal Environment of Business ¹</td>
<td>3</td>
</tr>
<tr>
<td>BUS 303</td>
<td>Develop Professional Skills II: Advanced Elements ¹</td>
<td>3</td>
</tr>
<tr>
<td>FNAN 303</td>
<td>Financial Management ¹</td>
<td>3</td>
</tr>
<tr>
<td>MGMT 303</td>
<td>Principles of Management ¹</td>
<td>3</td>
</tr>
<tr>
<td>MIS 303</td>
<td>Introduction to Business Information</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 303</td>
<td>Principles of Marketing ¹</td>
<td>3</td>
</tr>
<tr>
<td>OM 303</td>
<td>Operations Management ¹</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 24

¹ Students will not be permitted to make more than three attempts to achieve a C or higher in this course. Those who do not successfully complete these core courses within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Students terminated from the School of Business are prohibited from enrolling in any School of Business course. Students terminated from the School of Business are permitted to declare a business minor. For more information about this, see AP.5.2.4 Termination from the Major (p. 85).

General Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select 18-19 credits ¹</td>
<td></td>
<td>18-19</td>
</tr>
</tbody>
</table>

Total Credits 18-19

¹ General electives may be selected from any University or School of Business course, except courses designated for the Business minor (MBUS). Credits awarded as Associate Degree Elective Credit (ADEC) as part of a student’s transfer evaluation are also excluded from general electives.

Major Requirements in Marketing

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 312</td>
<td>Consumer Behavior</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 351</td>
<td>Marketing Research</td>
<td>3</td>
</tr>
<tr>
<td>MKTG 471</td>
<td>Marketing Management ¹</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Select 12 credits from the following list to fulfill the elective requirement as well as any other 300-400 level MKTG courses ²

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 311</td>
<td>Sales Management</td>
</tr>
<tr>
<td>MKTG 313</td>
<td>Advertising and Marketing Communications</td>
</tr>
<tr>
<td>MKTG 315</td>
<td>Digital Marketing</td>
</tr>
<tr>
<td>MKTG 332</td>
<td>Retailing and E-Commerce Management</td>
</tr>
<tr>
<td>MKTG 333</td>
<td>Business to Business Marketing</td>
</tr>
<tr>
<td>MKTG 352</td>
<td>Marketing Analytics for New Product Development</td>
</tr>
<tr>
<td>MKTG 353</td>
<td>New Product Development</td>
</tr>
<tr>
<td>MKTG 407</td>
<td>Global Marketing</td>
</tr>
<tr>
<td>MKTG 455</td>
<td>Ethnic and Multicultural Marketing</td>
</tr>
<tr>
<td>MKTG 462</td>
<td>Honors Seminar in Marketing (Topic Varies)</td>
</tr>
<tr>
<td>MKTG 481</td>
<td>RS: Marketing in the Nonprofit Sector</td>
</tr>
<tr>
<td>MKTG 491</td>
<td>Seminar in Marketing</td>
</tr>
<tr>
<td>MKTG 499</td>
<td>Independent Study</td>
</tr>
<tr>
<td>BUS 492</td>
<td>Undergraduate Internship</td>
</tr>
</tbody>
</table>

Total Credits 21

¹ Satisfies Writing Intensive requirement.
² Except MKTG 301 Principles of Marketing or MKTG 303 Principles of Marketing

Capstone

Students must successfully complete all Business Core courses to be eligible to enroll in BUS 498 Capstone Course: Advanced Business Models (Mason Core) (p. 135).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 498</td>
<td>Capstone Course: Advanced Business Models (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Second Majors in Marketing

Students declaring a second major in Marketing must complete the three required courses and three elective courses for the major.

Real Estate Development, MS

Banner Code: BU-MS-REAL

Graduate Program Office

Phone: 703-993-2136
Email: mred@gmu.edu

Administration

- Carolyn Grimsley, Director, MS in Real Estate Development

The MS in Real Estate Development program is designed to provide real estate professionals with the knowledge essential to assume increasingly responsible leadership roles within the development industry. Areas of emphasis include real estate finance, investment analysis, project management, sustainability and economic development. The distinctiveness of the Master’s program in Real Estate Development
offered by Mason lies in its multi-disciplinary curriculum, which incorporates coursework from the domains of business, engineering and public policy. Created in consultation with leading real estate development companies, the curriculum has been designed to strengthen the employment potential and upward mobility of industry professionals working in the areas of development, architecture, engineering, public planning, construction management, real estate finance, mortgage lending, property management, real estate law and related fields.

Admissions & Policies

Admissions
Requirements
All students registering for School of Business graduate courses must have graduate standing. Non degree student status is not available.

Full eligibility and admission requirements can be viewed here (http://business.gmu.edu/masters-in-real-estate-development/admissions).

Policies
The 36-hour curriculum includes 18 hours of required courses and 18 hours of electives. Students are responsible for familiarization and compliance with AP.6 Graduate Policies (p. 87).

Requirements
Degree Requirements
Total credits: 36

Required Courses
REAL 500 Real Estate Development Fundamentals 3
REAL 502 Real Estate Client Leadership and Project Management 3
REAL 630 Innovative Land Use, Approvals and Real Estate Development 3
REAL 750 MSRED Capstone 3
GBUS 746 Real Estate Analysis and Valuation 3
GBUS 747 Real Estate Finance 3
Total Credits 18

Electives
Select 18 credits of electives 1 18
Total Credits 18

1 Electives may be selected from other REAL courses (see below) and available offerings in appropriate areas including the School of Policy, Government, and International Affairs; the School of Business; the Sid and Reva Dewberry Department of Civil, Environmental, and Infrastructure Engineering; the Department of Geography and Geoinformation Science; and the Department of Environmental Science and Policy.

Students wishing to choose a field for emphasis may select, with the approval of a faculty advisor, 3 elective courses within the field that together constitute an emphasis area. They must also then take 3 courses outside the selected emphasis to reach the required elective total of 18. With prior approval of an advisor, students may design their own emphasis. The following are examples of fields for emphasis and courses within each field which may be selected.

Real Estate Development Emphasis
Select 3 courses from the following: 9
REAL 620 Real Estate Entrepreneurship
GGS 550 Geospatial Science Fundamentals
GBUS 748 Real Estate Investment
PUBP 602 Regional Economic Development: Strategies and Applications
Total Credits 9

Real Estate Finance Emphasis
Select 3 courses from the following: 9
GGS 550 Geospatial Science Fundamentals
GBUS 748 Real Estate Investment
MBA 603 Managerial Economics and Decisions of the Firm
PUBP 721 Transportation Economics
PUBP 781 Entrepreneurship and Economic Development
Total Credits 9

Environment and Sustainability Emphasis
Select 3 courses from the following: 9
CEIE 501 Sustainable Development
CEIE 550 Environmental Engineering Systems
CEIE 556 Environmental Law
EVPP 638 Corporate Environmental Management and Policy
PUBP 745 Transportation and the Environment
Total Credits 9

Electives Continued
The following courses may be included as electives by all students:

REAL 610 Management of Real Estate Design and Development 3
REAL 615 Real Estate Market Analysis and Research 3
REAL 690 Topics in Real Estate Development 1-6
REAL 796 Directed Reading 1-6

Technology Management, MS

Banner Code: BU-MS-TECM

Graduate Program Office
Phone: 703-993-2136
Email: techman@gmu.edu

Administration

- Candace Deans, Academic Director, MS in Technology Management Program & Co-Academic Director, MS in Management of Secure Information Systems Programs
The MS in technology management is designed to provide students with a graduate management education that will help them further their leadership careers in technology and technology-oriented businesses and organizations. With technology innovation and commercialization occurring at an increasing pace and industries becoming more networked and global, business success depends on the successful management of technology. Companies are succeeding with rapid innovation, insightful technology integration, creation of focused technology organizations, and skillful management of complexity. The program addresses how to succeed in this marketplace and emphasizes leadership and management; special considerations of technology innovation, commercialization, introduction, and integration; and methods and approaches of systems thinking.

The program, designed for working professionals, starts in January and lasts for 16 months. Classes are held on the Arlington Campus on Saturdays from 8 a.m. to 5 p.m. The program is 36 credits and includes a capstone project and an international residency. The international residency is approximately 8 days abroad focusing on global topics in technology management.

### Admissions & Policies

#### Admissions

All students registering for School of Business graduate courses must have graduate standing. Nondegree student status is not available.

Full eligibility and admission requirements can be viewed here (http://business.gmu.edu/masters-in-technology-management/admissions).

#### Policies

Students are responsible for familiarization and compliance with the university’s Graduate Policies (p. 87).

### Requirements

#### Degree Requirements

Total credits: 36

Courses with variable credits (1-2) are established for each entering class to comply with the total hour requirement of 36 credit hours.

#### Coursework

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECM 601</td>
<td>HiTech Business Models</td>
<td>1</td>
</tr>
<tr>
<td>TECM 602</td>
<td>Emerging Technologies and the New CIO</td>
<td>1</td>
</tr>
<tr>
<td>TECM 611</td>
<td>Leadership and Change Management</td>
<td>2</td>
</tr>
<tr>
<td>TECM 614</td>
<td>Financial and Cost Accounting</td>
<td>2</td>
</tr>
<tr>
<td>Two credits of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECM 620</td>
<td>Economics of Technology Management</td>
<td>2</td>
</tr>
<tr>
<td>Two credits of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECM 635</td>
<td>Decision Models for Technology Management</td>
<td>2</td>
</tr>
<tr>
<td>Two credits of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECM 641</td>
<td>Negotiation and Conflict Management</td>
<td>2</td>
</tr>
<tr>
<td>TECM 643</td>
<td>Managerial Finance</td>
<td>2</td>
</tr>
<tr>
<td>TECM 702</td>
<td>Building High Performance Teams</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECM 704</td>
<td>Management of Technology Projects and Portfolios</td>
<td>2</td>
</tr>
<tr>
<td>TECM 711</td>
<td>Deriving Strategic Value from IT Investments</td>
<td>2</td>
</tr>
<tr>
<td>TECM 720</td>
<td>Competitive Strategy in Technology Industries</td>
<td>2</td>
</tr>
<tr>
<td>Three credits of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TECM 735</td>
<td>Technology Management Capstone Project</td>
<td>3</td>
</tr>
<tr>
<td>TECM 741</td>
<td>Marketing of Innovations and Technology</td>
<td>2</td>
</tr>
<tr>
<td>TECM 745</td>
<td>Leading and Managing IT Operations</td>
<td>2</td>
</tr>
<tr>
<td>TECM 746</td>
<td>Enterprise Architecture and IT Governance</td>
<td>2</td>
</tr>
<tr>
<td>TECM 747</td>
<td>Information Assurance and Security Management</td>
<td>2</td>
</tr>
</tbody>
</table>

Complete one of the following tracks:

#### Global Track

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECM 752</td>
<td>Global Tech Management</td>
<td></td>
</tr>
</tbody>
</table>

#### Information Security Management Track

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECM 743</td>
<td>Security Risk Analysis and Assessment</td>
<td></td>
</tr>
<tr>
<td>TECM 744</td>
<td>IT Audit Control</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 36
Recognized in 1997 as a Commonwealth Center of Excellence by the Virginia Legislature, S-CAR is committed to serving our students, faculty and staff; our local community, our global mission, and the field of Conflict Analysis and Resolution. S-CAR is a leader in George Mason University’s commitment to be a University for the world, leveraging our long history of engagement in research and intervention in real world problems and our strength in preparing our graduates to productively engage in our local and global challenges. S-CAR strives to break down the silos of domestic and international conflict research and practice with teaching, research and practice that cut across levels of conflict.

Our world class faculty has published foundational texts on such topics as culture, social identity, narrative, religion, history and education, gender, and peacebuilding and consciousness. As scholar-practitioners, their projects and teaching engage them around the globe, including in the Middle East, Africa, the Caucasus, and here in the United States.

We offer a full complement of degree programs: Bachelors, Master's, Graduate Certificate, and Doctoral degrees that develop students’ ability to engage with theory and build their own practice.

**Undergraduate Programs**

**Bachelor's Degrees and Minors**

Conflict Analysis and Resolution offers students a BA, a BS, or a minor in an interdisciplinary social science field with practical applications. The field of conflict analysis and resolution analyzes the sources and dynamics of conflict and the means for resolution toward lasting peace. Conflict resolution students take a series of core courses that provide a background in conflict theory, analysis, and conflict resolution skills. All conflict analysis and resolution majors also choose an area of concentration. There are six concentrations: Building Peace in Divided Societies, Global Engagement, Political and Social Action, Justice and Reconciliation, Interpersonal Dynamics, and Collaborative Leadership. After selecting a concentration, students choose courses from units throughout the university that relate to the concentration and their areas of interest. The major also requires three credits of field experience in the form of an internship, independent research, or study abroad.

**Bachelor's/Accelerated Master's**

**Bachelor's/Accelerated Master's**

The School offers qualified undergraduates the opportunity to apply to the accelerated master's degree program. If accepted, students will earn both an undergraduate and a graduate degree after satisfactory completion of 155 credits, sometimes within 5 years. More information about the degree options and application process may be found here (http://scar.gmu.edu/undergraduate/degrees/accelerated-masters).

**Graduate Programs**

**PhD Program**

The PhD program in Conflict Analysis and Resolution, the first of its kind in the United States, provides advanced study for students in the fields of conflict and conflict resolution. Students are prepared for careers as researchers, theoreticians, and teachers in higher education, and as policy administrators, analysts, and consultants in the public and the private sectors. The program stresses a close link between knowledge of theory and process in the resolution of conflict. For this, training in the methods of research and analysis is emphasized. In addition, students are expected to obtain a background in a substantive area of conflict, usually related to the topic of the dissertation.

**MS Program**

The MS in Conflict Analysis and Resolution is a professional program that prepares students for practice and further academic work by integrating conflict analysis and resolution theory, research, and practical techniques. Participants study the theory, methods, and ethical perspectives of the field, and apply this knowledge in laboratory simulations and workshops, internships, and field practice. Graduates work in a variety of settings where conflict resolution is useful and interest groups are in conflict with current and emergent public policy. Examples are businesses, unions, government agencies, religious groups, court systems, educational institutions, community centers, international relief and development organizations, and consulting firms.

**Graduate Certificates**

Four graduate certificate programs are administered by S-CAR. Each of these one-year, 15-credit programs is specifically tailored to provide students with practical knowledge of conflict analysis and resolution relevant to their focused areas of work. Designed for mid-career professionals studying in a cohort environment, the certificate programs integrate conflict analysis and resolution theory, research, and practical technique. These programs use intensive course sessions, lecture, seminar, and applied mentored learning in real and simulated situations to prepare students to use conflict analysis and resolution approaches in their work in a variety of fields.

**Faculty**

**School Faculty**

**Professors**

Avruch, Cobb, Gopin, Hirsch, Jeong, Korostelina, Rothbart, Rubenstein, Sandole

**Associate professors**

Allen, Dwyer, Flores, Lyons, Maulden, Paczynska, Schoeny, Simmons

**Assistant professors**

Firchow, Irvin-Erickson, Lopez Bunyasi, Romano, Shedd

**Research professors**

Price, Stanton

**Affiliate faculty**


**Emeritus faculty**

Cheldelin, Mitchell, Sluzki
Requirements & Policies

Policies
Students should become familiar with the university’s general academic policies in addition to those specific to each academic unit. Please see the Academic Policies (p. 74) section of this catalog.

Transfer Students
Admitted and enrolled transfer students who have completed an AA, AS, or AA&S degree from the Virginia Community College System (VCCS) and have been offered admission to Mason by the Office of Admissions may be eligible for a waiver of all George Mason University’s Mason Core (p. 135) requirements in accordance with the Guaranteed Admission Agreement. Students eligible for this waiver are still required by the university to complete ENGH 302 Advanced Composition (Mason Core) (p. 135) and a synthesis course.

Transfer students who have been offered admission under the terms of the Guaranteed Admission Agreement and are pursuing a BA are considered to have met all school requirements except for proficiency in a foreign language.

Students with a bachelor’s degree from an accredited institution who are pursuing a BA in this school are considered to have met all school requirements except for proficiency in a foreign language.

Appeal of Decisions
The policies of the School for Conflict Analysis and Resolution are designed to be consistent, equitable, and transparent. Our office strives to be thorough, timely, and open to answer any questions students may have regarding our decisions and/or the process through which they were reached. Students seeking clarification and explanation of the decision should request an appointment with the S-CAR Program Director to discuss their concerns.

Students have the right to appeal decisions regarding requests for academic actions. This step can only be taken after a request to meet with the Program Director. Students who wish to pursue an appeal after this meeting should do so only if they can provide sufficient and compelling reasons for their initial claim to be reconsidered. Such reasons include newly available documentation, proof of an irregularity in procedures, proof of inequity or inconsistency, or consequences so serious that further review is warranted. A student’s dissatisfaction or disagreement with the decision does not constitute sufficient reason for a decision to be changed. Appeals are first reviewed by the Program Director. If denied, the appeal is forwarded to the S-CAR Dean. The decision of the S-CAR Dean is the final decision of the School.

If the appeal is a case involving a school-level policy, the Dean serves as the final point of appeal. If the appeal involves university level policies, students must first complete the school-level appeal process before appealing to the Provost’s Office.

Programs
- Advanced Skills Graduate Certificate
- Conflict Analysis and Resolution Minor
- Conflict Analysis and Resolution, BA
- Conflict Analysis and Resolution, BS
- Conflict Analysis and Resolution, MS
- Conflict Analysis and Resolution, PhD
- Conflict Resolution in Communities Graduate Certificate
- Prevention, Reconstruction, and Stabilization Contexts Graduate Certificate
- Sport and Conflict Resolution Minor (SCAR)
- World Religions, Diplomacy, and Conflict Resolution Graduate Certificate

Advanced Skills Graduate Certificate
Banner Code: CA-CERG-CARA
This 15-credit program is specifically tailored to provide students with practical knowledge of conflict analysis and resolution relevant to their focused areas of work. Designed for midcareer professionals studying in a cohort environment, the certificate programs integrate conflict analysis and resolution theory, research, and practical techniques. These programs use intensive course sessions, lecture, seminar, and applied mentored learning in real and simulated situations to prepare students to use conflict analysis and resolution approaches in their work in a variety of fields. The Advanced Skills Certificate covers conflict resolution skills in challenging conflicts and considers innovative and emerging practices.

The Advanced Skills Graduate Certificate may only be pursued on a part-time basis, unless a student is concurrently enrolled in another degree program or takes additional courses over those required for the certificate program.

Admissions & Policies

Admissions
Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). In addition to meeting all admission requirements for graduate study, applicants must submit an undergraduate transcript showing completion of an undergraduate degree or equivalent, a cover letter specifying interest in the program, two letters of recommendation and a curriculum vitae or résumé indicating relevant work experience.

In addition, prior work experience in areas related to the chosen graduate certificate is desirable. GRE or other standardized test scores are not required but may be submitted. The TOEFL is required of international students. For more information, see Admission of International Students (p. 68). Although students may enter the program in either the fall or spring semester, they are strongly encouraged to participate fully in the cohort learning experience by enrolling for the fall semester, taking two courses in the fall and two in the spring, and completing their certificate with the final course in the summer. The capstone course is only offered in the summer, students admitted for the spring term should expect their certificate program to take at least 18 months.

Policies
Class Schedule
Note that some classes for this graduate certificate are offered only in Saturday and Sunday sessions. Please check the Schedule of Classes for...
each term to identify course meeting dates, and specific add/drop dates for these partial semester courses.

## Certificate Requirements

**Total credits: 15**

### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 502</td>
<td>Intensive Introduction to Conflict Analysis and Resolution (fall and spring)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 650</td>
<td>Conflict Analysis and Resolution Advanced Skills (fall)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 660</td>
<td>Conflict Assessment and Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>CONF 668</td>
<td>Applied Integration for Graduate Certificates (summer)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

### Elective

Select 3 credits from the following:

- CONF 657 Facilitation Skills (spring)
- CONF 658 Diversity and Difference in Conflict Analysis and Resolution (spring)
- CONF 659 Leadership in Conflict Analysis and Resolution (spring)
- CONF 665 Special Topics in Conflict Analysis and Resolution

Total Credits: 3

1 Application of any other course toward fulfillment of the elective requirement must be approved by the Certificate Program Director.

2 CONF 501 may also be used to fulfill this requirement

## Conflict Analysis and Resolution Minor

**Banner Code: CONF**

This minor provides students with the theory and skills to examine how and why conflicts occur and what can be done to mitigate their destructive aspects while reinforcing their constructive potential. Courses in the minor highlight relational, social, structural, and cultural factors that influence conflict and its resolution. This minor engages students in understanding the complexity of contemporary issues and problems and can be applied to many fields of study or professional careers.

### Advising

Advisors help students create a course of study that meets their interests and career goals. All majors and minors are strongly encouraged to meet regularly with an academic advisor from the School who will help students develop and follow a coherent plan of study and complete the degree in a timely manner.

## Admissions & Policies

### Admissions

This minor is open to all undergraduate students.

### Policies

Students pursuing this minor must complete 15 credits of coursework in conflict analysis and resolution with a minimum GPA of 2.00. Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

## Conflict Analysis and Resolution, BA

**Banner Code: CA-BA-CONF**

The world is becoming increasingly connected and the ability to create and maintain cross-cultural connections is more important than ever. As the effects of violence and conflict are felt throughout the global community, we are seeing more and more opportunities for collaboration, problem solving, and peacebuilding in local communities and across international barriers. To prepare our students to make cross-cultural connections, Bachelor’s of Arts in Conflict Analysis and Resolution students must demonstrate intermediate level proficiency in a foreign language.

### Concentrations

All conflict analysis and resolution majors choose an area of concentration from the following:

- Building Peace in Divided Societies
- Global Engagement
• Political and Social Action
• Justice and Reconciliation
• Interpersonal Dynamics
• Collaborative Leadership

Advising
School for Conflict Analysis and Resolution advisors help students create an interdisciplinary course of study that meets their interests and career goals. All majors are strongly encouraged to meet regularly with an academic advisor from the School who will help students develop and follow a coherent plan of study and complete the degree in a timely manner.

Admissions & Policies

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Major Coursework Grade Requirement
Students cannot use more than 12 credits of coursework within the major with a C- or D grade to count towards the Conflict Analysis and Resolution, BA. If a student receives C- or D grades in excess of the allowed number, they may retake courses to meet the major coursework grade requirement for graduation. Students taking a graduate course for undergraduate credit must achieve a grade of B- or higher for graduate course credits to count towards their undergraduate degree.

Transfer Students
For policies governing admission and requirements for students transferring from another college or university, see Undergraduate Admission Policies - Transfer. (p. 65)

Requirements

Degree Requirements
Total credits: 120

Students must fulfill all requirements for bachelor’s degrees as stated in Academic Policies including all Mason Core requirements. Students majoring in Conflict Analysis and Resolution must also complete the college-level requirements for foreign language proficiency as well as 51 major requirement credits for the BA degree.

Students pursuing a double major/degree with a program outside of the S-CAR undergraduate program will be expected to fulfill all of the Mason Core and college requirements necessary to complete the second major. Please check with the second major department concerning additional requirements.

Required Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 101</td>
<td>Conflict and Our World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 210</td>
<td>Theories of Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 300</td>
<td>Conflict Resolution Techniques and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Field Experience
Students can choose to fulfill this requirement through an internship, service learning, study abroad, or independent study.

Students may not be approved for field experience until they have earned at least 30 credits. It is recommended that students complete at least nine credits of conflict coursework before applying for field experience credit. Prior approval by the Director of Field Experience is required for students to receive credit through any field experience options. Students interested in trips with S-CAR can find information at scar.gmu.edu/field-experience (http://scar.gmu.edu/field-experience). Students interested in study abroad through the Center for Global Education can find information at globaled.gmu.edu (http://globaled.gmu.edu). Please contact an S-CAR advisor with questions or for information on the opportunities, policies, and procedures for field experience credit.

Select a minimum of three credits from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CONF 375</td>
<td>Special Programs Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CONF 385</td>
<td>International Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CONF 485</td>
<td>Service Learning Intensive</td>
<td>3</td>
</tr>
<tr>
<td>CONF 499</td>
<td>Independent Research in Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Skills and Practice
This three credit requirement can be fulfilled by taking:

1. an additional 3 credits of field experience, OR
2. a foreign language course at the 250 level or higher, OR
3. one of the 3 credit courses or three of the 1 credit courses listed below:

Select one of these 3 credit courses: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 325</td>
<td>Dialogue and Difference</td>
<td>3</td>
</tr>
<tr>
<td>CONF 398</td>
<td>Special Topics in Advanced Techniques and Practices</td>
<td>3</td>
</tr>
</tbody>
</table>

Or select three of these 1 credit skills courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 310</td>
<td>Special Topics in Practice</td>
<td>1</td>
</tr>
<tr>
<td>CONF 314</td>
<td>Advising Seminar for Conflict Majors</td>
<td>1</td>
</tr>
<tr>
<td>CONF 331</td>
<td>Simulation in Community and Organizational Conflict Resolution</td>
<td>1</td>
</tr>
<tr>
<td>CONF 341</td>
<td>Simulation in Global Conflict Resolution</td>
<td>1</td>
</tr>
<tr>
<td>CONF 499</td>
<td>Independent Research in Conflict Analysis and Resolution</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits 3
Courses may NOT double count for the concentration requirement and the skills and practice requirement.

Concentrations
There are six concentrations.

To fulfill the concentration requirement students select six concentration courses. Four of those six courses must be taken from within their chosen concentration. The remaining two concentration courses may be taken from any of the concentration course lists. Special topics courses relevant to the concentration and/or courses that provide regional expertise can be substituted with departmental approval. Students are encouraged to check special topics courses each semester and think creatively about the applicability of courses that support learning in their chosen concentration. At least two of the six concentration courses must be CONF courses. Courses may not double count for the concentration requirement and the skills and practice requirement.

Concentration in Building Peace in Divided Societies (BPDS)
Focuses on how divided societies with a history of conflict seek to transform relationships and situations of violence and injustice. Examines communities and societies that have experienced conflict and how individuals and groups build peace locally and globally.

Select at least four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 325</td>
<td>Dialogue and Difference</td>
</tr>
<tr>
<td>CONF 435</td>
<td>Building Peace in Divided Societies</td>
</tr>
<tr>
<td>COMM 305</td>
<td>Foundations of Intercultural Communication</td>
</tr>
<tr>
<td>CULT 320</td>
<td>Globalization and Culture</td>
</tr>
<tr>
<td>ECON 360</td>
<td>Economics of Developing Areas (Mason Core)</td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
</tr>
<tr>
<td>GOVT 342</td>
<td>Diplomacy</td>
</tr>
<tr>
<td>HIST 373</td>
<td>The Civil War and Reconstruction</td>
</tr>
<tr>
<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
</tr>
<tr>
<td>SOCI 320</td>
<td>Social Structure and Globalization (Mason Core)</td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Global Engagement (GLBE)
Focuses on studying the dynamics and impact of global conflict resolution. Examines domestic and international dimensions of security, state-to-state conflict, internal wars, terrorism, migration, negotiation, and diplomacy. Explores what can be done to reduce violent conflict and increase peace and security.

Select at least four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 345</td>
<td>Social Dynamics of Terrorism, Security, and Justice</td>
</tr>
<tr>
<td>CRIM 405</td>
<td>Law and Justice around the World (Mason Core)</td>
</tr>
<tr>
<td>ECON 385</td>
<td>International Economic Policy</td>
</tr>
<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Political and Social Action (PSA)
Focuses on the ways that people organize themselves to effect change in their societies. This concentration explores social action, social organization, social movements, and civil resistance to analyze and investigate the role of constructive conflict.

Select at least four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 394</td>
<td>Human Rights and Inequality</td>
</tr>
<tr>
<td>COMM 326</td>
<td>Rhetoric of Social Movements and Political Controversy (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ECON 309</td>
<td>Economic Problems and Public Policies (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GOVT 301</td>
<td>Public Law and the Judicial Process</td>
</tr>
<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
</tr>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
</tr>
<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
</tr>
<tr>
<td>PSYC 427</td>
<td>Community Engagement for Social Change (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SOCI 340</td>
<td>Power, Politics, and Society</td>
</tr>
<tr>
<td>SOCI 352</td>
<td>Social Problems and Solutions (Mason Core)</td>
</tr>
</tbody>
</table>

Total Credits 12

Concentration in Justice and Reconciliation (JRCN)
Focuses on the relationships between human rights, justice, and conflict resolution. Encompasses a spectrum of coursework including legal dimensions of human rights, trauma, memory, healing, conflict transformation, and forms of restorative justice.

Select four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 394</td>
<td>Human Rights and Inequality</td>
</tr>
<tr>
<td>CONF 435</td>
<td>Building Peace in Divided Societies</td>
</tr>
<tr>
<td>CRIM 307</td>
<td>Social Inequality, Crime, and Justice</td>
</tr>
<tr>
<td>CRIM 404</td>
<td>Crime Victims and Victimization</td>
</tr>
<tr>
<td>CRIM 406</td>
<td>Family Law and the Justice System</td>
</tr>
<tr>
<td>INTS 300</td>
<td>Law and Justice</td>
</tr>
<tr>
<td>INTS 314</td>
<td>Conflict, Trauma and Healing</td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
</tr>
<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core)</td>
</tr>
</tbody>
</table>

Total Credits 12
**Concentration in Interpersonal Dynamics (INTD)**

Focuses on the dynamics of social interaction that lead to interpersonal conflict and the processes and skills that support the transformation of these conflicts. Issues examined include intercultural communication, psychology of groups, family relationships, and other dimensions of human relations.

Select four of the six concentration courses from the following:

- CONF 325 Dialogue and Difference
- CONF 425 Mediating Conflict
- COMM 301 Foundations of Interpersonal Communication
- COMM 305 Foundations of Intercultural Communication (Mason Core) (p. 135)
- COMM 401 Interpersonal Communication in the Workplace
- INTS 317 Issues in Family Relationships
- PSYC 231 Social Psychology (Mason Core) (p. 135)
- PSYC 379 Applied Cross-Cultural Psychology (Mason Core) (p. 135)
- PSYC 417 Science of Well Being
- PSYC 467 The Psychology of Working in Groups and Teams
- SOCI 309 Marriage, Families, and Intimate Life
- SOCI 315 Contemporary Gender Relations

Total Credits 12

**Concentration in Collaborative Leadership (CLDR)**

Focuses on improving the capacity of leaders to work with conflict and manage change. Includes topics in conflict transformation, mediation, dialogue, and organizational leadership.

Select four of the six concentration courses from the following:

- CONF 325 Dialogue and Difference
- COMM 201 Small Group Communication
- COMM 335 Organizational Communication
- GOVT 351 Administration in the Political System
- INTS 331 The Nonprofit Sector
- INTS 404 Ethics and Leadership
- INTS 435 Leadership in a Changing Environment
- MBUS 301 Managing People and Organizations in a Global Economy
- PRLS 316 Leadership and Outdoor Education
- PSYC 333 Industrial and Organizational Psychology
- PSYC 335 Psychology of Creativity and Innovation

Total Credits 12

**Individualized Concentration (IND)**

Students interested in creating their own concentration can work with an advisor to decide upon a set of at least six courses that form a cohesive theme and will fulfill the requirements of the BA in Conflict Analysis and Resolution. Individualized concentrations must be approved by the Director of the Undergraduate Program.

**Foreign Language Proficiency**

Students must demonstrate intermediate-level proficiency in one foreign language. This requirement may be fulfilled by successfully completing a course in a foreign language course numbered 202, 209, or 210 (or higher level courses taught in the language) or achieving a satisfactory score on a university approved foreign language proficiency test. Students who are already proficient in a second language may be eligible for a waiver of this requirement.

**Writing-Intensive Requirement**

All Mason students are required to complete at least one course designated as "writing intensive" in their major at the 300-level or above. CONF 302 Culture, Identity, and Conflict has been designated "writing intensive."

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Foundation Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oral Communication (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Quantitative Reasoning (p. 136)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone Requirement¹</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>40</td>
</tr>
</tbody>
</table>

¹ minimum 3 credits

**Electives**

Remaining credits needed to bring the degree total to 120 may be fulfilled with general elective courses. Up to 3 credits of Recreation (RECR) activity courses may be taken as general elective credits.

**Accelerated Master’s**

**Conflict Analysis and Resolution, BA or BS/Conflict Analysis and Resolution, Accelerated MS**

**Overview**

The Accelerated Master’s is designed for highly qualified and motivated undergraduate students majoring in Conflict Analysis and Resolution. If accepted, students may take up to 12 credits of graduate coursework
before undergraduate degree conferral and will be able to earn the Conflict Analysis and Resolution, BA (p. 885) or BS (p. 891) and the Conflict Analysis and Resolution, MS (p. 897) after satisfactory completion of 155 credits. The time period for the combined program is typically five years. It provides a streamlined MS application process with no additional application fee.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For additional application requirements and information specific to the accelerated Conflict Analysis and Resolution, MS (p. 897), see Eligibility, Policies, and Deadlines (http://scar.gmu.edu/undergraduate/degrees/accelerated-masters) on the departmental web site.

Accelerated Option Requirements
• During the first semester of senior year, after completing 90 hours of undergraduate coursework, admitted students may take up to 6 credits (1-2 classes) that will count towards both their undergraduate AND graduate degrees. During the second semester of senior year, students may take up to 6 credits (1-2 classes) that will count towards the graduate degree only.
• At the beginning of the last semester of undergraduate study, the Bachelor's/Accelerated Master's Transition Form must be submitted to the Office of the University Registrar. Upon completion and conferral of the undergraduate degree they are admitted to graduate status.
• Students must begin their master's program the semester immediately following conferral of the undergraduate degree and will be expected to complete all remaining graduate program requirements within five years.
• Additional policies can be found on the program website (http://scar.gmu.edu).

GPA Requirements
• Students must have a minimum cumulative GPA of a 3.25 or higher at the time of application.
• No grade below a B is permitted for any undergraduate or graduate CONF course taken after application to the accelerated master’s program until completion of the undergraduate program.
• If a student receives a grade below a B in any CONF course after acceptance in the program, they will not be allowed to continue on to the master’s program. Students that have received a grade below a B in a CONF course after acceptance into the program may re-apply to the master’s program after conferral of the undergraduate degree however; re-application does not guarantee admission.
• At the time of the undergraduate degree conferral, students’ GPAs must meet the standard required for admission to the master’s degree.

Course Criteria
• Students may only take courses indicated on their Accelerated Master's Program Application and approved by an academic advisor.
• Students may not take more than 12 credits a semester if taking two graduate courses or 15 credits a semester if taking one graduate course.

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview
Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master's degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Selected Majors
• Art history (p. 384)
• Philosophy (p. 432)
• Conflict analysis and resolution (p. 882)
• Global affairs (p. 509)
• History (p. 394)
• Religious studies (p. 477)
• History (p. 394)
• Sociology (p. 494)
• Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studie (p. 477).s.

Application Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

Accelerated Option Requirements
While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master's Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
</tbody>
</table>
As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td></td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td></td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td></td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)**

**Overview**

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

**Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)**

**Overview**

Highly-qualified undergraduates in select majors may apply to the accelerated master's degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in interdisciplinary studies with a concentration in women and gender
studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-mais-isin/application on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferment of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. To apply these credits to the master’s degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td></td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Conflict Analysis and Resolution, BS**

**Banner Code:** CA-BS-CONF

Analytical skills and techniques are critical to solving the world’s toughest problems. In order to solve conflict we must first understand it. Critical thinking and research skills are the focus of our Bachelor of Science program and are in demand by employers of all sectors. Students pursuing a Bachelor’s of Science in Conflict Analysis and Resolution develop research skills and have the opportunity to gain experience designing surveys, conducting interviews, analyzing statistics, and organizing data.

All conflict analysis and resolution majors choose an area of concentration:

- Building Peace in Divided Societies
- Global Engagement
- Political and Social Action
- Justice and Reconciliation
- Interpersonal Dynamics
- Collaborative Leadership

**Advising**

Advisors help students create an interdisciplinary course of study that meets their interests and career goals. All majors are strongly encouraged to meet regularly with an academic advisor from the School who will help students develop and follow a coherent plan of study and complete the degree in a timely manner.

**Admissions & Policies**

**Policies**

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

**Major Coursework Grade Requirement**

Students cannot use more than 12 credits of coursework within the major with a C- or D grade to count towards the Conflict Analysis and Resolution, BS. If a student receives C- or D grades in excess of the allowed number, they may retake courses to meet the major coursework grade requirement for graduation. Students taking a graduate course for undergraduate credit must achieve a grade of B- or higher for graduate course credits to count towards their undergraduate degree.

**Transfer Students**

For policies governing admission and requirements for students transferring from another college or university, see Undergraduate Admission Policies - Transfer. (p. 65)

**Degree Requirements**

**Total credits: 120**
Students must fulfill all requirements for bachelor's degrees as stated in Academic Policies including all Mason Core requirements. S-CAR majors must complete the 6 credit college-level requirement in research methods as well as 51 major requirement credits for the BS degree.

Students pursuing a double major/degree with a program outside of the S-CAR undergraduate program will be expected to fulfill all of the Mason Core and college requirements necessary to complete the second major. Please check with the second major department concerning additional requirements.

**Required Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 101</td>
<td>Conflict and Our World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 210</td>
<td>Theories of Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 300</td>
<td>Conflict Resolution Techniques and Practice</td>
<td>3</td>
</tr>
<tr>
<td>CONF 301</td>
<td>Research and Inquiry in Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 302</td>
<td>Culture, Identity, and Conflict</td>
<td>3</td>
</tr>
<tr>
<td>CONF 320</td>
<td>Interpersonal Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 330</td>
<td>Community, Group, and Organizational Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 340</td>
<td>Global Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 490</td>
<td>RS: Integration (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

27

**Field Experience**

Students can choose to fulfill this requirement through an internship, service learning, study abroad, or independent study.

Students may not be approved for field experience until they have earned at least 30 credits. It is recommended that students complete at least 9 credits of conflict coursework before applying for field experience credit. Prior approval by the Director of Field Experience is required for students to receive credit through any field experience options. Students interested in trips with S-CAR can find information at scar.gmu.edu/field-experience. Students interested in study abroad through the Center for Global Education can find information at globaled.gmu.edu. Please contact an S-CAR advisor with questions or for information on the opportunities, policies, and procedures for field experience credit.

Select a minimum of three credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 370</td>
<td>Internship Field Experience</td>
<td>3</td>
</tr>
<tr>
<td>CONF 375</td>
<td>Special Programs Field Experience</td>
<td></td>
</tr>
<tr>
<td>CONF 385</td>
<td>International Field Experience</td>
<td></td>
</tr>
<tr>
<td>CONF 485</td>
<td>Service Learning Intensive</td>
<td></td>
</tr>
<tr>
<td>CONF 499</td>
<td>Independent Research in Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

3

**Skills and Practice**

This three credit requirement can be fulfilled by taking

1. an additional 3 credits of field experience, OR
2. a foreign language course at the 250 level or higher, OR
3. one 3 credit course or three 1 credit courses from the following:

Select one of these 3 credit courses: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 325</td>
<td>Dialogue and Difference</td>
<td></td>
</tr>
<tr>
<td>CONF 398</td>
<td>Special Topics in Advanced Techniques and Practices</td>
<td></td>
</tr>
</tbody>
</table>

Or select 3 of these 1 credit skills courses: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 310</td>
<td>Special Topics in Practice</td>
<td></td>
</tr>
<tr>
<td>CONF 314</td>
<td>Advising Seminar for Conflict Majors</td>
<td></td>
</tr>
<tr>
<td>CONF 331</td>
<td>Simulation in Community and Organizational Conflict Resolution</td>
<td></td>
</tr>
<tr>
<td>CONF 341</td>
<td>Simulation in Global Conflict Resolution</td>
<td></td>
</tr>
<tr>
<td>CONF 499</td>
<td>Independent Research in Conflict Analysis and Resolution</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

3

Courses may NOT double count for the concentration requirement and the skills and practice requirement.

**Research Methods**

Select at least six credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 380</td>
<td>Language and Culture</td>
<td></td>
</tr>
<tr>
<td>ANTH 450</td>
<td>Qualitative Methods: Nonstatistical Approaches in Culture and Social Research</td>
<td></td>
</tr>
<tr>
<td>CRIM 315</td>
<td>Research Methods and Analysis in Criminology</td>
<td></td>
</tr>
<tr>
<td>ENGH 318</td>
<td>Introduction to Cultural Studies</td>
<td></td>
</tr>
<tr>
<td>GOVT 300</td>
<td>Research Methods and Analysis (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>GOVT 366</td>
<td>Public Policy Analysis</td>
<td></td>
</tr>
<tr>
<td>HIST 300</td>
<td>Introduction to Historical Method (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>HIST 390</td>
<td>The Digital Past (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>PHIL 357</td>
<td>Philosophy of the Social Sciences</td>
<td></td>
</tr>
<tr>
<td>PHIL 358</td>
<td>Issues in Sociology</td>
<td></td>
</tr>
<tr>
<td>PSYC 300</td>
<td>Statistics in Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 301</td>
<td>Research Methods in Psychology</td>
<td></td>
</tr>
<tr>
<td>SOCI 303</td>
<td>Methods and Logic of Inquiry</td>
<td></td>
</tr>
<tr>
<td>SOCI 313</td>
<td>Statistics for the Behavioral Sciences (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>SOCI 410</td>
<td>Social Surveys and Attitude and Opinion Measurements (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
<td></td>
</tr>
<tr>
<td>STAT 362</td>
<td>Introduction to Computer Statistical Packages</td>
<td></td>
</tr>
<tr>
<td>STAT 474</td>
<td>Introduction to Survey Sampling</td>
<td></td>
</tr>
<tr>
<td>WMST 410</td>
<td>Feminist Approaches to Social Research</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

6

**Concentrations**

There are six concentrations:

To fulfill the concentration requirement students select six concentration courses. Four of those six courses must be taken from within their
chosen concentration. The remaining two concentration courses may be taken from any of the concentration course lists. Special topics courses relevant to the concentration and/or courses that provide regional expertise can be substituted with departmental approval. Students are encouraged to check special topics courses each semester and think creatively about the applicability of courses that support learning in their chosen concentration. At least two of the six concentration courses must be CONF courses. Courses may not double count for the concentration requirement and the skills and practice requirement.

**Concentration in Building Peace in Divided Societies (BPDS)**

Focuses on how divided societies with a history of conflict seek to transform relationships and situations of violence and injustice. Examines communities and societies that have experienced conflict and how individuals and groups build peace locally and globally.

Select at least four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 325</td>
<td>Dialogue and Difference</td>
</tr>
<tr>
<td>CONF 435</td>
<td>Building Peace in Divided Societies</td>
</tr>
<tr>
<td>COMM 305</td>
<td>Foundations of Intercultural Communication (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CULT 320</td>
<td>Globalization and Culture</td>
</tr>
<tr>
<td>ECON 360</td>
<td>Economics of Developing Areas (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
</tr>
<tr>
<td>GOVT 342</td>
<td>Diplomacy</td>
</tr>
<tr>
<td>HIST 373</td>
<td>The Civil War and Reconstruction</td>
</tr>
<tr>
<td>INTS 305</td>
<td>Conflict Resolution and Transformation</td>
</tr>
<tr>
<td>SOCI 320</td>
<td>Social Structure and Globalization (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits: 12

**Concentration in Global Engagement (GLBE)**

Focuses on studying the dynamics and impact of global conflict resolution. Examines domestic and international dimensions of security, state-to-state conflict, internal wars, terrorism, migration, negotiation, and diplomacy. Explores what can be done to reduce violent conflict and increase peace and security.

Select at least four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 345</td>
<td>Social Dynamics of Terrorism, Security, and Justice</td>
</tr>
<tr>
<td>CRIM 405</td>
<td>Law and Justice around the World (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ECON 385</td>
<td>International Economic Policy</td>
</tr>
<tr>
<td>EVPP 337</td>
<td>Environmental Policy Making in Developing Countries</td>
</tr>
<tr>
<td>GGS 301</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GGS 307</td>
<td>Sustainable Development</td>
</tr>
<tr>
<td>GOVT 322</td>
<td>International Relations Theory</td>
</tr>
<tr>
<td>GOVT 342</td>
<td>Diplomacy</td>
</tr>
<tr>
<td>GOVT 446</td>
<td>International Law and Organization</td>
</tr>
<tr>
<td>INTS 416</td>
<td>Refugee and Internal Displacement</td>
</tr>
<tr>
<td>SOCI 388</td>
<td>Violence and Religion</td>
</tr>
</tbody>
</table>

Total Credits: 12

**Concentration in Political and Social Action (PSA)**

Focuses on the ways that people organize themselves to effect change in their societies. This concentration explores social action, social organization, social movements, and civil resistance to analyze and investigate the role of constructive conflict.

Select at least four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 394</td>
<td>Human Rights and Inequality</td>
</tr>
<tr>
<td>COMM 326</td>
<td>Rhetoric of Social Movements and Political Controversy (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>ECON 309</td>
<td>Economic Problems and Public Policies (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>GOVT 301</td>
<td>Public Law and the Judicial Process</td>
</tr>
<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
</tr>
<tr>
<td>INTS 304</td>
<td>Social Movements and Community Activism</td>
</tr>
<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
</tr>
<tr>
<td>PSYC 427</td>
<td>Community Engagement for Social Change (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SOCI 307</td>
<td>Social Movements and Political Protest</td>
</tr>
<tr>
<td>SOCI 340</td>
<td>Power, Politics, and Society</td>
</tr>
<tr>
<td>SOCI 352</td>
<td>Social Problems and Solutions (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits: 12

**Concentration in Justice and Reconciliation (JRCN)**

Focuses on the relationships between human rights, justice, and conflict resolution. Encompasses a spectrum of coursework including legal dimensions of human rights, trauma, memory, healing, conflict transformation, and forms of restorative justice.

Select four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 394</td>
<td>Human Rights and Inequality</td>
</tr>
<tr>
<td>CONF 435</td>
<td>Building Peace in Divided Societies</td>
</tr>
<tr>
<td>CRIM 307</td>
<td>Social Inequality, Crime, and Justice</td>
</tr>
<tr>
<td>CRIM 404</td>
<td>Crime Victims and Victimization</td>
</tr>
<tr>
<td>CRIM 406</td>
<td>Family Law and the Justice System</td>
</tr>
<tr>
<td>INTS 300</td>
<td>Law and Justice</td>
</tr>
<tr>
<td>INTS 314</td>
<td>Conflict, Trauma and Healing</td>
</tr>
<tr>
<td>INTS 362</td>
<td>Social Justice and Human Rights</td>
</tr>
<tr>
<td>SOCI 308</td>
<td>Race and Ethnicity in a Changing World</td>
</tr>
<tr>
<td>SOCI 355</td>
<td>Social Inequality (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits: 12

**Concentration in Interpersonal Dynamics (INTD)**

Focuses on the dynamics of social interaction that lead to interpersonal conflict and the processes and skills that support the transformation of these conflicts. Issues examined include intercultural communication, psychology of groups, family relationships, and other dimensions of human relations.

Select four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 325</td>
<td>Dialogue and Difference</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
</table>
Conflict Analysis and Resolution, BS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 425</td>
<td>Mediating Conflict</td>
<td></td>
</tr>
<tr>
<td>COMM 301</td>
<td>Foundations of Interpersonal Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 305</td>
<td>Foundations of Intercultural Communication (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>COMM 401</td>
<td>Interpersonal Communication in the Workplace</td>
<td></td>
</tr>
<tr>
<td>INTS 317</td>
<td>Issues in Family Relationships</td>
<td></td>
</tr>
<tr>
<td>PSYC 231</td>
<td>Social Psychology (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PSYC 379</td>
<td>Applied Cross-Cultural Psychology (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>PSYC 417</td>
<td>Science of Well Being</td>
<td></td>
</tr>
<tr>
<td>PSYC 467</td>
<td>The Psychology of Working in Groups and Teams</td>
<td></td>
</tr>
<tr>
<td>SOCI 309</td>
<td>Marriage, Families, and Intimate Life</td>
<td></td>
</tr>
<tr>
<td>SOCI 315</td>
<td>Contemporary Gender Relations</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td><strong>12</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Concentration in Collaborative Leadership (CLDR)**

Focuses on improving the capacity of leaders to work with conflict and manage change. Includes topics in conflict transformation, mediation, dialogue, and organizational leadership.

Select four of the six concentration courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 325</td>
<td>Dialogue and Difference</td>
<td></td>
</tr>
<tr>
<td>COMM 201</td>
<td>Small Group Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 335</td>
<td>Organizational Communication</td>
<td></td>
</tr>
<tr>
<td>GOVT 351</td>
<td>Administration in the Political System</td>
<td></td>
</tr>
<tr>
<td>MBUS 301</td>
<td>Managing People and Organizations in a Global Economy</td>
<td></td>
</tr>
<tr>
<td>INTS 404</td>
<td>Ethics and Leadership</td>
<td></td>
</tr>
<tr>
<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
<td></td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td></td>
</tr>
<tr>
<td>PRLS 316</td>
<td>Leadership and Outdoor Education</td>
<td></td>
</tr>
<tr>
<td>PSYC 333</td>
<td>Industrial and Organizational Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 335</td>
<td>Psychology of Creativity and Innovation</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td><strong>12</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Individualized Concentration (IND)**

Students interested in creating their own concentration can work with an advisor to decide upon a set of at least six courses that will fulfill the requirements of the BS in Conflict Analysis and Resolution.

**Writing-Intensive Requirement**

All Mason students are required to complete at least one course designated as "writing intensive" in their major at the 300-level or above. CONF 302 Culture, Identity, and Conflict has been designated "writing intensive."

**Mason Core**

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

**Code**

**Title**

**Credits**

**Foundation Requirements**

- Written Communication (p. 135) — 6
- Oral Communication (p. 136) — 3
- Quantitative Reasoning (p. 136) — 3
- Information Technology (p. 136) — 3

**Core Requirements**

- Arts (p. 137) — 3
- Global Understanding (p. 139) — 3
- Literature (p. 140) — 3
- Natural Science (p. 141) — 7
- Social and Behavioral Sciences (p. 142) — 3
- Western Civilization/World History (p. 143) — 3

**Synthesis/Capstone Requirement**

- Synthesis/Capstone (p. 143) — 3

**Total Credits**

- **40**

1 minimum 3 credits

**Electives**

Remaining credits needed to bring the degree total to 120 may be fulfilled with general elective courses. Up to 3 credits of Recreation (RECR) activity courses may be taken as general elective credits.

**Accelerated Master’s**

**Conflict Analysis and Resolution, BA or BS/Conflict Analysis and Resolution, Accelerated MS**

**Overview**

The Accelerated Master’s is designed for highly qualified and motivated undergraduate students majoring in Conflict Analysis and Resolution. If accepted, students may take up to 12 credits of graduate coursework before undergraduate degree conferral and will be able to earn the Conflict Analysis and Resolution, BA (p. 885) or BS (p. 891) and the Conflict Analysis and Resolution, MS (p. 897) after satisfactory completion of 155 credits. The time period for the combined program is typically five years. It provides a streamlined MS application process with no additional application fee.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For additional application requirements and information specific to the accelerated Conflict Analysis and Resolution, MS (p. 897), see Eligibility, Policies, and Deadlines (http://scar.gmu.edu/undergraduate.degrees/accelerated-masters) on the departmental web site.
Accelerated Option Requirements

- During the first semester of senior year, after completing 90 hours of undergraduate coursework, admitted students may take up to 6 credits (1-2 classes) that will count towards both their undergraduate AND graduate degrees. During the second semester of senior year, students may take up to 6 credits (1-2 classes) that will count towards the graduate degree only.
- At the beginning of the last semester of undergraduate study, the Bachelor’s/Accelerated Master’s Transition Form must be submitted to the Office of the University Registrar. Upon completion and conferral of the undergraduate degree they are admitted to graduate status.
- Students must begin their master’s program the semester immediately following conferral of the undergraduate degree and will be expected to complete all remaining graduate program requirements within five years.
- Additional policies can be found on the program website (http://scar.gmu.edu).

GPA Requirements

- Students must have a minimum cumulative GPA of a 3.25 or higher at the time of application.
- No grade below a B is permitted for any undergraduate or graduate CONF course taken after application to the accelerated master’s program until completion of the undergraduate program.
- If a student receives a grade below a B in any CONF course after acceptance in the program, they will not be allowed to continue on to the master’s program. Students that have received a grade below a B in a CONF course after acceptance into the program may re-apply to the master’s program after conferral of the undergraduate degree however; re-application does not guarantee admission.
- At the time of the undergraduate degree conferral, students’ GPAs must meet the standard required for admission to the master’s degree.

Course Criteria

- Students may only take courses indicated on their Accelerated Master’s Program Application and approved by an academic advisor.
- Students may not take more than 12 credits a semester if taking two graduate courses or 15 credits a semester if taking one graduate course.

Bachelor's Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Religion, Culture, and Values Concentration)

Overview

Highly-qualified undergraduates in selected majors (see below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in religion, culture, and values. If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s in interdisciplinary studies with a concentration in religion, culture, and values after satisfactory completion of 150 credits, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP. 6 Graduate Policies (p. 87).

Selected Majors

- Art history (p. 384)
- Philosophy (p. 432)
- Conflict analysis and resolution (p. 882)
- Global affairs (p. 509)
- History (p. 394)
- Religious studies (p. 477)
- Russian and Eurasian studies (p. 558)
- Sociology (p. 494)
- Anthropology (p. 484)

If the student has not majored in religious studies (p. 477), it is preferred, though not required, that the student have a minor in religious studie (p. 477)s.

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in the Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application).

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses as indicated on their Accelerated Master’s Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all coursework. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td>6</td>
</tr>
<tr>
<td>RELI 632</td>
<td>World Religions in Conflict and Dialogue</td>
<td>6</td>
</tr>
<tr>
<td>RELI 633</td>
<td>Ethical Perspectives of World Religions</td>
<td>6</td>
</tr>
<tr>
<td>RELI 635</td>
<td>World Religions in Transition and Transformation</td>
<td>6</td>
</tr>
<tr>
<td>RELI 636</td>
<td>Religion and the Natural Environment</td>
<td>6</td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 6

As graduate students, accelerated master’s students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree.

Reserve Graduate Credit

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree.
To apply these credits to the master's degree, students should use the Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELI 630</td>
<td>Approaches to the Study of Religion</td>
<td>6</td>
</tr>
<tr>
<td>RELI 631</td>
<td>Sacred as Secular in Modern Spirituality</td>
<td></td>
</tr>
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<td>RELI 636</td>
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<td></td>
</tr>
<tr>
<td>RELI 642</td>
<td>Sacred Language, Scripture, and Culture</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

The ability to take courses, including ones not listed above, for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission is normally granted only to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

**Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Social Justice and Human Rights Concentration)**

**Overview**

Highly-qualified undergraduates in select majors (listed below) may apply to the accelerated master’s degree in interdisciplinary studies with a concentration in social justice and human rights (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn an undergraduate degree in their chosen major and a master’s in interdisciplinary studies with a concentration in social justice and human rights after satisfactory completion of 150 credits, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Environmental and Sustainability Studies (p. 566), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), Integrative Studies (p. 574), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information specific to the accelerated MAIS, see Application Requirements and Deadlines (http://mais.gmu.edu/programs/la-mais-isin/application) on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete INTS 540 Contemporary Issues in Social Justice Human Rights and one course chosen from the list of electives for the MAIS concentration in social justice and human rights as indicated on their Accelerated Master's Program Application with a minimum grade of 3.00 in each course. Once admitted to the accelerated master’s pathway, students must maintain a minimum cumulative GPA of 3.25 in all course work. Upon completion and conferral of the undergraduate degree in the semester indicated in the application, they submit the Bachelor’s/Accelerated Master’s Transition Form and are admitted to graduate status.

As graduate students, accelerated master's students have an advanced standing. They must meet all master’s degree requirements except for the two courses (6 credits) they completed as undergraduates. Students must begin their master's program the semester immediately following conferral of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit (chosen from the list of electives for the MAIS concentration in social justice and human rights). These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the program. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select up to 6 credits from the list of electives for the MAIS concentration in social justice and human rights</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 6

**Bachelor’s Degree (selected)/Interdisciplinary Studies, Accelerated MAIS (Women and Gender Studies Concentration)**

**Overview**

Highly-qualified undergraduates in select majors may apply to the accelerated master's degree in interdisciplinary studies with a concentration in women and gender studies (p. 534). If accepted, and depending on their undergraduate major, students will be able to earn a bachelor’s degree in their chosen major and a master’s in interdisciplinary studies with a concentration in women and gender studies after satisfactory completion of 150 credits, sometime within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Selected Majors**

Anthropology (p. 484), Sociology (p. 494), English (p. 359), History (p. 384), Philosophy (p. 432), Conflict Analysis and Resolution (p. 885), Psychology (p. 448), Government and International Politics (p. 917), and Communication (p. 305).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For information
specific to the accelerated MAIS, see http://mais.gmu.edu/programs/la-
mais-isin/application on the departmental web site.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete
two graduate courses as indicated on their Accelerated Master’s Program
Application with a minimum grade of 3.00 in each course. Once admitted
to the accelerated master’s pathway, students must maintain a minimum
cumulative GPA of 3.25 in all course work. Upon completion and conferral
of the undergraduate degree in the semester indicated in the application,
they submit the Bachelor’s/Accelerated Master’s Transition Form and are
admitted to graduate status.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMST 600</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>WMST 610</td>
<td>Feminist Approaches to Social Research</td>
<td>6</td>
</tr>
<tr>
<td>WMST 630</td>
<td>Feminist Theories across the Disciplines</td>
<td>6</td>
</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 6

As graduate students, accelerated master’s students have an advanced
standing. They must meet all master’s degree requirements except for
the two courses (6 credits) they completed as undergraduates. Students
must begin their master’s program the semester immediately following
conferment of the undergraduate degree.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve
graduate credit. These credits do not apply to the undergraduate degree.
To apply these credits to the master’s degree, students should use the
Bachelor’s/Accelerated Master’s Transition Form.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<td>WMST 600</td>
<td>Special Topics</td>
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</tr>
<tr>
<td>WMST 640</td>
<td>Women and Global Issues</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 6

The ability to take courses, including ones not listed above, for reserve
graduate credit is available to all high achieving undergraduates with
the permission of the department. Permission is normally granted only
to qualified Mason seniors within 15 hours of graduation. See AP.1.4.4
Graduate Course Enrollment by Undergraduates (p. 76).

**Conflict Analysis and Resolution, MS**

*Banner Code: CA-MS-CONF*

This professional program prepares students for practice and further
academic work by integrating conflict analysis and resolution theory,
research, and practical techniques. Participants study the theory,
methods, and ethical perspectives of the field, and apply this knowledge
in laboratory simulations and workshops, internships, and field practice.
Graduates work in a variety of settings where conflict resolution is useful
and interest groups are in conflict with current and emergent public
policy. Examples are businesses, unions, government agencies, religious
groups, court systems, educational institutions, community centers,
international relief and development organizations, and consulting firms.

**Admissions & Policies**

**Admissions**

**Admission Requirements**

Applicants to all graduate programs at George Mason University must
meet the admission standards and application requirements for graduate
study as specified in Graduate Admissions (p. 66). In addition, applicants
must submit all undergraduate and graduate transcripts; two letters of
recommendation, one of which should be from a faculty member in the
applicant’s undergraduate or graduate major field; a resume or curriculum
vita; and a 750- to 1,000-word essay on goals and reasons for seeking
admission to the program. GRE or other standardized test scores are not
required but may be submitted. The TOEFL is required of international
students. For more information, see Admission of International Students
(p. 68). Students can be admitted to the MS program for either the Fall or
Spring semesters.

Background courses in social sciences, as well as prior work experience,
are desirable. Prior graduate academic work is evaluated on an individual
basis for possible transfer credit and fulfillment of program requirements;
however, Mason usually does not reduce the total credits required for the
degree. Students may enroll on a full- or part-time basis. The MS Program
is available on-campus, online (https://masononline.gmu.edu/programs/
conflict-analysis-and-resolution-ms) or in a hybrid format (on-campus and
distance learning).

**Policies**

Mason requires all students to complete the master’s degree within six
years of their official admission date.

Consult the S-CAR student handbook for information on registration
procedures.

**Transfer of Non-Degree Credit**

A maximum of 12 credits of S-CAR graduate courses taken at George
Mason as a non-degree graduate student, or as part of S-CAR’s graduate
certificate program may be transferred into the MS program. How credit
will be counted will be determined in consultation with the admitted
student’s advisor. A maximum of six credits of non-S-CAR courses taken
as non-degree credit can be counted toward the MS program. Courses
counted toward another degree cannot be transferred.

**Adding an S-CAR Certificate Program**

Students may elect to complete an S-CAR Graduate Certificate (p. 884)
in addition to the MS program. Graduate certificates are opportunities
for students to further tailor their academic program and specialize in a
specific area of conflict resolution practice. Certain graduate certificate
courses can be used to fulfill MS program requirements. Students should
consult with the Certificate Program Director and the Master’s Program
Director for policies on counting certificate courses toward the MS
degree.
Requirements

Degree Requirements

Total credits: 42

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 600</td>
<td>Foundations of Conflict Analysis and Resolution</td>
<td>6</td>
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</tbody>
</table>

Conflict Inquiry

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 610</td>
<td>Conflict Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>or CONF 660</td>
<td>Conflict Assessment and Program Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>

Conflict Praxis

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 657</td>
<td>Facilitation Skills</td>
<td>3</td>
</tr>
<tr>
<td>CONF 625</td>
<td>Engaging Conflict</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15

1. Students must take the introductory course in the first semester.
2. Students must take CONF 657 Facilitation Skills and at least 3 credits of CONF 625 Engaging Conflict. Additional credits of CONF 625 Engaging Conflict will count as electives.

Electives

Select 27 credits of elective courses from any 500, 600, or 700 level CONF courses, except required courses.

Total Credits: 27

Because the choice of electives can vary significantly according to individual goals or needs, each student should develop a plan of study that should be discussed once each semester with the advisor and updated as appropriate.

With the advisor’s approval, each student is eligible to include a maximum of six credits of electives from outside the S-CAR program, including courses in other Mason departments, consortium courses, and transfer courses from other universities.

Students wishing to complete a Master’s Thesis or Internship would count these credits towards their elective requirement.

Internship

The CONF 694 Internship internship course provides students with opportunities to use and develop conflict resolution skills, integrate theory and practice of conflict analysis and resolution, and network with professionals in the field to enhance employment opportunities. The internship requires 160 hours of supervised work per every 3 credits. The goals and objectives of the internship are defined in an application and memorandum of agreement to be signed by the student, the internship site supervisor, and the director of field experience before the internship begins.

Students may either take 3 or 6 credits of CONF 694 Internship.

CONF 694 Internship (take 3 or 6 credits) 1-6

Thesis

Students wishing to complete a Master’s Thesis are strongly encouraged to take CONF 797 Proposal Development (Proposal Development) the semester before beginning the thesis project. Before registering, students must have identified a Master’s thesis committee chair to supervise the project. Students should contact S-CAR student services to receive the CRN to register for thesis.

CONF 797 Proposal Development 1
CONF 799 Thesis 1-6

Directed Readings

Only two directed readings may be applied toward requirements for the master’s degree (maximum 6 credits).

CONF 697 Directed Readings and Research 1-3

Dual Degree Options

Dual Degree Program with the University of Malta

Students have the opportunity to pursue a MS in Conflict Analysis and Resolution from George Mason University and a MA in Conflict Resolution and Mediterranean Security from the University of Malta through an innovative Dual Degree Program. Teaching faculty includes professors from both George Mason University and the University of Malta. All teaching is in English and all classes are held at the Valetta Campus of the University of Malta. The 400-year-old University of Malta Valetta campus incorporates state-of-the-art instructional technology. The entire program is delivered over three intensive semesters on a full time basis starting in late September. Classes are held on a two week intensive block basis for the first two semesters while the third semester is devoted to the completion of a thesis.

Orientation in Malta begins at the end of September. Classes run from the beginning of October through June. Students work on their theses from June until October. University of Malta graduation is in November and Mason graduation is in December. The total duration of the program is 15 months. More information is available at the program website (http://scar.gmu.edu/academics/maltaprogram). US and Canadian students apply through the Mason graduate admissions process and indicate they want to participate in the Malta program. All other students should apply through the University of Malta. (http://www.um.edu.mt/imp)

Conflict Analysis and Resolution, MS and Social Work, MSW Dual Degree

The Department of Social Work (p. 271) and the School for Conflict Analysis and Resolution (p. 882) have joined forces to offer a three year dual-degree program. Students can earn both an MSW (p. 275) and an MS in Conflict Analysis and Resolution (p. 897) while taking advantage of the diversity of the Washington, D.C., metropolitan area and the university’s proximity to the nation’s capital. This is the only dual-degree program of its kind.

Admission Requirements

Applicants must meet the admission standards and application requirements specified in Graduate Admissions (p. 66) and apply using the online Application for Graduate Admission (http://admissions.gmu.edu). The application process is competitive, and applications are considered for the fall semester only.
Students interested in the 3-year dual degree program submit one online Application for Graduate Admission (http://admissions.gmu.edu), select the MSW in Social Work (p. 275) as a primary program, and submit all application support materials to the Office of Graduate Admission in the College of Health and Human Services. Applicants should communicate their interest in completing the dual degree program in their essays, and recommendations should address the dual program interest. Students must be admitted to both programs in the same semester (fall only) to be admitted to the dual degree program.

For application deadlines and detailed application requirements please refer to the CHHS Admissions website (http://chhs.gmu.edu/admissions/graduate/deadlines.cfm). Interested students should consult the MSW program website (http://chhs.gmu.edu/msw), the MSW program (p. 275), and the MSW program director for additional information prior to applying.

Transfer of Credit
Transfer credit is governed AP.6.5.3 Transfer of Credit (p. 88) and AP.6 Graduate Policies (p. 87). Transfer credits must be approved by the program director and the dean. Students who enroll initially through non-degree studies should seek course advising through the department prior to taking a course and plan to submit their application to the dual degree program as soon as possible.

Please refer to the Transfer of Credit policy for the MSW in Social Work (p. 276) for departmental policy governing courses taken at another institution and the maximum number of credits allowed.

MSW-MS Degree Requirements
Total credits: 78

<table>
<thead>
<tr>
<th>Social Work Courses</th>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SOCW 623</td>
<td></td>
<td>Human Behavior and Social Systems I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 624</td>
<td></td>
<td>Human Behavior and Social Systems II</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 651</td>
<td></td>
<td>Social Policies, Programs, and Services</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 652</td>
<td></td>
<td>Influencing Social Policy</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 657</td>
<td></td>
<td>Direct Social Work Practice I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 658</td>
<td></td>
<td>Direct Social Work Practice II</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 670</td>
<td></td>
<td>Social Work Program Planning, Communications, and Technology</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 672</td>
<td></td>
<td>Generalist Field Practicum and Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 673</td>
<td></td>
<td>Generalist Field Practicum and Seminar II</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 687</td>
<td></td>
<td>Empowering Communities for Change</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 688</td>
<td></td>
<td>Program Evaluation for Social Workers</td>
<td>3</td>
</tr>
<tr>
<td>or CONF 660</td>
<td></td>
<td>Conflict Assessment and Program Evaluation</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
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<td>30-33</td>
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</table>

1 Students complete only one of SOCW 688 or CONF 660.

Social Change Concentration (SOCC)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOCW 684</td>
<td>Social Work and the Law</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 685</td>
<td>Organizational Leadership for Social Workers</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 694</td>
<td>Specialist Social Change Field Practicum and Seminar I</td>
<td>3</td>
</tr>
</tbody>
</table>

SOCW 695 | Specialist Social Change Field Practicum and Seminar II | 3
Select two courses from the following. At least one course must be an Advanced Policy Course.

Advanced Policy

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 653</td>
<td>Immigration Policy</td>
<td></td>
</tr>
<tr>
<td>SOCW 654</td>
<td>Social Policy for Children and Youth</td>
<td></td>
</tr>
<tr>
<td>SOCW 655</td>
<td>Aging Programs and Policies</td>
<td></td>
</tr>
<tr>
<td>SOCW 663</td>
<td>Global Human Rights Policy</td>
<td></td>
</tr>
<tr>
<td>SOCW 665</td>
<td>Integrated Behavioral Health Policy</td>
<td></td>
</tr>
<tr>
<td>SOCW 676</td>
<td>Selected Topics in Social Work and Social Change</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Course Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 630</td>
<td>Forensic Social Work Practice</td>
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</tr>
<tr>
<td>SOCW 664</td>
<td>Art Therapy and Social Work</td>
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<tr>
<td>SOCW 674</td>
<td>Psychopathology</td>
<td></td>
</tr>
<tr>
<td>SOCW 675</td>
<td>Selected Topics in Clinical Practice</td>
<td></td>
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<tr>
<td>SOCW 676</td>
<td>Selected Topics in Social Work and Social Change</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 677</td>
<td>Family Therapy</td>
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<tr>
<td>SOCW 678</td>
<td>Trauma and Recovery</td>
<td></td>
</tr>
<tr>
<td>SOCW 679</td>
<td>Military Social Work</td>
<td></td>
</tr>
<tr>
<td>SOCW 682</td>
<td>Substance Abuse Interventions</td>
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</tbody>
</table>

Total Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
</table>

Clinical Practice Concentration (CLNP)

<table>
<thead>
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<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOCW 640</td>
<td>Advanced Clinical Practice</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 674</td>
<td>Psychopathology</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 692</td>
<td>Specialist Clinical Field Practicum and Seminar I</td>
<td>3</td>
</tr>
<tr>
<td>SOCW 693</td>
<td>Specialist Clinical Field Practicum and Seminar II</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two courses from the following. At least one course must be an Advanced Policy Course.

Advanced Policy

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOCW 653</td>
<td>Immigration Policy</td>
<td></td>
</tr>
<tr>
<td>SOCW 654</td>
<td>Social Policy for Children and Youth</td>
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<tr>
<td>SOCW 655</td>
<td>Aging Programs and Policies</td>
<td></td>
</tr>
<tr>
<td>SOCW 663</td>
<td>Global Human Rights Policy</td>
<td></td>
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<tr>
<td>SOCW 665</td>
<td>Integrated Behavioral Health Policy</td>
<td></td>
</tr>
<tr>
<td>SOCW 676</td>
<td>Selected Topics in Social Work and Social Change</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Course Options

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SOCW 664</td>
<td>Art Therapy and Social Work</td>
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</tr>
<tr>
<td>SOCW 675</td>
<td>Selected Topics in Clinical Practice</td>
<td></td>
</tr>
<tr>
<td>SOCW 677</td>
<td>Family Therapy</td>
<td></td>
</tr>
<tr>
<td>SOCW 678</td>
<td>Trauma and Recovery</td>
<td></td>
</tr>
<tr>
<td>SOCW 679</td>
<td>Military Social Work</td>
<td></td>
</tr>
<tr>
<td>SOCW 682</td>
<td>Substance Abuse Interventions</td>
<td></td>
</tr>
</tbody>
</table>
Conflict Analysis and Resolution Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 600</td>
<td>Foundations of Conflict Analysis and Resolution</td>
<td>6</td>
</tr>
<tr>
<td>CONF 610</td>
<td>Conflict Inquiry</td>
<td>3</td>
</tr>
<tr>
<td>CONF 657</td>
<td>Facilitation Skills</td>
<td>3</td>
</tr>
<tr>
<td>CONF 625</td>
<td>Engaging Conflict 1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

1 **CONF 657 Facilitation Skills** should be completed before a student takes **CONF 625 Engaging Conflict**.

Electives

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Select 12 credits of CONF Electives with approval from S-CAR (p. 1345)</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Accelerated Master’s

Conflict Analysis and Resolution, BA or BS/Conflict Analysis and Resolution, Accelerated MS

Overview

The Accelerated Master's is designed for highly qualified and motivated undergraduate students majoring in Conflict Analysis and Resolution. If accepted, students may take up to 12 credits of graduate coursework before undergraduate degree conferral and will be able to earn the Conflict Analysis and Resolution, BA (p. 885) or BS (p. 891) and the Conflict Analysis and Resolution, MS (p. 897) after satisfactory completion of 155 credits. The time period for the combined program is typically five years. It provides a streamlined MS application process with no additional application fee.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Application Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). For additional application requirements and information specific to the accelerated Conflict Analysis and Resolution, MS (p. 897), see Eligibility, Policies, and Deadlines (http://scar.gmu.edu/undergraduate/degrees/accelerated-masters) on the departmental web site.

Accelerated Option Requirements

- During the first semester of senior year, after completing 90 hours of undergraduate coursework, admitted students may take up to 6 credits (1-2 classes) that will count towards both their undergraduate AND graduate degrees. During the second semester of senior year, students may take up to 6 credits (1-2 classes) that will count towards the graduate degree only.

- At the beginning of the last semester of undergraduate study, the Bachelor’s/Accelerated Master’s Transition Form must be submitted to the Office of the University Registrar. Upon completion and conferral of the undergraduate degree they are admitted to graduate status.

- Students must begin their master’s program the semester immediately following conferral of the undergraduate degree and will be expected to complete all remaining graduate program requirements within five years.

- Additional policies can be found on the program website (http://scar.gmu.edu).

GPA Requirements

- Students must have a minimum cumulative GPA of a 3.25 or higher at the time of application.

- No grade below a B is permitted for any undergraduate or graduate CONF course taken after application to the accelerated master’s program until completion of the undergraduate program.

- If a student receives a grade below a B in any CONF course after acceptance in the program, they will not be allowed to continue on to the master's program. Students that have received a grade below a B in a CONF course after acceptance into the program may re-apply to the master's program after conferral of the undergraduate degree however; re-application does not guarantee admission.

- At the time of the undergraduate degree conferral, students’ GPAs must meet the standard required for admission to the master’s degree.

Course Criteria

- Students may only take courses indicated on their Accelerated Master’s Program Application and approved by an academic advisor.

- Students may not take more than 12 credits a semester if taking two graduate courses or 15 credits a semester if taking one graduate course.

Conflict Analysis and Resolution, PhD

Banner Code: CA-PHD-CONF

The doctoral program, the first of its kind in the United States, provides advanced study for students in the field of conflict analysis and conflict resolution. Students are prepared for careers as researchers, theoreticians, and teachers in higher education, and as policy administrators, analysts, and consultants in the public and private sectors.

The program stresses a close link between knowledge of theory and process in the resolution of conflict. For this, training in the methods of research and analysis is emphasized. In addition, students are expected to obtain a background in a substantive area of conflict, usually related to the topic of the dissertation.

Admissions & Policies

Admissions

A master’s or equivalent degree is required for admission to the PhD program.
Application Requirements
In addition to meeting all admission requirements for graduate study, applicants must submit:

- all undergraduate and graduate transcripts
- three letters of recommendation, one of which should be from a faculty member in the applicant’s undergraduate or graduate major field
- a 750 to 1,000 word essay on goals and reasons for seeking admission to the program
- a written sample of work that shows the applicant’s potential for completing dissertation research in a doctoral program
- a resume or curriculum vitae.

The Graduate Record Exam (GRE) or other standardized test scores are not required but may be submitted. The Test of English as a Foreign Language (TOEFL) is required of international students.

For more information, see the Admission of International Students (p. 68). Although students may enroll on a full- or part-time basis, entry into the program is in the fall semester only.

Policies
For policies governing all graduate degrees, see AP.6.10 Requirements for Doctoral Degrees (p. 92).

Reduction of Credit
Since a master’s degree or equivalent is required for admission, students will automatically receive a 15 credit reduction of the number of credits required.

Students may have the required number of credits reduced by up to 15 additional credits based on relevant previous coursework. The actual number of applied credits is determined in consultation with the student’s advisor and the program director after a review of courses taken, subsequent to a student’s admission to the program.

Completion Timelines
Students must satisfactorily complete their coursework, comprehensive paper, advance to candidacy, and complete the dissertation within 9 years of admission to the program. Students are expected to have advanced to candidacy within 6 years of admission to the program.

Plan of Study Guidelines
All doctoral students should meet with their faculty advisor before starting classes to develop a plan of study. This plan should show the sequence of courses anticipated. It should be based on a discussion between the student and the advisor about the student’s interest and goals. The plan should ensure that the student completes coursework efficiently and is able to build toward candidacy. The student and the advisor should then meet at least once each semester thereafter to review and amend the plan. The Program Director should receive a copy of each new or revised plan of study.

Transfer of Non-Degree Credit
A maximum of 12 credits of S-CAR graduate courses taken at George Mason as a non-degree graduate student, or as part of S-CAR’s graduate certificate program may be transferred into the PhD program. How credit will be counted will be determined in consultation with the student’s advisor and the Doctoral Program Director. A maximum of 6 credits of non-S-CAR courses taken as non-degree credit can be counted toward the PhD program. Courses counted toward another degree cannot be transferred.

Adding a S-CAR Certificate Program
Students may elect to complete a S-CAR graduate certificate in addition to the PhD program. Graduate certificates are opportunities for students to further tailor their academic program and specialize in a specific area of Conflict Resolution practice. Certain graduate certificate courses can be used to fulfill PhD program requirements. Students should consult with the Certificate Program Director and Doctoral Program Director for policies on counting certificate courses toward the PhD degree.

Requirements

Degree Requirements
Total credits: 72

Required Courses
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 801</td>
<td>Introduction to Conflict Analysis and Resolution (Should be taken in the first semester of coursework)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 900</td>
<td>Integrating Theory, Practice, and Method in Conflict Analysis (Should be taken in the last semester of coursework)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

Foundation Courses
Students complete 15 credits of foundation courses distributed as follows:

Theoretical Foundations
Select two courses (6 credits) from the following:
- CONF 802 Theories of the Person
- CONF 803 Structural Theories
- CONF 804 Alternate Theoretical Foundations

Research Foundations
Select two courses (6 credits) from the following:
- CONF 811 Quantitative Foundations
- CONF 812 Qualitative Foundations: Social Sciences
- CONF 813 Qualitative Foundations: Humanities

Practice Foundations
- CONF 820 Reflective Practice in Interpersonal-Multiparty Conflicts
- CONF 890 Practicum in Conflict Analysis and Resolution

Total Credits: 15

Specialization Courses
Students will take three courses (9 credits) of specialization courses evenly distributed across the areas of theory, research, and practice

Total Credits: 9

1 The Doctoral Program Director must approve courses.
### Electives

Select 15 credits from electives that are any 500-, 600-, and 700-level CONF courses that are not required

| Total Credits | 15 |

With the advisor’s approval, each student may include a maximum of 6 credits of electives from outside the S-CAR Program, including courses in other Mason departments, consortium courses, and transfer courses from other universities. The intent is to allow students to have maximum flexibility in selecting courses to build skills and knowledge needed in dissertation work. CONF 897 Directed Reading may be taken to meet the requirement. Only two directed readings classes (6 credits) can be applied toward doctoral elective requirements.

### Foreign Language Requirement

At the point of application to fulfill the comprehensive paper, students will indicate to the Director of the Doctoral Program the membership of their dissertation committee. This committee will determine, based on the scope and nature of the student’s research, the specific language requirement a student must meet. This will be conveyed to the Director of the Doctoral Program. This language requirement must be completed prior to graduation.

### Comprehensive Paper

Students are eligible to complete the comprehensive paper when they have completed all the requirements of coursework in the doctoral program with the exception of CONF 998 Doctoral Dissertation Proposal and CONF 999 Doctoral Dissertation Research and the language requirement. A student is advanced to candidacy upon successful completion of the comprehensive paper. Papers can be submitted for evaluation twice each year, once in the winter and once in the summer. Students who do not pass initially should form a plan of study with the chair of their dissertation committee and the Director of the Doctoral Program that will prepare them to resubmit. The comprehensive paper may be resubmitted two times for a total of three attempts. After three unsuccessful attempts, the student should consult with the Doctoral and Master’s Directors about the possibility of transferring to the MS program.

### Advancement to Candidacy

Upon successfully completing coursework (except dissertation) listed on the Plan of Study and passing the comprehensive paper, students will be advanced to candidacy and will be personally notified of this by the Dean of S-CAR. Students are expected to advance to candidacy within 6 years of admission to the program. Students have a total of 9 years from admission to complete all course requirements, including the dissertation.

### Dissertation Research

Students are required to complete 12 combined credits of CONF 998 Doctoral Dissertation Proposal and CONF 999 Doctoral Dissertation Research, including at least 3 credits of CONF 999 Doctoral Dissertation Research. Students must have a signed dissertation proposal in order to register for CONF 999 Doctoral Dissertation Research.

| Total Credits | 12 |

12

With the advisor’s approval, each student may include a maximum of 6 credits of electives from outside the S-CAR Program, including courses in other Mason departments, consortium courses, and transfer courses from other universities. The intent is to allow students to have maximum flexibility in selecting courses to build skills and knowledge needed in dissertation work. CONF 897 Directed Reading may be taken to meet the requirement. Only two directed readings classes (6 credits) can be applied toward doctoral elective requirements.

### Dissertation Committee

Students should propose a Dissertation Committee to the Director of the Doctoral Program and the Dean who then formally appoint the committee. This must be done prior to taking the comprehensive exam. The Dissertation Committee must include a chairperson from among S-CAR graduate faculty and at least two other members of the graduate faculty, one of whom must be a non-S-CAR Mason faculty member. The Dean will inform the student, committee members, and Director of the Doctoral Program when the committee has been appointed.

### Dissertation Proposal

After the student passes the comprehensive exam and advances to candidacy, the next job of the committee is to approve the candidate’s dissertation proposal. The proposal is the candidate’s description (in some detail) of his/her dissertation project, reflecting the successful work of the comprehensive examination paper. It will include an argument about the hypothesis/theory question being tackled and the specific methods of research to be used. It should be prepared in consultation with the chair of the committee, and must be approved by all committee members. After receiving permission from the full committee, the candidate makes an oral presentation of the dissertation proposal before the committee and the Director of the Doctoral Program that is also open to other S-CAR faculty, fellow students, and other scholars. In scheduling the defense, it is the student’s responsibility to ensure that all members of the committee are available and will be present for the defense.

A signed cover page from that proposal must be filed with the Doctoral Director. Failure to complete the formation of a committee and an approved proposal by the end of the 12-month period will result in the candidate’s dismissal from the doctoral program. (Candidates may appeal to the Dean a further extension of this dissertation preparation period, but such appeals will be allowed only on grounds of documented illness, family emergency, or military deployment). Candidates should consult thesis.gmu.edu/ (http://thesis.gmu.edu) to ensure the proposal is in the correct format and has been submitted to all the appropriate offices.

### Writing the Dissertation and its Defense

The chair of the dissertation committee usually takes most of the responsibility for guiding the overall project and the writing of the dissertation, although all members (and other useful persons) should be consulted as appropriate. It is the committee’s responsibility to ensure a quality piece of work. When advanced to candidacy, the Guide for Preparing Graduate Thesis, Dissertation and Projects tells exactly how to prepare an acceptable dissertation. Please visit thesis.gmu.edu/ (http://thesis.gmu.edu) to ensure formatting guidelines are met and submission procedures followed.

It is essential that doctoral committee members have sufficient time to read and evaluate dissertation drafts with care prior to the dissertation defense date. The committee may require no more than one month to read the final draft and provide feedback. It is also essential that students have sufficient time after the defense to do final revisions, editing and formatting. If the University determines the deadlines for final library submission are May 1, for example, the defense must take place
prior to April 1 and the full draft dissertation must be delivered to the full committee before March 1.

The dissertation is to be orally defended in public, minimally with the entire committee present. The S-CAR faculty and students must receive public notice of the defense at least two weeks prior. Students are welcome to invite family and friends. The University may also send a representative. The public defense helps ensure that the University’s standards are met, and offers an opportunity to learn from the students’ research. After a successful defense, the cover page is signed by the members of the Dissertation Committee, PhD Program Director and Dean; and the dissertation is filed with the University. An additional signed copy should be delivered to the S-CAR Burton Library.

Dissertations must be presented to the library in the proper format or they will not be accepted. Please visit the University Dissertation & Thesis Services web site at thesis.gmu.edu/ (http://thesis.gmu.edu) for dissertation formatting requirements and submission deadlines. Mason’s Dissertation and Thesis Coordinator may be reached at udts@gmu.edu or 703-993-2222.

Conflict Resolution in Communities Graduate Certificate

Banner Code: CA-CERG-CNRC

All communities have conflicts, some much more severe than others, often driven by deep racial and ethnic divisions, economic inequity, complex intractable problems, and environmental degradation. Many community conflicts are triggered by changes, whether a new law or new development. These are among the many issues that effective, inclusive, collaborative community processes can help address. This certificate incorporates theory and skills needed to identify concerns and design collaborative processes that employ a wide range of design options ranging from small group dialogue to facilitated consensus building and online engagement to thousand person town meetings.

This 15-credit certificate is specifically tailored to provide students with practical knowledge of conflict analysis and resolution relevant to their focused areas of work. Designed for mid-career professionals studying in a cohort environment, the certificate programs integrate conflict analysis and resolution theory, research, and practical technique. This certificate uses intensive course sessions, lecture, seminar, and applied mentored learning in real and simulated situations to prepare students to use conflict analysis and resolution approaches in their work in a variety of fields.

This certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants to this certificate must submit an undergraduate transcript showing completion of an undergraduate degree or equivalent, a cover letter specifying interest in the program, two letters of recommendation, and a curriculum vitae or résumé indicating relevant work experience.

In addition, prior work experience in areas related to the chosen graduate certificate is desirable. GRE or other standardized test scores are not required but may be submitted. The TOEFL is required of international students. For more information, see Admission of International Students (p. 68).

Policies

Class Schedule

Please note that some classes for this graduate certificate are offered only in Saturday and Sunday sessions. Please check the Schedule of Classes for each term to identify course meeting dates, and specific add/drop dates for these partial semester courses.

Requirements

Certificate Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 502</td>
<td>Intensive Introduction to Conflict Analysis and Resolution (fall and spring)</td>
<td>3</td>
</tr>
<tr>
<td>or CONF 501</td>
<td>Introduction to Conflict Analysis and Resolution</td>
<td></td>
</tr>
<tr>
<td>CONF 651</td>
<td>Collaborative Community Action Participatory Governance (fall)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 657</td>
<td>Facilitation Skills</td>
<td>3</td>
</tr>
<tr>
<td>CONF 668</td>
<td>Applied Integration for Graduate Certificates (summer)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

Electives

Select 3 credits from the following: 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 658</td>
<td>Diversity and Difference in Conflict Analysis and Resolution</td>
</tr>
<tr>
<td>CONF 659</td>
<td>Leadership in Conflict Analysis and Resolution</td>
</tr>
<tr>
<td>CONF 660</td>
<td>Conflict Assessment and Program Evaluation</td>
</tr>
<tr>
<td>CONF 665</td>
<td>Special Topics in Conflict Analysis and Resolution</td>
</tr>
<tr>
<td>CONF 720</td>
<td>Ethnic and Cultural Factors in Conflict Resolution</td>
</tr>
<tr>
<td>CONF 721</td>
<td>Conflict and Race</td>
</tr>
<tr>
<td>CONF 723</td>
<td>Conflict and Gender</td>
</tr>
<tr>
<td>CONF 733</td>
<td>Law and Justice from a Conflict Perspective</td>
</tr>
</tbody>
</table>

Total Credits 3

1 Application of any other course toward fulfillment of the elective requirement must be approved by the Certificate Program Director.
Prevention, Reconstruction, and Stabilization Contexts Graduate Certificate

Banner Code: CA-CERG-CARP

This 15-credit program is specifically tailored to provide students with practical knowledge of conflict analysis and resolution relevant to their focused areas of work. Designed for midcareer professionals studying in a cohort environment, the certificate programs integrate conflict analysis and resolution theory, research, and practical technique. These programs use intensive course sessions, lecture, seminar, and applied mentored learning in real and simulated situations to prepare students to use conflict analysis and resolution approaches in their work in a variety of fields. The Prevention, Reconstruction, and Stabilization Contexts Graduate Certificate augments development, defense, security, or humanitarian aid work experience with the theories and skills of conflict analysis and resolution for designing, implementing, and evaluating conflict-sensitive initiatives internationally in areas of potential violence and post-conflict reconstruction and stabilization. Considers cross-sectoral approaches to long-term violence prevention and constructive conflict resolution.

The graduate certificate in prevention, reconstruction and stabilization contexts may only be pursued on a part-time basis, unless a student is concurrently enrolled in another degree program or takes additional courses over those required for the certificate program.

Admissions & Policies

Admissions

Requirements

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants to this certificate must submit an undergraduate transcript showing completion of an undergraduate degree or equivalent, a cover letter specifying interest in the program, two letters of recommendation, and a curriculum vitae or résumé indicating relevant work experience.

In addition, prior work experience in areas related to the chosen graduate certificate is desirable. GRE or other standardized test scores are not required but may be submitted. The TOEFL is required of international students. For more information, see Admission of International Students (p. 68).

Policies

Class Schedule

Please note that some classes for this graduate certificate are offered only in Saturday and Sunday sessions. Please check the Schedule of Classes for each term to identify course meeting dates, and specific add/drop dates for these partial semester courses.

Requirements

Certificate Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 502</td>
<td>Intensive Introduction to Conflict Analysis and Resolution (fall and spring)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 652</td>
<td>Conflict Analysis and Resolution for Prevention, Reconstruction, and Stabilization Contexts (fall)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 660</td>
<td>Conflict Assessment and Program Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>CONF 668</td>
<td>Applied Integration for Graduate Certificates (summer)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

1 CONF 501 Introduction to Conflict Analysis and Resolution may also be used to fulfill this requirement.

Electives

Select 3 credits from the following: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 657</td>
<td>Facilitation Skills</td>
<td>3</td>
</tr>
<tr>
<td>CONF 658</td>
<td>Diversity and Difference in Conflict Analysis and Resolution</td>
<td></td>
</tr>
<tr>
<td>CONF 659</td>
<td>Leadership in Conflict Analysis and Resolution</td>
<td></td>
</tr>
<tr>
<td>CONF 665</td>
<td>Special Topics in Conflict Analysis and Resolution</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

1 Application of any other course toward fulfillment of the elective requirement must be approved by the Certificate Program Director.

Sport and Conflict Resolution Minor (SCAR)

Banner Code: SCNR

There has been a real growth in the establishment of non-profit organizations that use ‘sport for development’, sport to bring diverse communities together and also ‘sport for peace’ organizations in high conflict areas of the world. This minor will help prepare students to work for organizations dedicated to using sports for development, community building and peace. It provides students with a cross section of courses in sports management and conflict resolution. Courses in sports management frame the sports industry in a philosophical, ethical, cultural and business context. Conflict resolution courses will introduce students to foundational concepts in the study of human conflict, the analysis of conflict and problem solving techniques for helping to resolve conflict.

This is an interdisciplinary minor offered by the School for Conflict Analysis and Resolution (p. 882) and the School of Recreation, Health, and Tourism. (p. 211)
Admissions & Policies

Admissions
This minor is available to all Mason undergraduate students.

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 84).

Requirements

Minor Requirements
Total credits: 18

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPMT 201</td>
<td>Introduction to Sport Management</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 302</td>
<td>Philosophical and Ethical Dimensions of Sport</td>
<td>3</td>
</tr>
<tr>
<td>SPMT 304</td>
<td>Sport, Culture, and Society</td>
<td>3</td>
</tr>
<tr>
<td>CONF 101</td>
<td>Conflict and Our World (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 300</td>
<td>Conflict Resolution Techniques and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Elective Courses

Choose one of the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 302</td>
<td>Culture, Identity, and Conflict</td>
<td>3</td>
</tr>
<tr>
<td>CONF 435</td>
<td>Building Peace in Divided Societies</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 3

World Religions, Diplomacy, and Conflict Resolution Graduate Certificate

Banner Code: CA-CERG-CARW

This 15-credit program is specifically tailored to provide students with practical knowledge of conflict analysis and resolution relevant to their focused areas of work. Designed for midcareer professionals studying in a cohort environment, the certificate programs integrate conflict analysis and resolution theory, research, and practical technique. These programs use intensive course sessions, lecture, seminar, and applied mentored learning in real and simulated situations to prepare students to use conflict analysis and resolution approaches in their work in a variety of fields. The World Religions, Diplomacy and Conflict Resolution Certificate considers strategies to reduce global violence and terrorism by incorporating the best moral practices of religious communities into policy planning, diplomacy, civil society building and democratization. Covers strategies to elicit moderate moral religious expression in conflict regions to strengthen civil society and democracy.

The graduate certificate in world religions, diplomacy, and conflict resolution may only be pursued on a part-time basis, unless a student is concurrently enrolled in another degree program or takes additional courses over those required for the certificate program.

Admissions & Policies

Admissions
Requirements
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Applicants must submit an undergraduate transcript showing completion of an undergraduate degree or equivalent, a cover letter specifying interest in the program, two letters of recommendation, and a curriculum vitae or résumé indicating relevant work experience.

In addition, prior work experience in areas related to the chosen graduate certificate is desirable. GRE or other standardized test scores are not required but may be submitted. The TOEFL is required of international students. For more information, see Admission of International Students (p. 68). Although students may enter the program in either the fall or spring semester, they are strongly encouraged to participate fully in the cohort learning experience by enrolling for the fall semester, taking two courses in the fall and two in the spring, and completing their certificate with the final course in the summer. The capstone course is only offered in the summer, students admitted for the spring term should expect their certificate program to take at least 18 months.

Policies

Class Schedule
Please note that some classes for this graduate certificate program are offered only in Saturday and Sunday sessions. Please check the Schedule of Classes for each term to identify course meeting dates, and specific add/drop dates for these partial semester courses.

Certificate Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 502</td>
<td>Intensive Introduction to Conflict Analysis and Resolution (fall and spring)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 653</td>
<td>World Religions, Diplomacy, and Conflict Resolution (fall)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 660</td>
<td>Conflict Assessment and Program Evaluation (spring)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 668</td>
<td>Applied Integration for Graduate Certificates (summer)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

1 CONF 501 Introduction to Conflict Analysis and Resolution may be taken to fulfill this requirement.

Electives
Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 501</td>
<td>Intensive Introduction to Conflict Analysis and Resolution (fall and spring)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 653</td>
<td>World Religions, Diplomacy, and Conflict Resolution (fall)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 660</td>
<td>Conflict Assessment and Program Evaluation (spring)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 668</td>
<td>Applied Integration for Graduate Certificates (summer)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3
Schar School of Policy and Government

501 Founders Hall (Arlington Campus)
3351 Fairfax Drive, MS 3B1
Arlington, VA 22201

A201 Robinson Hall (Fairfax Campus)
4400 University Drive, MS 3F4
Fairfax, VA 22030

Phone: 703-993-2280 (Arlington)
703-993-1400 (Fairfax)
Email: schar@gmu.edu
Website: schar.gmu.edu

Administration

• Mark J. Rozell, Dean
• Judith Wilde, Chief Operating Officer
• Robert L. Dudley, Associate Dean
• Matthys van Schaik, Associate Dean for Academic Affairs
• Ming Wan, Associate Dean
• Elizabeth C. Eck, Assistant Dean for Graduate Program Management
• Jill V. Emerson, Assistant Dean of Admissions and Student Services
• Ann M. Ludwig, Assistant Dean for Undergraduate Academic Affairs

College Code: PP

The Schar School of Policy and Government prepares undergraduate and graduate students to be leaders who advance the public good in the private, public, and nonprofit sectors. Through research and education in policy, government, and international affairs, Schar allows Mason to more effectively serve the region, Commonwealth, nation, and world.

The Schar faculty combines original research with real-world experience to connect theory and practice for the benefit of students and wider constituencies. The School employs approximately 80 full-time faculty members across a wide range of disciplines, including political science, public administration, international relations, economics, management, geography, engineering, sociology, anthropology, and law. Schar is a major research unit of the University, with approximately $2 million per year in sponsored funding. Schar faculty members frequently advise governments, companies, and non-profit organizations, appear in the national and international media, and participate in public debates on critical issues of the day.

Schar offers two undergraduate majors, nine master’s degree programs, three doctoral programs, and a range of undergraduate minors and graduate certificates. Collectively, these programs enroll approximately 2000 students. Schar offers classes on Mason’s Fairfax and Arlington campuses, and its faculty members have offices on both campuses.

Undergraduate Programs

Schar offers two degrees for students interested in political science, government, and international relations: a BA in Government and International Politics and a BS in Public Administration. Majors in Government and International Politics take core courses in American political institutions, the political systems of other countries, and international relations. Students can focus their electives to earn a concentration in American institutions and processes, comparative politics, international political economy, international relations, law, philosophy and governance, political analysis, political behavior and identity politics, public policy, or a higher credit concentration in Philosophy, Politics, and Economics. Majors in public administration and policy take courses in government, management, policy, and administration. Concentrations are offered in administration and management, economic policy analysis, international political economy, nonprofit management, public policy, and US government institutions.

Students have an opportunity to do internships as part of their degree programs, gaining valuable work experience while earning academic credit.

Honors in the Major

Highly qualified students majoring in Government and International Politics and Public Administration may pursue advanced work leading to graduation with honors in the major. Those students selected for participation in this program take a two-course sequence: GOVT 491 Honors Seminar (Mason Core) (p. 135) and GOVT 496 Directed Readings and Research. To graduate with honors in the major, students must complete these courses with a minimum GPA of 3.50.

Minors

Schar offers minors in American government, international/comparative studies, international security, legal studies, and public policy and management. In addition, faculty from the School coordinate or participate in the Asia-Pacific and Northeast Asian Studies Minor, Global Systems Minor, Latin American Studies Minor, Middle East Studies Minor, Islamic Studies Minor, and Urban and Suburban Studies Minor. It participates with the Philosophy Department in the Political Philosophy Minor and with the Communications Department in the Political Communication Minor (CHSS). See Minors and Interdisciplinary Minors below.

Bachelor’s/Accelerated Master’s Programs

The School offers qualified undergraduates in any major the opportunity to apply to several accelerated master’s degree programs. If accepted, students will earn both an undergraduate and a graduate degree after satisfactory completion of 150 credits, sometimes within five years. More information about the degree options and application process may be found here (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

Graduate Programs

Schar offers three doctoral degree programs and a number of master’s degree programs, as well as numerous graduate certificate programs. Specific information on each program may be found by clicking the "Programs" tab at the top of this page.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONF 657</td>
<td>Facilitation Skills (spring)</td>
</tr>
<tr>
<td>CONF 658</td>
<td>Diversity and Difference in Conflict</td>
</tr>
<tr>
<td></td>
<td>Analysis and Resolution (spring)</td>
</tr>
<tr>
<td>CONF 659</td>
<td>Leadership in Conflict Analysis and</td>
</tr>
<tr>
<td></td>
<td>Resolution (spring)</td>
</tr>
<tr>
<td>CONF 665</td>
<td>Special Topics in Conflict Analysis and</td>
</tr>
<tr>
<td></td>
<td>Resolution</td>
</tr>
</tbody>
</table>

Total Credits 3

1 Application of any other course toward fulfillment of the elective requirement must be approved by the Certificate Program Director.
The Schar School of Policy and Government and the Antonin Scalia Law School offer a joint JD/MPP degree program in law and public policy studies. For more information, go to the website (http://www.law.gmu.edu/academics/degrees/jd_mpp).

Research Centers
The Schar School of Policy and Government's research centers focus on a wide range of issues and areas.

Center for Energy Science and Policy
Co-Directors: Richard Kauzlarich, PhD and Paul R. Houser, PhD

This center, a joint initiative of the College of Science and Schar School, provides objective analysis of key issues in the energy field that is grounded in original research. It serves as a center of gravity for the many researchers at George Mason whose work engages them with these issues and connects them with decision-makers in the economy, society, and government.

Center for Entrepreneurship and Public Policy
Director: Zoltan Acs, PhD

Economic development policy has shifted dramatically from a business and industry attraction strategy to a more entrepreneurial approach. The Center for Entrepreneurship and Public Policy focuses on entrepreneurship policy research and program delivery, offering programs in research, collaboration, and analysis.

Center for Global Policy
Director: Jack Goldstone, PhD

This center conducts research on a wide range of global policy issues, including foreign trade, democratization and state-building, and transnational networks. It also analyzes specific policy issues for a variety of government agencies, and develops and serves as the home to several major cross-national databases for global policy.

Center for Microeconomic Policy Research
Director: John Earle, PhD

This center is a forum for policy-relevant research using micro-economic and micro-econometric methods.

Center for Regional Analysis
Director: Terry Clower, PhD

Focusing on economic development in technologically intensive regions, the Center for Regional Analysis (CRA) maintains a corporate technology database for the national capital region. The CRA provides economic forecasting services to government agencies at all levels around the world.

Center for Science and Technology Policy
Director: David M. Hart, PhD

This center helps facilitate the exchange of information and ideas among the worldwide science, foreign affairs, trade, and technology communities. Areas of emphasis include international trade and science and technology.

Center for Security Policy Studies
Acting Director: Michael Hunzeker, PhD

Today's security challenges—from proliferation and terrorism to climate change and cyber security— are beyond the scope of any one nation-state to address. Finding solutions requires international and multi-lateral cooperation among regional and global leaders, both state-based and outside the state, including corporate and non-governmental actors. The purpose of the Center for Security Policy Studies is to strengthen global strategic thinking by current and future policy-makers, so as to improve US and global security in the 21st century.

Center for the Study of International Medical Policies and Practices
Director: Arnauld Nicogossian, MD

This center provides leadership and focus on global medical and public health policies and processes, working collaboratively with health, science, and medical organizations in the public and private sectors, and academic organizations to address pressing global policy concerns.

Center for Transportation Public-Private Partnership Policy
Director: Jonathan L. Gifford, PhD

The Center is devoted to advancing the objective consideration of public-private partnerships for transportation system renewal and expansion through research, education and public service. The Center supports development of U.S. and international case studies of P3 projects and programs, analyses of the impact of P3s, sponsors workshops and conferences, and supports graduate students and faculty.

Centers on the Public Service
Directors: Paul L. Posner, PhD; Alan J. Abramson, PhD; Frank H. Shafroth, JD

The Centers on the Public Service have been established to help the public sector address emerging challenges that are unprecedented in both scope and complexity. All levels of government, as well as nonprofits and contractors, are under greater pressure to deliver more with fewer resources. The three centers can play important roles through providing training, conducting research, and promoting much needed collaboration across the many officials involved in governance today.

International Center for Applied Studies in Information Technology
Director: Stephen Ruth, PhD

The International Center for Applied Studies in Information Technology (ICASIT) is a consulting group dedicated to delivering the power of the Internet to businesses, underserved markets, and developing countries. ICASIT has contracts in more than 20 countries.

Terrorism, Transnational Crime and Corruption Center
Director: Louise I. Shelley, PhD

The Terrorism, Transnational Crime and Corruption Center (TraCCC) is the first center in the United States devoted to understanding the links among terrorism, transnational crime and corruption. The center teaches, researches and formulates policy on these critical issues. TraCCC accomplishes its mission through international research partnerships engaging in fundamental and applied research projects. Research addresses such diverse concerns as national security, economic development and human rights.

Faculty

School Faculty
Professors
Abramson, Acs, Button, Clower, Conant, Conlan, Dinan, Dudley, Dueck, Earle, Fuller, Gifford, Goldstone, Hart, Hughes Hallett, Katz, Malawer,
Requirements & Policies

Policies for Undergraduate Students

Students should become familiar with the university's Academic Policies (p. 74) in addition to those specific to each academic unit.

The undergraduate degree consists of coursework in four areas: (a) Mason Core requirements, (b) School requirements for the Schar school, (c) requirements specified for the chosen major, and (d) electives. All students must complete 120 credits, of which at least 45 must be in upper-level courses (numbered 300 and above). At least one course at the 300 or 400 level must be designated "writing intensive." In Schar, GOVT 490 Synthesis Seminar (Mason Core) (p. 135) or GOVT 491 Honors Seminar (Mason Core) (p. 135) will satisfy this requirement.

The School requirements, (b) above, are the same as the additional requirements for the College of Humanities and Social Sciences. For the BA in Government and International Politics, there is one class in Philosophy or Religion, one additional class in social and behavioral science, one class in non-Western culture, and demonstrated foreign language proficiency at the intermediate level. Students should consult the Mason Core (p. 135) and CHSS requirements page (http://chss.gmu.edu/general-education/all-requirements) for more detailed information.

All students are responsible for meeting with their academic advisor, and reviewing their transcripts and degree audits regularly to ensure that they are correct and meet all their requirements. Transfer students are encouraged to meet with their academic advisor prior to registering for classes to review their transcripts and course equivalencies. In some cases, students may need to earn more than 120 credits to complete all of their requirements.

Students with questions about exceptions to academic policies and about School requirements should contact Schar Undergraduate Student Services (Robinson Hall, Room A201; 703-993-1400; gvip@gmu.edu or puad@gmu.edu).

Additional policy information and forms are available on the Schar website (http://schar.gmu.edu).

Registration

Students are personally responsible for correctly registering for courses and paying all tuition and fees by the official university registration and payment deadlines. All students should verify the accuracy of their enrollment before the end of the official add period.

Academic Load

Students should review AP.1.2 Academic Load (p. 74).

In order to be considered for a credit overload, students must fulfill all of the following criteria:

- Be in good academic standing
- Have completed the prior semester with a GPA of 2.33 or higher
- Have a cumulative GPA of 2.33 or higher
- Have demonstrated in prior semesters at Mason the ability to handle an increased and demanding course load while maintaining high performance
- Have no remaining incompletes (INs) from a previous semester

Freshmen and transfer students in their first semesters are not given permission for overloads as they have yet to establish an academic record at George Mason University.

If approved for an overload, the student is responsible for adding the additional class(es) and paying for the related tuition by the official university deadlines.

Excluded Courses and Credits

Physical Education (PHED); Parks, Recreation, and Leisure Studies (PRLS); and Recreation (RECR) activity courses cannot be used for credit for a degree in the Schar school.

Only Military Science (MLSC) courses at the 400-level can be used for credit for a degree in the School; credit for other MLSC courses may not be applied toward a degree in the School.

Once matriculated at Mason, students may not take CLEP exams and apply credits from those exams to degrees in the School. Students may apply credits from CLEP exams to degrees in the School only if those credits were awarded and reported prior to admission.

University Consortium

Students should review university policies regarding the University Consortium under Special Registration Procedures in the Academic Policies section of this catalog. Students who have attempted or failed a course at Mason are not permitted to take the equivalent course through the consortium under any circumstances. All consortium registration requests must be submitted to the Schar Undergraduate Student Services office at least 3 weeks prior to the first day of classes for the relevant semester at Mason.

Permission to Study at Another Regionally-Accredited U.S. Institution

Once enrolled in degree status at Mason, students with fewer than 60 hours of transfer coursework (not including registration through the Consortium of Universities of the Washington Metropolitan Area or coursework completed through Mason Study Abroad) may take up to 8 hours of coursework in Schar disciplines at another institution. Students with 60 or more hours of transfer coursework are not permitted to take additional coursework in Schar disciplines at another institution. A student may seek permission for additional hours beyond these limits for summer registration if his/her permanent residence is more than 50 miles away from Mason.
from the George Mason University Fairfax campus. See the university
Permission to Study Elsewhere policy for additional information.

**Study Abroad**
In order to be considered for study through Mason Study Abroad,
students must plan well in advance and receive prior, written permission
from the Assistant Dean. Students must also meet all of the following
criteria:

- Meet all eligibility requirements for their program as specified by
  Mason Study Abroad including course prerequisites and minimum GPA.
- Have completed the immediately preceding semester at Mason with
  a minimum GPA of 2.00.
- Have completed the necessary forms and have obtained all required
  signatures and course equivalencies.

Students in danger of probation, suspension, or dismissal should plan
very carefully before requesting to study abroad. Students who are not in
good academic standing will not be permitted to study abroad.

**Leave of Absence**
All undergraduate students who are planning an absence from George
Mason must submit a formal request for Leave of Absence to the Office
of the University Registrar. Students do not need to complete the Leave
of Absence form if they are participating in a George Mason University
sponsored study abroad program or have received permission to study
elsewhere.

The maximum time allowed for a Leave of Absence is two years. A new
admission application will be required if a Leave of Absence extends
beyond two years. If a Leave of Absence form was not submitted, a new
admission application will be required if a student misses two graded
semesters, excluding the summer term. Re-admission is not guaranteed.
See Academic Policies for full university policy.

**Withdrawals**
Students should review the Withdrawal section in the Academic Policies
(p. 74) section of this catalog. Courses for which a withdrawal is
approved receive a grade of "W."

Students should be aware of the potential consequences of withdrawing
on their academic standing. Although credits graded "W" do not affect a
student’s GPA, they do count towards the total attempted hours. The total
attempted hours and cumulative GPA together determine a student’s
academic standing. These are explained in the Academic Standing
section of Academic Policies.

**Academic Clemency**
Students should review the university policies regarding academic
clemency in the Academic Standing section of Academic Policies (p. 74).

To be considered for clemency, students must meet all of the following
criteria:

- Be absent from George Mason for a minimum of three consecutive
calendar years.
- Provide a detailed explanation for why they were unsuccessful in
  those courses and how they have made changes to ensure their
  academic progress upon their return.
- Submit their request within 12 months of the first day of the re-
enrollment term.
- Complete at least 6 credits during their first 12 months back at
  George Mason.
- Earn a minimum GPA of 2.50 each semester back prior to making the
  clemency request with no individual grade below 2.00.

If the last three minimum academic requirements are not met, clemency
will not be allowed under any circumstances.

**Appeals Process**
Undergraduate students may appeal decisions concerning academic
actions to the Schar Office of Undergraduate Student Services. They may
appeal decisions of the Office of Undergraduate Student Services to the
Associate Dean. Students may appeal decisions of the Associate Dean to
the Associate Provost, Undergraduate Academic Affairs and Programs.
Students who feel that the School’s appeal process was conducted
unfairly may appeal to the Provost’s Office as specified in the Academic
Policies (p. 74) section of this catalog.

The grade appeal process occurs at the Dean’s Council level as discussed
above.

Students should file all appeals in a timely manner, usually within the
semester in which the original decision is rendered, but no later than the
final day of classes of the following semester.

**Second Bachelor’s Degree**
Students should review the university policies regarding second
bachelor’s degrees in the Undergraduate Admission Policies (p. 63) and
in Academic Policies/Requirements for Undergraduate Programs (p. 84)
sections of the catalog. Students pursuing a second bachelor’s degree
concurrently with their first bachelor’s degree at Mason must meet all
the additional requirements for the School (see second paragraph of
the Policies for Undergraduate Students section) if they differ from the
requirements in the School or College of their first major.

Students pursuing a second bachelor’s degree in the School after already
having received one or more bachelor’s degrees are considered to have
met all of the Mason Core requirements. Students pursuing a Bachelor
of Science degree do not have additional School-level requirements.
Students pursuing a Bachelor of Arts degree in the School must complete
these additional School-level requirements: one additional 3-credit course
each in philosophy or religious studies, in social and behavioral science,
and in non-western culture (for a total of 9 credits). They must also
demonstrate proficiency in a foreign language through the intermediate
level.

**Minors**
Students may elect to take up to two minors in addition to their major
field of study. For policies governing all minors, see the AP. 5.3.4 Minors
(p. 84) section of this catalog. Students interested in earning a minor
should complete the appropriate section of the Change/Declaration of
Academic Program form and submit it to the Office of the University
Registrar. See All about Minors for more information.

**Concentration Courses and Minors**
Students may elect to declare a concentration, which requires four of
their major field electives to be from the same designated field. Students
should be aware that minors usually require between 15 and 21 credits of
study, at least 8 of which must be applied only to that minor and may not
be used to fulfill requirements of the student’s major, concentration, an
undergraduate certificate, or another minor.
Policies for Graduate Students

Students should become familiar with the university’s Academic Policies (p. 74) in addition to those specific to each academic unit.

Graduate Student Appeal and Grievance Procedures

Graduate student appeal and grievance procedures are based on George Mason University’s honor system. Students are responsible for understanding the provisions of the code described in detail in the Academic Policies (p. 74) section of this catalog and in Schar’s graduate student guides.

Students with grievances should direct them in writing to the Assistant Dean of Admissions and Student Services, who will provide guidance on how to resolve their concerns in accordance with established procedures.

Students may appeal decisions concerning academic actions, including termination. Written appeals must be submitted to the Assistant Dean of Admissions and Student Services. The merit of these appeals will be reviewed by the Dean or Dean’s designate.

Grade appeals are made to the Dean. Students should contact the Associate Dean for Academic Affairs in writing to initiate the process. The Dean’s decision is final.

A student who is facing termination from the program for non-academic reasons may appeal the decision to the Dean. This appeal must be in writing and must be received within 30 calendar days of the date on the notice of dismissal or termination. The Dean or Dean’s designate will make a final determination. This determination may not be appealed.

American Government Minor

Banner Code: AMGV

Academic Advising

A201 Robinson Hall
Fairfax Campus

The minor in American government provides students the opportunity to focus on the most relevant features of American government, its institutions, the political behavior of its citizens and leaders, and the defining political questions of our time.

Faculty

Travis (minor advisor)

Admissions & Policies

Policies

Students pursuing this minor must complete 18 credits in government with a minimum grade of 2.00 in each course. Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements

Total credits: 18

Core Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core)</td>
<td>3</td>
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</tbody>
</table>

Total Credits

3

Electives

Select five electives from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 301–GOVT 309</td>
<td>Any course on political institutions</td>
</tr>
<tr>
<td>GOVT 310–GOVT 319</td>
<td>Any course on political behavior</td>
</tr>
<tr>
<td>GOVT 409–GOVT 420</td>
<td>Any course from</td>
</tr>
<tr>
<td>GOVT 344</td>
<td>American Foreign Policy</td>
</tr>
</tbody>
</table>
| GOVT 480 | Internship

Total Credits

15

1 When topic is relevant, 3 credits of GOVT 480 Internship may be applied to the minor with approval of the minor advisor.
Biodefense Graduate Certificate

Banner Code: PP-CERG-BIOD

Academic Advising

560 Founders Hall
Arlington Campus

A201 Robinson Hall
Fairfax Campus

The certificate provides an interdisciplinary introduction to man-made and natural biological threats, including a background in the science and technology of biodefense and the specialized areas of threat assessment, non-proliferation, and medical and public health preparedness. Students already pursuing a master’s degree in the school may, after admission to a certificate program, in most cases, earn an additional six credits (two courses) in the Schar School to receive a certificate in addition to the master’s degree.

The graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Applicants to all graduate programs must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Participants must be admitted to a certificate program. Admission requirements are the same as those for the master’s programs and may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Termination from Program

Students admitted to a Schar program will be terminated from the Schar school upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. See AP.6.6.2 Academic Termination (p. 89).

Requirements

Certificate Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 604</td>
<td>Emerging Infectious Diseases I: Bacteria and Toxins</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 609</td>
<td>Biodefense Strategy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Electives

Select three electives from the following: 9

Biodefense, MS

Banner Code: PP-MS-BIOD

Academic Advising

560 Founders Hall
Arlington Campus

A201 Robinson Hall
Fairfax Campus

The master’s prepares students to become the next generation of biodefense and biosecurity professionals and scholars. This program provides students with a foundation in microbiology and biotechnology combined with a broader security and organizational context.

Admissions & Policies

Admissions

Admission Requirements

Please see the Graduate Admissions (p. 66) for information on graduate admission to George Mason University. Specific information on application requirements and deadlines for the Biodefense master’s program may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis. Students may be admitted for nondegree study and apply a limited number of credits toward the master’s degree should they choose to apply to the degree program later, in accordance AP.6.4.1 Change from Nondegree Status (p. 88).

Policies

Academic Policies

Students admitted to a Schar program will be terminated from the Schar school upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated...
from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses.

For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

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## Requirements

### Degree Requirements

**Total credits: 36**

The schedule of courses that students plan on taking should be approved in an education plan designed by the students and their advisor during the student’s first semester. Students must receive the permission of their advisor to take courses outside of the Biodefense Program.

### Core Courses

Students are strongly encouraged to take the core courses as early as possible because they provide the foundation for the rest of the program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 604</td>
<td>Emerging Infectious Diseases I: Bacteria and Toxins</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 605</td>
<td>Emerging Infectious Diseases II: Viral Agents</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 609</td>
<td>Biodefense Strategy</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 620</td>
<td>Global Health Security Policy</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 710</td>
<td>Health Security Preparedness</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 500</td>
<td>The Scientific Method and Research Design</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 18**

### Electives

Select 15 credits from the following:¹

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
</tr>
<tr>
<td>PUBP 756</td>
<td>Global Medical Systems Policy Analysis</td>
</tr>
<tr>
<td>PUBP 757</td>
<td>Public Policy in Global Health and Medical Practice</td>
</tr>
<tr>
<td>PUBP 758</td>
<td>Global Threats and Medical Policies</td>
</tr>
<tr>
<td>PUBP 765</td>
<td>Human Smuggling and Trafficking</td>
</tr>
<tr>
<td>PUBP 767</td>
<td>Global Comparative Medical Practices, Ethics and Law</td>
</tr>
<tr>
<td>PUBP 770</td>
<td>Global Health and Medical Policy Analysis</td>
</tr>
<tr>
<td>PUBP 783</td>
<td>Global Governance</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
</tr>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
</tr>
<tr>
<td>GOVT 742</td>
<td>International Negotiation</td>
</tr>
<tr>
<td>GOVT 744</td>
<td>Foundations of Security Studies</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
</tr>
<tr>
<td>PUAD 630</td>
<td>Emergency Planning and Preparedness</td>
</tr>
<tr>
<td>PUAD 631</td>
<td>Disaster Response Operations and Recovery</td>
</tr>
<tr>
<td>PUAD 635</td>
<td>Emergency Preparedness: Interagency Communication and Coordination</td>
</tr>
<tr>
<td>PUAD 637</td>
<td>Managing Homeland Security</td>
</tr>
</tbody>
</table>

**Total Credits 15**

---

¹ Other courses must be approved by the program advisor. Up to six elective credits may be taken outside of Schar.

### Capstone

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 790</td>
<td>Global Health Security Capstone</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits 3**

---

### Accelerated Master's

#### Bachelor's Degree (any)/Biodefense, Accelerated MS

**Overview**

Highly qualified undergraduates in any major may apply to the accelerated Biodefense, MS. If accepted, students will be able to earn a bachelor's degree in their chosen major and a Biodefense, MS with a reduced number of overall credits and within a reduced time frame, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission**

Please see the Graduate Admissions (p. 66) for general information on graduate admission to George Mason University. Information specific to the accelerated MS program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are BIOD 604 Emerging Infectious Diseases I: Bacteria and Toxins, GOVT 500 The Scientific Method and Research Design, BIOD 605 Emerging Infectious Diseases II: Viral Agents and BIOD 620 Global Health Security Policy. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).
Biodefense, PhD

This program is designed to prepare students to serve as scholars and professionals in the fields of biodefense and biosecurity. The program integrates knowledge of natural and man-made biological threats with the skills to develop and analyze policies and strategies for enhancing biosecurity. Other areas of biodefense, including nonproliferation, intelligence and threat assessment, and medical and public health preparedness are integral parts of the program.

Admissions & Policies

Admissions

See Graduate Admissions (p. 66) for general information on graduate admission to George Mason University. See the Schar School of Policy and Government Admissions website (http://schar.gmu.edu/admissions/doctorate-admissions) for application requirements and deadlines. Students are considered for admission for the Fall term only.

Policies

For policies governing all graduate degrees, see AP.6.10 Requirements for Doctoral Degrees (p. 92).

Reduction of Credit

Students who enter the doctoral program with a master's degree or other graduate credit may have their credit reduced by up to 30 credits, subject to the approval of the program director.

Requirements

Degree Requirements

Total credits: 72

Students are strongly encouraged to take the core courses as early as possible because they provide the foundation for the rest of the program. The courses which students plan to take should be approved in a program of study designed by the student and their advisor during the student's first semester. Students may take up to 12 credits of courses outside of the Biodefense Program with prior written approval of their advisor. Consult with the graduate program director or coordinator for a list of BIOD electives and approved non-BIOD electives that may be used to fulfill some of the requirements below.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 604</td>
<td>Emerging Infectious Diseases I: Bacteria and Toxins</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 605</td>
<td>Emerging Infectious Diseases II: Viral Agents</td>
<td>3</td>
</tr>
</tbody>
</table>

Field of Specialization

Select one field of specialization and complete the requirements therein.

International Security

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 744</td>
<td>Foundations of Security Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
<td>3</td>
</tr>
<tr>
<td>Select six credits of electives (courses may be chosen from the electives list below)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 12

Terrorism and Homeland Security

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 722</td>
<td>Examining Terrorist Groups</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 725</td>
<td>Terrorism and Weapons of Mass Destruction</td>
<td>3</td>
</tr>
<tr>
<td>Select six credits of electives (courses may be chosen from the electives list below)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 12

Technology and Weapons of Mass Destruction

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 706</td>
<td>Nuclear, Biological, and Chemical Weapons Policy and Security</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 760</td>
<td>National Security Technology and Policy</td>
<td>3</td>
</tr>
<tr>
<td>Select six credits of electives (courses may be chosen from the electives list below)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 12

Additional Specialization Courses

Of the courses listed for the preceding fields of specialization, students must select two courses from those that are not in their chosen field.

Electives

Select 9 to 21 credits of additional electives in consultation with advisor.

Courses may be offered by Schar or by other units. Schar courses include the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 610</td>
<td>Advanced Topics in Global Health Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 620</td>
<td>Global Health Security Policy</td>
<td></td>
</tr>
<tr>
<td>BIOD 621</td>
<td>Ethics and International Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 622</td>
<td>Negotiating in the International Arena</td>
<td></td>
</tr>
<tr>
<td>BIOD 705</td>
<td>Intelligence: Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td></td>
</tr>
<tr>
<td>BIOD 706</td>
<td>Nuclear, Biological, and Chemical Weapons Policy and Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 709</td>
<td>Nonproliferation and Arms Control</td>
<td></td>
</tr>
<tr>
<td>BIOD 710</td>
<td>Health Security Preparedness</td>
<td></td>
</tr>
<tr>
<td>BIOD 722</td>
<td>Examining Terrorist Groups</td>
<td></td>
</tr>
<tr>
<td>BIOD 723</td>
<td>Legal Dimensions of Homeland Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 725</td>
<td>Terrorism and Weapons of Mass Destruction</td>
<td></td>
</tr>
<tr>
<td>BIOD 726</td>
<td>Food Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 751</td>
<td>Biosurveillance</td>
<td></td>
</tr>
<tr>
<td>BIOD 752</td>
<td>The Role of the Military in Homeland Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 760</td>
<td>National Security Technology and Policy</td>
<td></td>
</tr>
<tr>
<td>BIOD 762</td>
<td>Biotechnology and Society</td>
<td></td>
</tr>
<tr>
<td>BIOD 766</td>
<td>Development of Vaccines and Therapeutics</td>
<td></td>
</tr>
<tr>
<td>BIOD 793</td>
<td>Directed Studies in Biodefense</td>
<td></td>
</tr>
<tr>
<td>BIOD 810</td>
<td>Advanced Seminar in Biodefense</td>
<td></td>
</tr>
<tr>
<td>BIOD 890</td>
<td>Doctoral Supervised Internship</td>
<td></td>
</tr>
<tr>
<td>BIOD 899</td>
<td>Directed Research in Biodefense</td>
<td></td>
</tr>
<tr>
<td>GOVT 510</td>
<td>American Government and Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
<td></td>
</tr>
<tr>
<td>GOVT 706</td>
<td>Federalism and Intergovernmental Relations</td>
<td></td>
</tr>
<tr>
<td>GOVT 739</td>
<td>Issues in Comparative and International Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
<td></td>
</tr>
<tr>
<td>GOVT 755</td>
<td>Seminar in Politics and Bureaucracy</td>
<td></td>
</tr>
<tr>
<td>GOVT 843</td>
<td>Diplomacy</td>
<td></td>
</tr>
<tr>
<td>PUAD 504</td>
<td>Managing in the International Arena: Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>PUAD 630</td>
<td>Emergency Planning and Preparedness</td>
<td></td>
</tr>
<tr>
<td>PUAD 631</td>
<td>Disaster Response Operations and Recovery</td>
<td></td>
</tr>
<tr>
<td>PUAD 632</td>
<td>Terrorism: Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>PUAD 635</td>
<td>Emergency Preparedness: Interagency Communication and Coordination</td>
<td></td>
</tr>
<tr>
<td>PUAD 701</td>
<td>Cross-Cultural and Ethical Dimensions of International Management</td>
<td></td>
</tr>
<tr>
<td>PUAD 727</td>
<td>Seminar in Risk Assessment and Decision Making</td>
<td></td>
</tr>
<tr>
<td>PUAD 731</td>
<td>Homeland/Transportation Security Administration</td>
<td></td>
</tr>
<tr>
<td>PUAD 738</td>
<td>Issues in International Security</td>
<td></td>
</tr>
<tr>
<td>PUAD 750</td>
<td>Federalism and Intergovernmental Relations</td>
<td></td>
</tr>
<tr>
<td>PHIL 642</td>
<td>Biomedical Ethics</td>
<td></td>
</tr>
<tr>
<td>PUBP 757</td>
<td>Public Policy in Global Health and Medical Practice</td>
<td></td>
</tr>
<tr>
<td>PUBP 758</td>
<td>Global Threats and Medical Policies</td>
<td></td>
</tr>
</tbody>
</table>

**Qualifying Exam**

The purpose of the qualifying exam is to determine if the student is ready to engage in dissertation research. Doctoral students are eligible to take the exam at the conclusion of coursework, provided an approved Degree Plan is on file with Schar. The exam must be completed before the student takes dissertation proposal (BIOD 998 Doctoral Dissertation Proposal).

**Advancement to Candidacy**

Advancement to candidacy for the doctoral degree occurs when a student has met the coursework requirements, passed the comprehensive qualifying examination, presented and successfully defended a dissertation proposal, and has an approved dissertation committee.

**Dissertation Research**

Once enrolled in BIOD 998, students in this degree program must maintain continuous registration in BIOD 998 or BIOD 999 each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in BIOD 999, students must follow the university’s continuous registration policy as specified in AP.6.10.6 Dissertation Registration (p. 93). Students who defend in the summer must be registered for at least 1 credit of BIOD 999.

Students may apply to this degree a minimum of 3 and a maximum of 6 credits of BIOD 998 and a minimum of 6 and a maximum of 18 credits of BIOD 999. They may apply a maximum of 24 dissertation credits (BIOD 998 and BIOD 999 combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Before registering in BIOD 999, students must offer a successful public defense of the dissertation proposal. Students must present the results of the dissertation research to their dissertation committee in a seminar and defend their dissertation to the university community. Successful completion of a dissertation is contingent on approval of the dissertation committee and the dean.

**Research credits**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 998</td>
<td>Doctoral Dissertation Proposal (minimum of 3 credits)</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 999</td>
<td>Doctoral Dissertation (minimum of 6 credits)</td>
<td>6</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12-24</td>
</tr>
</tbody>
</table>

**Emergency Management and Homeland Security Graduate Certificate**

Banner Code: PP-CERG-EMHS

Academic Advising

560 Founders Hall
Arlington Campus
A201 Robinson Hall
Fairfax Campus
The Schar School of Policy and Government offers certificates in conjunction with its master’s programs. Students already pursuing a master’s degree in the school may, in most cases, after admission to a certificate, earn an additional six credits (two courses) in Schar to receive a certificate in addition to the master’s degree.

The graduate certificate in emergency management and homeland security may only be pursued on a part-time basis.

### Admissions & Policies

#### Admissions

Applicants to all graduate programs must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 87) section of this catalog. Participants must be admitted to a certificate program. Admission requirements are the same as those for the master’s programs and may be found on the Schar admissions web site (http://spgia.gmu.edu/admissions).

#### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

#### Termination from Program

Students admitted to a Schar program will be terminated from the program upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. See the Academic Policies (p. 74) section of the catalog for additional policies pertaining to graduate students.

### Requirements

#### Certificate Requirements

Total credits: 15

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 502</td>
<td>Administration in Public and Nonprofit Organizations</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 630</td>
<td>Emergency Planning and Preparedness</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 637</td>
<td>Managing Homeland Security</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>9</strong></td>
</tr>
</tbody>
</table>

**Electives**

Students choose electives in the emergency management and homeland security area. A list of relevant electives is available under the concentration in emergency management and homeland security in the MPA (master of public administration) (p. 941).

Select two electives 6

Total Credits 6

---

**Global Health and Security Graduate Certificate**

**Banner Code:** PP-CERG-GHS

**Academic Advising**

560 Founders Hall  
Arlington Campus  
A201 Robinson Hall  
Fairfax Campus

The Schar School of Policy and Government offers certificate programs in conjunction with its master’s programs. The certificate in global health and security provides an introduction to the intersection of global public health and security, covering topics such as emerging infectious diseases, biosurveillance, the development of vaccines, and emergency response to public health disasters. Students already pursuing a master’s degree in the school may, in most cases, after admission to a certificate program, earn an additional six credits (two courses) in SPGIA to receive a certificate in addition to the master’s degree.

The graduate certificate in global health and security may be pursued on a part-time or full-time basis.

### Admissions & Policies

#### Admissions

Applicants to all graduate programs must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 87) section of this catalog. Participants must be admitted to a certificate program. Admission requirements are the same as those for the master’s programs and may be found on the Schar admissions web site (http://spgia.gmu.edu/admissions).

#### Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

#### Termination from Program

Students admitted to a Schar program will be terminated from the program upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. See the Academic Policies (p. 74) section of the catalog for additional policies pertaining to graduate students.

### Requirements

#### Certificate Requirements

Total credits: 15

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 620</td>
<td>Global Health Security Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two electives 6

Total Credits 6
Global Systems Minor

Banner Code: GLOS

Academic Advising
A201 Robinson Hall
Fairfax Campus

Global systems have become increasingly important to the way we live and work, and a global perspective makes us more aware of how we are connected to others around the world and to the whole of nature.

The interdisciplinary minor in global systems is designed to complement virtually any undergraduate major. It works well for majors in business disciplines, economics, languages, geography, government and international politics, history, and other disciplines that take a global view. Students in professional programs learn to connect their professional concerns to global issues of health care, trade and finance, or technology. Students in the liberal arts gain insights into their disciplines as they learn how the arts, humanities, sciences, and social sciences are affected by global issues such as demographic change, telecommunications, and environmental protection.

Other globally oriented courses may also fulfill or substitute for the requirements of this program with written permission of the coordinator prior to registration.

This is an interdisciplinary minor offered by the Schar School of Policy and Government (p. 906) and the College of Humanities and Social Sciences (p. 295).

Faculty
Lopez-Santana (minor advisor)

Admissions & Policies

Policies
Students must complete all coursework with a minimum GPA of 2.00. At least 9 credits must be at the 300 level or above. Eight credits of coursework must be unique to the minor.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Required Course
Select one course from the following: 3

- GLOA 101 Introduction to Global Affairs (Mason Core) (p. 135)
- GOVT 132 Introduction to International Politics (Mason Core) (p. 135)
- HIST 125 Introduction to World History (Mason Core) (p. 135)

Electives
Select five electives from at least two of the following fields: 1 15

Field A: Government, geography, and administration of justice
- GOVT 132 Introduction to International Politics (Mason Core) (p. 135)
- GOVT 444 Issues in International Studies
- CRIM 405 Law and Justice around the World (Mason Core) (p. 135)
- GGS 101 Major World Regions (Mason Core) (p. 135)
- GGS 301 Political Geography
- GGS 303 Geography of Resource Conservation (Mason Core) (p. 135)
- GGS 304 Population Geography (Mason Core) (p. 135)
- GGS 305 Economic Geography

Field B: Economics, anthropology, marketing, history, and sociology
- ANTH 300 Civilizations
- ANTH 312 Political Anthropology (Mason Core) (p. 135)
- ANTH 331 Refugees (Mason Core) (p. 135)
- ANTH 375 Culture, Power, History
- ECON 360 Economics of Developing Areas (Mason Core) (p. 135)
- ECON 361 Economic Development of Latin America (Mason Core) (p. 135)
- ECON 380 Economies in Transition (Mason Core) (p. 135)
Students pursuing this degree must complete 43 credits in GOVT and earn a minimum grade of 2.00 in each course applied to the major.

**Requirements**

**Degree Requirements**

Total credits: minimum 120 credits

Students pursuing a BA in Government and International Politics and wishing to narrow their focus may choose to concentrate in one of eight government fields or complete a higher credit concentration in Philosophy, Politics, and Economics.

**BA with or without Government Concentration**

**Core Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 101</td>
<td>Democratic Theory and Practice (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 132</td>
<td>Introduction to International Politics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 133</td>
<td>Introduction to Comparative Politics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 300</td>
<td>Research Methods and Analysis (Mason Core)</td>
<td>4</td>
</tr>
</tbody>
</table>

**Senior Seminar**

Select one seminar from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 490</td>
<td>Synthesis Seminar (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 491</td>
<td>Honors Seminar (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Total Credits**

19

1 Other globally-oriented courses may also be applied to this requirement with written approval of the director.

**Government Field Study**

Select any eight advanced government field courses, with or without a government concentration

**Total Credits**

24

Students may complete a government concentration (four courses) in one field, then complete any four more advanced government field courses to satisfy this requirement. Students who do not pursue a government concentration may choose 24 credits from the advanced government field courses listed below (with restriction) for a broader learning experience.

Up to three credits of GOVT 399 Research Practicum and GOVT 480 Internship may be used to fulfill the field course requirement with prior advisor approval. Up to six credits of GOVT 496 Directed Readings and Research may be used to fulfill this requirement with prior advisor approval. GOVT 490 Synthesis Seminar (Mason Core) (p. 135) or GOVT 491 Honors Seminar (Mason Core) (p. 135) may not be used to fulfill this requirement.

Advanced government field courses include courses numbered GOVT 301 - GOVT 499.
Select 0-12 credits in any one concentration 0-12

Total Credits 0-12

Students may partially satisfy the field study requirement by completing four courses (minimum 12 credits) in any one approved concentration.

**Concentration in American Institutions and Processes (AMIP)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 301</td>
<td>Public Law and the Judicial Process</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 302</td>
<td>American Political Development</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 304</td>
<td>American State and Local Government</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 305</td>
<td>Contemporary American Federalism</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 307</td>
<td>Legislative Behavior</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 308</td>
<td>The American Presidency</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 309</td>
<td>Government and Politics of Metropolitan Areas</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 311</td>
<td>Public Opinion and Electoral Behavior</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 319</td>
<td>Issues in Government and Politics</td>
<td>1-3</td>
</tr>
<tr>
<td>GOVT 344</td>
<td>American Foreign Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 357</td>
<td>Urban Governance and Planning</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 365</td>
<td>State and Regional Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 409</td>
<td>Virginia Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 422</td>
<td>Constitutional Interpretation</td>
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<tr>
<td>GOVT 423</td>
<td>Constitutional Law: Civil Rights and Liberties</td>
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**Concentration in Comparative Politics (CPOL)**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>GOVT 331</td>
<td>Government and Politics of Latin America</td>
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<tr>
<td>GOVT 332</td>
<td>Government and Politics of the Middle East and North Africa</td>
<td>3</td>
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<tr>
<td>GOVT 333</td>
<td>Government and Politics of Asia</td>
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<tr>
<td>GOVT 334</td>
<td>Government and Politics of Europe</td>
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<td>GOVT 336</td>
<td>Political Development and Change</td>
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<td>GOVT 337</td>
<td>Ethnic Politics in Western Europe and North America</td>
<td>3</td>
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<td>GOVT 338</td>
<td>Government and Politics of Russia</td>
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<tr>
<td>GOVT 339</td>
<td>Issues in the Politics of Advanced Industrial Societies</td>
<td>1-3</td>
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<tr>
<td>GOVT 340</td>
<td>Central Asian Politics</td>
<td>3</td>
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<tr>
<td>GOVT 341</td>
<td>Chinese Foreign Policy</td>
<td>3</td>
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<tr>
<td>GOVT 342</td>
<td>Diplomacy</td>
<td>3</td>
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<tr>
<td>GOVT 344</td>
<td>American Foreign Policy</td>
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<td>GOVT 345</td>
<td>Islam and Politics</td>
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<tr>
<td>GOVT 430</td>
<td>Comparative Political Leadership</td>
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<td>GOVT 432</td>
<td>Political Change and Social Development in Sub-Saharan Africa</td>
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<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<td>GOVT 434</td>
<td>Democracy in Global Perspective</td>
<td>3</td>
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<td>GOVT 443</td>
<td>Law and Ethics of War</td>
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<tr>
<td>GOVT 444</td>
<td>Issues in International Studies</td>
<td>1-3</td>
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<td>GOVT 445</td>
<td>Human Rights</td>
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<td>GOVT 447</td>
<td>Revolution and International Politics</td>
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<td>Ethics and International Politics</td>
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**Concentration in International Political Economy (IPE)**

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<tr>
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<td>Issues in the Politics of Advanced Industrial Societies</td>
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<td>Money, Markets and Economic Policy (Mason Core)</td>
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<td>Tools for Economic Policy Analysis</td>
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<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<td>GOVT 444</td>
<td>Issues in International Studies</td>
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<td>GOVT 446</td>
<td>International Law and Organization</td>
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<td>Philosophy, Politics, and Economics</td>
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**Concentration in International Relations (INTR)**

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<td>GOVT 342</td>
<td>Diplomacy</td>
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<td>Islam and Politics</td>
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<td>American Security Policy</td>
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<td>GOVT 444</td>
<td>Issues in International Studies</td>
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<td>GOVT 445</td>
<td>Human Rights</td>
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<td>Ethics and International Politics</td>
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**Concentration in Law, Philosophy and Governance (LPGV)**

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<td>Public Law and the Judicial Process</td>
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<td>GOVT 302</td>
<td>American Political Development</td>
<td>3</td>
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<tr>
<td>GOVT 307</td>
<td>Legislative Behavior</td>
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<td>GOVT 322</td>
<td>International Relations Theory</td>
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<tr>
<td>GOVT 323</td>
<td>Classical Western Political Theory</td>
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<tr>
<td>GOVT 324</td>
<td>Modern Western Political Theory</td>
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<td>GOVT 327</td>
<td>Contemporary Western Political Theory</td>
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<td>GOVT 328</td>
<td>Non-Western Political Theory</td>
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<td>GOVT 329</td>
<td>Issues in Political Theories and Values</td>
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<td>GOVT 334</td>
<td>Government and Politics of Europe</td>
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<td>Law and Society</td>
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<td>GOVT 420</td>
<td>American Political Thought</td>
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<td>Contemporary Political Ideologies</td>
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<td>Constitutional Interpretation</td>
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<td>Constitutional Law: Civil Rights and Liberties</td>
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<td>GOVT 427</td>
<td>Feminist Political Thought</td>
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<td>Advanced Democratic Theory</td>
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<td>Law and Ethics of War</td>
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<td>GOVT 445</td>
<td>Human Rights</td>
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<td>GOVT 446</td>
<td>International Law and Organization</td>
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<td>GOVT 448</td>
<td>Ethics and International Politics</td>
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<td>GOVT 452</td>
<td>Administrative Law and Procedures</td>
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<td>GOVT 460</td>
<td>Surveillance and Privacy in Contemporary Society</td>
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<td>GOVT 469</td>
<td>Philosophy, Politics, and Economics</td>
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<tr>
<td>GOVT 470</td>
<td>Faith and Reason in the Making of the Modern Mind</td>
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<td>GOVT 471</td>
<td>Millennialism and Philosophies of History in Western Culture</td>
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**Concentration in Political Analysis (PA)**

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<tr>
<td>GOVT 307</td>
<td>Legislative Behavior</td>
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<tr>
<td>GOVT 343</td>
<td>International Political Economy</td>
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<tr>
<td>GOVT 356</td>
<td>Public Budgeting and Finance</td>
<td>3</td>
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<td>GOVT 357</td>
<td>Urban Governance and Planning</td>
<td>3</td>
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<td>GOVT 358</td>
<td>Nonprofit Financial Planning</td>
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<tr>
<td>GOVT 366</td>
<td>Public Policy Analysis</td>
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<tr>
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<td>Money, Markets and Economic Policy (Mason Core)</td>
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<td>GOVT 368</td>
<td>Tools for Economic Policy Analysis</td>
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<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
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<td>GOVT 469</td>
<td>Philosophy, Politics, and Economics</td>
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<td>STAT 350</td>
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Any 400-level STAT course

**Concentration in Political Behavior and Identity Politics (PBIP)**

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<tbody>
<tr>
<td>GOVT 311</td>
<td>Public Opinion and Electoral Behavior</td>
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<tr>
<td>GOVT 312</td>
<td>Political Parties and Campaigns</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 313</td>
<td>Political Psychology</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 318</td>
<td>Interest Groups, Lobbying, and the Political Process</td>
<td>3</td>
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<td>GOVT 319</td>
<td>Issues in Government and Politics</td>
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<tr>
<td>GOVT 345</td>
<td>Islam and Politics</td>
<td>3</td>
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<td>GOVT 353</td>
<td>Social Entrepreneurship</td>
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<tr>
<td>GOVT 412</td>
<td>Politics and the Mass Media</td>
<td>3</td>
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<tr>
<td>GOVT 414</td>
<td>Politics of Race and Gender</td>
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<tr>
<td>GOVT 421</td>
<td>Contemporary Political Ideologies</td>
<td>3</td>
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<tr>
<td>GOVT 423</td>
<td>Constitutional Law: Civil Rights and Liberties</td>
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**Concentration in Public Policy and Administration (PPA)**

<table>
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<tbody>
<tr>
<td>GOVT 304</td>
<td>American State and Local Government</td>
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<tr>
<td>GOVT 329</td>
<td>Issues in Political Theories and Values</td>
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</tr>
<tr>
<td>GOVT 351</td>
<td>Administration in the Political System</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 353</td>
<td>Social Entrepreneurship</td>
<td>3</td>
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<tr>
<td>GOVT 354</td>
<td>Third-Party Government and the Nonprofit Sector</td>
<td>3</td>
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<tr>
<td>GOVT 355</td>
<td>Public Personnel Administration</td>
<td>3</td>
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<tr>
<td>GOVT 356</td>
<td>Public Budgeting and Finance</td>
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<tr>
<td>GOVT 357</td>
<td>Urban Governance and Planning</td>
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<td>GOVT 358</td>
<td>Nonprofit Financial Planning</td>
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<td>GOVT 359</td>
<td>Computers in Public Management</td>
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<tr>
<td>GOVT 361</td>
<td>Introduction to Environmental Policy</td>
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<td>GOVT 362</td>
<td>Intermediate Environmental Policy</td>
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<td>GOVT 364</td>
<td>Public Policy Making</td>
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<td>State and Regional Public Policy</td>
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<tr>
<td>GOVT 366</td>
<td>Public Policy Analysis</td>
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<tr>
<td>GOVT 367</td>
<td>Money, Markets and Economic Policy (Mason Core)</td>
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</tr>
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<td>GOVT 368</td>
<td>Tools for Economic Policy Analysis</td>
<td>3</td>
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<tr>
<td>GOVT 452</td>
<td>Administrative Law and Procedures</td>
<td>3</td>
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<td>GOVT 460</td>
<td>Surveillance and Privacy in Contemporary Society</td>
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<td>GOVT 464</td>
<td>Issues in Public Policy and Administration</td>
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<td>GOVT 467</td>
<td>Current Issues in Economic Policy</td>
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<tr>
<td>GOVT 469</td>
<td>Philosophy, Politics, and Economics</td>
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**BA with Non-Government Concentration**

**Concentration in Philosophy, Politics, and Economics (PPE)**

**Core Courses**

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>GOVT 101</td>
<td>Democratic Theory and Practice (Mason Core)</td>
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<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core)</td>
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<tr>
<td>GOVT 132</td>
<td>Introduction to International Politics (Mason Core)</td>
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<td>GOVT 133</td>
<td>Introduction to Comparative Politics (Mason Core)</td>
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<tr>
<td>GOVT 300</td>
<td>Research Methods and Analysis (Mason Core)</td>
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**Total Credits** 16

**Senior Seminar**

Select one from the following:

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<tr>
<td>GOVT 490</td>
<td>Synthesis Seminar (Mason Core)</td>
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<tr>
<td>GOVT 491</td>
<td>Honors Seminar (Mason Core)</td>
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**Total Credits** 3

*1 This option is for students who have been accepted to pursue honors in the major.

**Government Field Study**

Students complete the following coursework:

**American Politics**

Select one course from the following:

<table>
<thead>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GOVT 301</td>
<td>GOVT 319</td>
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<td>GOVT 401</td>
<td>GOVT 419</td>
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**Political Theory and Law**

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<tr>
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<td>GOVT 323</td>
<td>Classical Western Political Theory</td>
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**International and Comparative Politics**

Select one course from the following:

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GOVT 330</td>
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<td>GOVT 430</td>
<td>GOVT 449</td>
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**Public Policy and Administration**

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<td>GOVT 467</td>
<td>Current Issues in Economic Policy</td>
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<tr>
<td>GOVT 469</td>
<td>Philosophy, Politics, and Economics</td>
<td>3</td>
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**Additional Upper Level GOVT Courses**

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<tbody>
<tr>
<td>GOVT 422</td>
<td>Constitutional Interpretation</td>
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Two additional upper division GOVT courses 6
Total Credits 24

Additional Concentration Courses

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<tbody>
<tr>
<td>PHIL 324</td>
<td>Modern Western Political Theory</td>
<td>3</td>
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<tr>
<td>or PHIL 327</td>
<td>Contemporary Western Political Theory</td>
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<tr>
<td>PHIL 357</td>
<td>Philosophy of the Social Sciences</td>
<td>3</td>
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<tr>
<td>or PHIL 371</td>
<td>Philosophy of Natural Sciences</td>
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<tr>
<td>PHIL 358</td>
<td>Ethics and Economics</td>
<td>3</td>
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<td>PHIL 411</td>
<td>Theories of Decision</td>
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<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
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<td>Contemporary Macroeconomic Principles (Mason Core) (p. 135)</td>
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<td>ECON 306</td>
<td>Intermediate Microeconomics</td>
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<tr>
<td>ECON 412</td>
<td>Game Theory and Economics of Institutions</td>
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</table>

Total Credits 24

Writing-Intensive Requirement

The university requires all students to complete at least one course designated "writing intensive" in their majors. Students majoring in government and international politics may fulfill this requirement by successfully completing GOVT 490 Synthesis Seminar (Mason Core) (p. 135) or GOVT 491 Honors Seminar (Mason Core) (p. 135) in their major programs.

Mason Core

Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
<td></td>
<td>Foundation Requirements</td>
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<td></td>
<td>Written Communication (p. 135)</td>
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<td>Oral Communication (p. 136)</td>
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<td>Quantitative Reasoning (p. 136)</td>
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<td>Information Technology (p. 136)</td>
<td>3-7</td>
</tr>
<tr>
<td></td>
<td>Core Requirements</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arts (p. 137)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Natural Science (p. 141)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone Requirement ¹</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synthesis/Capstone (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>40</td>
</tr>
</tbody>
</table>

¹ minimum 3 credits

Schar Requirements in Addition to Mason Core Above

One course in Philosophy or Religion
One additional course in Social and Behavioral Sciences
One course in Non-Western Culture

Proficiency in a foreign language through the intermediate level

Honors

Honors in the Major

Highly qualified students majoring in Government and International Politics and Public Administration may pursue advanced work leading to graduation with honors in the major. Those students selected for participation in this program take a two-course sequence: GOVT 491 Honors Seminar (Mason Core) (p. 135) and GOVT 496 Directed Readings and Research. To graduate with honors in the major, students must complete these courses with a minimum GPA of 3.50.

Accelerated Master's

Bachelor's Degree (any)/Biodefense, Accelerated MS

Overview

Highly qualified undergraduates in any major may apply to the accelerated Biodefense, MS. If accepted, students will be able to earn a bachelor's degree in their chosen major and a Biodefense, MS with a reduced number of overall credits and within a reduced time frame, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission

Please see the Graduate Admissions (p. 66) for general information on graduate admission to George Mason University. Information specific to the accelerated MS program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master's program, applicants must have completed a minimum of 75 credits and have a minimum GPA of 3.50 in all coursework applied to the degree.

Accelerated Option Requirements

While undergraduate students, accelerated master's students complete two graduate courses (six credits) that may be counted toward both the bachelor's and master's degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master's degree. The courses are BIOD 604 Emerging Infectious Diseases I: Bacteria and Toxins, GOVT 500 The Scientific Method and Research Design, BIOD 605 Emerging Infectious Diseases II: Viral Agents and BIOD 620 Global Health Security Policy. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master's degree. Students must begin their master's program the semester immediately following conferral of the undergraduate degree (excluding summer).
Bachelor’s Degree (any)/International Security, Accelerated MA

Overview
Highly-qualified undergraduates in any major may apply to the accelerated MA degree program in International Security. If accepted, students will be able to earn a bachelor's degree in their major and an MA in International Security with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor's/accelerated master's programs may be found in AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. See AP.6.9 Requirements for Master's Degrees. (p. 91)

Admission
Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

To be considered for this accelerated master's program, applicants must have completed a minimum of 75 credits, including at least 12 credits of Government, Economics and/or Global Affairs courses, and have a minimum GPA of 3.50 in all coursework applied to the degree.

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses (six credits) that may be counted toward both the bachelor's and master's degrees. In addition, students may take another two courses (six credits) that may be counted toward both the bachelor's and master's degrees. Students must maintain a minimum GPA of 3.50 in all coursework applied to the degree.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor's/Accelerated Master's Transition Form to apply credits to the master's degree. Students must begin their master's program the semester immediately following conferral of the undergraduate degree (excluding summer).

Bachelor's Degree (any)/Political Science, Accelerated MA

Overview
Highly-qualified undergraduates in any major may apply to the accelerated MA degree program in Political Science. If accepted, students will be able to earn a bachelor's degree in their chosen major and a MA in Political Science with a reduced number of overall credits and within a reduced time frame, sometimes five years. More information on bachelor's/accelerated master's programs may be found in AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. See AP.6.9 Requirements for Master's Degrees. (p. 91)

Admission
Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

To be considered for this accelerated master's program, applicants must have completed a minimum of 75 credits, including 12 GOVT credits, and have a minimum GPA of 3.50 in all coursework applied to the degree.

Bachelor's Degree (any)/International Commerce and Policy, Accelerated MA

Overview
Highly-qualified undergraduates in any major may apply to the accelerated MA degree program in International Commerce and Policy. If accepted, students will be able to earn a bachelor's degree in their major and an MA in International Commerce and Policy with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor's/accelerated master's programs may be found in AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. See AP.6.9 Requirements for Master's Degrees. (p. 91)

Admission
Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines for the Political Science master's program may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

To be considered for this accelerated master's program, applicants must have completed a minimum of 75 credits, including 12 GOVT credits, and have a minimum GPA of 3.50 in all coursework applied to the degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 504</td>
<td>Grand Strategy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 506</td>
<td>Ethics and the Use of Force</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>or PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td></td>
</tr>
<tr>
<td>or PUAD 511</td>
<td>Problem Solving and Data Analysis I</td>
<td></td>
</tr>
</tbody>
</table>

Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor's/Accelerated Master's Transition Form to apply credits to the master's degree. Students must begin their master's program the semester immediately following conferral of the undergraduate degree (excluding summer).
Accelerated Option Requirements

While undergraduate students, accelerated master's students complete two graduate courses (six credits) that may be counted toward both the bachelor's and master's degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master's degree. The courses are chosen from GOVT 500 The Scientific Method and Research Design, GOVT 510 American Government and Politics, GOVT 520 Political Theory, GOVT 530 Comparative Politics, GOVT 540 International Relations. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor's/Accelerated Master's Transition Form to apply credits to the master's degree. Students must begin their master's program the semester immediately following conferral of the undergraduate degree (excluding summer).

Bachelor's Degree (any)/Public Administration, Accelerated MPA

Overview

Highly-qualified undergraduates in any major may apply to the accelerated master’s degree in public administration. If accepted, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in public administration with a reduced number of overall credits and within a reduced time frame, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Information specific to the accelerated MPA program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits, including 12 GOVT credits, and have a minimum GPA of 3.50 in all coursework applied to the degree.

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) from the following list to be held as reserve graduate credit and count only toward the master's degree. The student must have a minimum GPA of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 500</td>
<td>Theory and Practice in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 503</td>
<td>Culture, Organization, and Technology</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ITRN 503</td>
<td>Macroeconomic Policy in the Global Economy</td>
<td>3</td>
</tr>
</tbody>
</table>

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).

International Commerce and Policy, MA

Banner Code: PP-MA-ICP

Academic Advising
The International Commerce and Policy, MA program (ICP) is an interdisciplinary course of study to help students from around the world prepare for jobs in the new economy. Unlike traditional international affairs programs, the degree is focused on such international economic issues as global trade and investment. The MA in international commerce and policy differs from an MBA program by providing training in the political, social, and technological aspects of the global economy. In today's world, it is critical for all participants in global markets to understand the multifaceted environment in which they work.

Faculty
The core faculty is augmented by adjunct faculty members who bring a wealth of practical knowledge and experience, as well as strong academic qualifications to the program. Adjuncts are drawn from the U.S. Commerce and State Departments, the Office of the U.S. Trade Representative, and the International Trade Commission, among other government agencies, as well as from the private sector, the think tank community, and trade associations.

Courses
Courses are offered primarily in the late afternoon and evening to fit the schedules of busy professionals. In addition to classroom study, the program emphasizes experiential learning by supporting student internships, cooperative education, and research activities with private- and public-sector employers, and sponsoring a variety of study-abroad experiences.

Admissions & Policies

Admissions
Applications
Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Students from all academic backgrounds are welcome to apply; however, some knowledge of economics, preferably through at least two undergraduate economics courses, is encouraged. While many students may have prior educational and work-related training in business and economics, others see the ICP Program as a bridge from government, education, and other non-business occupations to careers in the global economy.

Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis. Students may be admitted for nondegree study and apply a limited number of credits toward the master's degree should they choose to apply to the degree program later, in accordance with university policy.

Requirements

Degree Requirements
Total credits: 36

Core Courses
Three credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITRN 500</td>
<td>Global Political Economy</td>
</tr>
<tr>
<td>ITRN 501</td>
<td>Methods of Analysis for International Commerce and Policy</td>
</tr>
</tbody>
</table>

Three credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITRN 503</td>
<td>Macroeconomic Policy in the Global Economy</td>
</tr>
</tbody>
</table>

Three credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITRN 504</td>
<td>Microeconomics and Trade Policy</td>
</tr>
<tr>
<td>ITRN 602</td>
<td>Global Financial Crises and Institutions</td>
</tr>
<tr>
<td>ITRN 603</td>
<td>Global Trade Relations</td>
</tr>
</tbody>
</table>

Three credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 503</td>
<td>Culture, Organization, and Technology</td>
</tr>
</tbody>
</table>

Total Credits
21

Electives
Select 15 credits of electives in consultation with the student's advisor

Total Credits
15

If desired, a student has the option to declare one of three concentrations. Students without a concentration may select any ITRN course, any courses from the concentrations listed below, or other courses as approved by the advisor or program director.

Concentration in Global Finance, Investment and Trade (GFIT)
Select four courses of the 15 elective credits within the area of concentration. Preapproved courses include the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 622</td>
<td>Negotiating in the International Arena</td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
</tr>
<tr>
<td>GOVT 742</td>
<td>International Negotiation</td>
</tr>
</tbody>
</table>

Policies
For policies governing all graduate degrees, see AP .6 Graduate Policies (p. 87).

Termination from Program
Students admitted to an Schar graduate program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses.

Program Requirements
The ICP Program requires 36 credits of coursework. All degree candidates must take 21 credits of work in required courses. The remaining 15 credits consist of electives that may include internships, independent studies, and study abroad. Upon entering the program students complete core courses first to prepare for higher-level elective coursework.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITRN 604</td>
<td>International Trade and Technology</td>
</tr>
<tr>
<td>ITRN 612</td>
<td>International Business Operations and the Multinational Corporation</td>
</tr>
<tr>
<td>ITRN 701</td>
<td>Special Topics in International Commerce and Policy</td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
</tr>
<tr>
<td>ITRN 710</td>
<td>International Business Transactions: Finance and Investment</td>
</tr>
<tr>
<td>ITRN 711</td>
<td>United States Law and Global Trade</td>
</tr>
<tr>
<td>ITRN 712</td>
<td>World Trade Organization and Global Trade</td>
</tr>
<tr>
<td>ITRN 731</td>
<td>Business-to-Business Marketing in International Commerce</td>
</tr>
<tr>
<td>ITRN 736</td>
<td>Sources of Growth in East Asia</td>
</tr>
<tr>
<td>ITRN 738</td>
<td>Fundamentals of International Marketing</td>
</tr>
<tr>
<td>ITRN 740</td>
<td>Trade and Regulatory Compliance</td>
</tr>
<tr>
<td>ITRN 752</td>
<td>Global Business and Policy</td>
</tr>
<tr>
<td>ITRN 757</td>
<td>Business and Politics in Emerging Markets</td>
</tr>
<tr>
<td>ITRN 758</td>
<td>Global Market Planning Practicum</td>
</tr>
<tr>
<td>ITRN 759</td>
<td>Country Risk Analysis</td>
</tr>
<tr>
<td>ITRN 761</td>
<td>European Political and Economic Union</td>
</tr>
<tr>
<td>ITRN 767</td>
<td>Political Economy and Integration in Latin America</td>
</tr>
<tr>
<td>ITRN 770</td>
<td>International Contract Negotiation</td>
</tr>
<tr>
<td>ITRN 771</td>
<td>Trade, Investment, and Politics in South and Southeast Asia</td>
</tr>
<tr>
<td>PUAD 636</td>
<td>The NGO: Policy and Management</td>
</tr>
<tr>
<td>PUAD 739</td>
<td>Issues in International Management</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
</tr>
<tr>
<td>PUBP 732</td>
<td>Labor Markets and Policies</td>
</tr>
<tr>
<td>PUBP 736</td>
<td>International Migration and Public Policy</td>
</tr>
<tr>
<td>PUBP 753</td>
<td>Ethics in Public Policy</td>
</tr>
<tr>
<td>PUBP 757</td>
<td>Public Policy in Global Health and Medical Practice</td>
</tr>
<tr>
<td>PUBP 758</td>
<td>Global Threats and Medical Policies</td>
</tr>
<tr>
<td>PUBP 760</td>
<td>Science and Technology Policy in the 21st Century</td>
</tr>
<tr>
<td>PUBP 761</td>
<td>Social Entrepreneurship and Public Policy</td>
</tr>
<tr>
<td>PUBP 763</td>
<td>Illicit Trade</td>
</tr>
<tr>
<td>PUBP 764</td>
<td>Transnational Crime and Corruption</td>
</tr>
<tr>
<td>PUBP 765</td>
<td>Human Smuggling and Trafficking</td>
</tr>
<tr>
<td>PUBP 781</td>
<td>Entrepreneurship and Economic Development</td>
</tr>
<tr>
<td>PUBP 783</td>
<td>Global Governance</td>
</tr>
</tbody>
</table>

Total Credits: 12

Courses must be approved by the student's academic advisor.

### Concentration in Global Development and Governance (GDGV)

Select four courses of the 15 elective credits within the area of concentration. Preapproved courses include the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 620</td>
<td>Global Health Security Policy</td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
</tr>
<tr>
<td>GOVT 631</td>
<td>Seminar in Comparative Politics and Institutions</td>
</tr>
<tr>
<td>GOVT 734</td>
<td>Democratization</td>
</tr>
<tr>
<td>GOVT 735</td>
<td>Comparative Public Management</td>
</tr>
<tr>
<td>GOVT 742</td>
<td>International Negotiation</td>
</tr>
<tr>
<td>ITRN 701</td>
<td>Special Topics in International Commerce and Policy</td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
</tr>
</tbody>
</table>

Total Credits: 12

Courses must be approved by the student's academic advisor.

### Concentration in Global Risk and Strategy (GRS)

Select four courses of the 15 elective credits within the area of concentration. Preapproved courses include the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 620</td>
<td>Global Health Security Policy</td>
</tr>
<tr>
<td>BIOD 709</td>
<td>Nonproliferation and Arms Control</td>
</tr>
<tr>
<td>BIOD 722</td>
<td>Examining Terrorist Groups</td>
</tr>
<tr>
<td>BIOD 725</td>
<td>Terrorism and Weapons of Mass Destruction</td>
</tr>
<tr>
<td>BIOD 726</td>
<td>Food Security</td>
</tr>
<tr>
<td>ITRN 701</td>
<td>Special Topics in International Commerce and Policy</td>
</tr>
<tr>
<td>ITRN 710</td>
<td>International Business Transactions: Finance and Investment</td>
</tr>
<tr>
<td>ITRN 740</td>
<td>Trade and Regulatory Compliance</td>
</tr>
<tr>
<td>ITRN 752</td>
<td>Global Business and Policy</td>
</tr>
<tr>
<td>ITRN 756</td>
<td>National Security and the Global Economy</td>
</tr>
<tr>
<td>ITRN 759</td>
<td>Country Risk Analysis</td>
</tr>
<tr>
<td>PUAD 504</td>
<td>Managing in the International Arena: Theory and Practice</td>
</tr>
</tbody>
</table>

Total Credits: 12
PUAD 630  Emergency Planning and Preparedness
PUAD 631  Disaster Response Operations and Recovery
PUAD 637  Managing Homeland Security
PUAD 727  Seminar in Risk Assessment and Decision Making
PUBP 710  Topics in Public Policy
PUBP 714  Topics in Transportation Policy, Operations, and Logistics
PUBP 736  International Migration and Public Policy
PUBP 743  National Security Management and Policy
PUBP 751  International Police Operations
PUBP 759  National Security Law and Public Policy
PUBP 763  Illicit Trade
PUBP 764  Transnational Crime and Corruption
PUBP 765  Human Smuggling and Trafficking
PUBP 769  Political Violence and Terrorism

Total Credits 12

1 Courses must be approved by the student's academic advisor.

Accelerated Master's

Bachelor's Degree (any)/International Commerce and Policy, Accelerated MA

Overview
Highly-qualified undergraduates in any major may apply to the accelerated MA degree program in International Commerce and Policy. If accepted students will be able to earn a bachelor's degree in their major and an MA in International Commerce and Policy with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor's/accelerated master's programs may be found in AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. See AP.6.9 Requirements for Master's Degrees. (p. 91)

Admission
Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

To be considered for this accelerated master's program, applicants must have completed a minimum of 75 credits, including at least 12 credits of Government, Economics and/or Global Affairs courses, and have a minimum GPA of 3.50 in all coursework applied to the degree.

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses (six credits) that may be counted toward both the bachelor's and master's degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master's degree. The courses are ITRN 500 Global Political Economy, ITRN 504 Microeconomics and Trade Policy, ITRN 503 Macroeconomic Policy in the Global Economy and PUBP 503 Culture, Organization, and Technology. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor's/Accelerated Master's Transition Form to apply credits to the master's degree. Students must begin their master's program the semester immediately following conferral of the undergraduate degree (excluding summer).

International Security Minor

Banner Code: INLS

Academic Advising
A201 Robinson Hall
Fairfax Campus

The world faces a complex range of threats to its security and stability. Some, including war, terrorism and weapons of mass destruction, have been around for a long time. Others, including climate change and cyber conflict, are relatively new. And in today's increasingly connected world, old threats like pandemic disease and state fragility now take on a new urgency. Using a mix of history, theory and policy analysis, the international security minor prepares students to think critically about these pressing issues.

Faculty
Hunzeker (minor advisor)

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Students must complete all coursework with a minimum grade of 2.00 in each course.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 132</td>
<td>Introduction to International Politics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 346</td>
<td>American Security Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 347</td>
<td>International Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

Electives
Select three electives from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 322</td>
<td>International Relations Theory</td>
</tr>
<tr>
<td>GOVT 342</td>
<td>Diplomacy</td>
</tr>
<tr>
<td>GOVT 344</td>
<td>American Foreign Policy</td>
</tr>
</tbody>
</table>
The program trains early to mid-career professionals who seek the analytical and substantive capabilities to address the security challenges of the 21st century. In addition to understanding the traditional military and diplomatic approaches that characterized the state-centric security framework of the last century, the program’s core courses will provide a firm grounding with regard to public-private and international collaborative responses to emerging and unconventional threats, ranging from transnational crime, terrorism, illicit trade, proliferation of emerging technologies and WMD, and corruption to state fragility and ethnic and sectarian conflict. Students will supplement their core courses by taking electives from each of three focus areas:

- Managing Global Risks
- National Security Policies and Processes
- Regional and Transnational Security Challenges

Admissions & Policies

Admissions

See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines for the MA in International Security program may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis. Students may be admitted for nondegree study and apply a limited number of credits toward the master’s degree should they choose to apply to the degree program later, in accordance with university policy.

Policies

Students admitted to a Schar program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For additional information, see Graduate policies (p. 87).

Requirements

Degree Requirements

Total credits: 39

International Security Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 505</td>
<td>Politics and Practice of International Security Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUPB 506</td>
<td>Ethics and the Use of Force</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 744</td>
<td>Foundations of Security Studies</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 504</td>
<td>Grand Strategy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>or PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

Electives

Focus area courses have been selected to provide additional breadth and depth on specific security challenges or areas of policy debate.

Select six elective courses (18 credits), including at least one course (3 credits) from each of the three areas below. Exceptions must be approved by the student advisor.

Managing Global Risks

National Security Policy and Processes

Regional and Transnational Security Challenges

Total Credits 18

Managing Global Risks

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 610</td>
<td>Advanced Topics in Global Health Security</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 620</td>
<td>Global Health Security Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 734</td>
<td>Democratization</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 739</td>
<td>Issues in Comparative and International Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 631</td>
<td>Disaster Response Operations and Recovery</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 637</td>
<td>Managing Homeland Security</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 654</td>
<td>Analysis for Peace Operations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 655</td>
<td>State- and Institution-Building</td>
<td>4</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 714</td>
<td>Topics in Transportation Policy, Operations, and Logistics</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 751</td>
<td>International Police Operations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 777</td>
<td>Critical Infrastructure Protection: Policy and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 18
National Security Policy and Processes

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 609</td>
<td>Biodfense Strategy</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 610</td>
<td>Advanced Topics in Global Health Security</td>
<td>1-4</td>
</tr>
<tr>
<td>BIOD 705</td>
<td>Intelligence: Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 706</td>
<td>Nuclear, Biological, and Chemical Weapons Policy and Security</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 709</td>
<td>Nonproliferation and Arms Control</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 751</td>
<td>Biosurveillance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 713</td>
<td>The Constitution, Criminal Procedure, and Security</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 742</td>
<td>International Negotiation</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 746</td>
<td>Media and International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 755</td>
<td>Seminar in Politics and Bureaucracy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 758</td>
<td>Homeland/Transportation Security Administration</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 759</td>
<td>Issues in Public Administration and Management</td>
<td>1-3</td>
</tr>
<tr>
<td>GOVT 841</td>
<td>Ethics and Human Rights in International Affairs</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 504</td>
<td>Managing in the International Arena: Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 520</td>
<td>Organization Theory and Management Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 630</td>
<td>Emergency Planning and Preparedness</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 634</td>
<td>Management of International Security</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 636</td>
<td>The NGO: Policy and Management</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 727</td>
<td>Seminar in Risk Assessment and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 653</td>
<td>Interagency Operations in Conflict and Post-Conflict Settings</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
<td>1-3</td>
</tr>
<tr>
<td>PUBP 740</td>
<td>U.S. Foreign Policy: Formulation and Practice</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 743</td>
<td>National Security Management and Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 759</td>
<td>National Security Law and Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 766</td>
<td>Modern Counterinsurgency: Theory and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Regional and Transnational Security Challenges

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 722</td>
<td>Examining Terrorist Groups</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 725</td>
<td>Terrorism and Weapons of Mass Destruction</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 726</td>
<td>Food Security</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 530</td>
<td>Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 631</td>
<td>Seminar in Comparative Politics and Institutions</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 733</td>
<td>Islam and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 734</td>
<td>Democratization</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

GOVT 743 | International Political Economy                                       | 3       |
| GOVT 746 | Media and International Affairs                                       | 3       |
| PUBP 710 | Topics in Public Policy                                              | 3       |
| PUBP 764 | Transnational Crime and Corruption                                   | 3       |
| PUBP 769 | Political Violence and Terrorism                                     | 3       |

Accelerated Master's

Bachelor's Degree (any)/International Security, Accelerated MA

Overview

Highly-qualified undergraduates in any major may apply to the accelerated MA program in International Security. If accepted, students will be able to earn a bachelor’s degree in their major and an MA in International Security with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor’s/accelerated master’s programs may be found in AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. See AP.6.9 Requirements for Master’s Degrees. (p. 91)

Admission

Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits, including at least 12 credits of Government, Economics and/or Global Affairs courses, and have a minimum GPA of 3.50 in all coursework applied to the degree.

Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 504</td>
<td>Grand Strategy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 506</td>
<td>Ethics and the Use of Force</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
</tbody>
</table>

Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).
International/Comparative Studies Minor

Banner Code: ICS

Academic Advising
A201 Robinson Hall
Fairfax Campus

In this minor, students learn the key features of government systems as they are applied in different contexts around the world. Students explore the interaction between government, society, and humans’ most important challenges with respect to different regions and the international community.

Faculty
Butt (minor advisor)

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18
Students must complete all coursework with a minimum grade of 2.00 in each course.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 132</td>
<td>Introduction to International Politics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 133</td>
<td>Introduction to Comparative Politics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Electives
Select four electives from the following categories with only one from each category:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>Any GOVT 330–GOVT 339 world regions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any GOVT 340–GOVT 349 politics and policy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any GOVT 430–GOVT 439 global perspectives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any GOVT 440–GOVT 449 international studies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship (when relevant, with the prior written approval of the minor advisor)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Legal Studies Minor

Banner Code: LGLS

Academic Advising
A201 Robinson Hall
Fairfax Campus

The minor in legal studies focuses on constitutional foundations and interpretations, legal processes, the development of common, statutory, and agency law, and the functions of judicial systems.

Faculty
Walker (minor advisor)

Admissions & Policies

Policies
Eight credits of coursework must be unique to the minor. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18
Students must complete all coursework with a minimum grade of 2.0 in each course.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 301</td>
<td>Public Law and the Judicial Process</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Electives
Select four from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 480</td>
<td>Internship (when relevant, may be used to partially meet this requirement with prior written approval of the minor advisor.)</td>
<td></td>
</tr>
<tr>
<td>GOVT 307</td>
<td>Legislative Behavior</td>
<td></td>
</tr>
<tr>
<td>GOVT 414</td>
<td>Politics of Race and Gender</td>
<td></td>
</tr>
<tr>
<td>GOVT 420</td>
<td>American Political Thought</td>
<td></td>
</tr>
<tr>
<td>GOVT 422</td>
<td>Constitutional Interpretation</td>
<td></td>
</tr>
<tr>
<td>GOVT 423</td>
<td>Constitutional Law: Civil Rights and Liberties</td>
<td></td>
</tr>
<tr>
<td>GOVT 446</td>
<td>International Law and Organization</td>
<td></td>
</tr>
<tr>
<td>GOVT 452</td>
<td>Administrative Law and Procedures</td>
<td></td>
</tr>
<tr>
<td>CRIM 424</td>
<td>Constitutional Law: Criminal Process and Rights</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>
National Security and Public Policy
Graduate Certificate
Banner Code: PP-CERG-NSP

Academic Advising
560 Founders Hall
Arlington Campus
A201 Robinson Hall
Fairfax Campus

The Schar School offers certificate programs in conjunction with its master’s programs. Students already pursuing a master’s degree in the school may, in most cases, after admission to a certificate program, earn an additional six credits (two courses) in Schar to receive a certificate in addition to the master’s degree.

The graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions
Requirements
Applicants to all graduate programs must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Participants must be admitted to a certificate program. Admission requirements are the same as those for the master’s programs and may be found with Schar Admissions (http://schar.gmu.edu/admissions).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Termination from Program
Students admitted to a Schar program will be terminated from the program upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).

Requirements

Certificate Requirements
Total credits: 15

Required Core
PUBP 500 Theory and Practice in Public Policy 3
Total Credits 3

Electives
Select 12 credits from the following courses as well as any other PUBP or ITRN course approved by the academic advisor: 1

1 One of the four electives must have an international focus

Nonprofit Management Graduate Certificate
Banner Code: PP-CERG-NPMG

Academic Advising
560 Founders Hall
Arlington Campus
A201 Robinson Hall
Fairfax Campus

The Schar school offers certificate programs in conjunction with its master’s programs. Students already pursuing a master’s degree in the school may, in most cases, after admission to a certificate program, earn an additional six credits (two courses) in Schar to receive a certificate in addition to the master’s degree.

The graduate certificate in nonprofit management may only be pursued on a part-time basis.

Admissions & Policies

Admissions
Applicants to all graduate programs must meet the admission standards and application requirements for graduate study as specified in the Graduate Admission Policies (p. 66) section of this catalog. Participants must be admitted to a certificate program. Admission requirements are the same as those for the master’s programs and may be found on the Schar Admissions website (http://schar.gmu.edu/admissions).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Termination from Program
Students admitted to a Schar program will be terminated from the program upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).
Organization Development and Knowledge Management, MS

Credits of unsatisfactory grades in graduate courses. See AP.6 Graduate Policies (p. 87) for additional policies pertaining to graduate students.

Certificate Requirements
Total credits: 15

Required Courses
- PUAD 505: Introduction to Management of Nonprofits (3 credits)
- PUAD 659: Nonprofit Law, Governance, and Ethics (3 credits)
- PUAD 664: Nonprofit Financial Management (3 credits)

Total Credits: 9

Electives
Select two electives (6 credits) in the nonprofit area.¹

Total Credits: 6

¹ A list of relevant electives is available under the concentration in nonprofit management in the MPA (master of public administration) (p. 941).

Admissions & Policies

Admissions
Students are considered for admission for the fall term only.

Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Policies
Students admitted to a Schar program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses.

See AP.6 Graduate Policies (p. 87) for more information.

Requirements

Degree Requirements
Total credits: 35-38

Core Courses
- ODKM 700: Organizations, Management and Work: Theory and Practice (3 credits)
- ODKM 705: Group Dynamics and Team Learning (3 credits)
- ODKM 710: Social and Organizational Inquiry (4 credits)
- ODKM 715: Creating Learning Organizations (3 credits)
- PUBP 503: Culture, Organization, and Technology (3 credits)
- ODKM 720: Socio-technical Systems and Collaborative Work (3 credits)
- ODKM 725: Knowledge Management and Strategy (3 credits)
- ODKM 732: Leadership and Social Justice (4 credits)
- ODKM 735: Organizational Development Practices (3 credits)
- ODKM 740: Learning Community (3 credits)

Total Credits: 32

Electives
Select 3 credits of electives

Total Credits: 3

¹ Must be approved by the program director or advisor

Experiential Requirement
A 3-credit internship is required. For students with appropriate work experience, this requirement can be waived with the approval of the program director or dean.

Internship

3

The program is an integrated program taught in executive format and designed for professionals who have several years of work experience. Providing conceptual tools and practical guidance to foster organizational change, the program focuses on three related areas: creating and leveraging knowledge through networks of people who communicate and collaborate; understanding and managing change by integrating the diverse roles of people, processes, and technology; and enhancing and facilitating collaboration by building effective relationships in technology-rich environments. A feature of this program is the group-oriented approach to learning supported by the use of web-based collaborative computer technologies. Students develop the competencies to apply these technologies to make organizations more effective.

The cohort usually completes the program on a part-time basis. Full-time study is also possible by arrangement with the program director.

Students work in teams and complete most of the courses in sequence. The second academic year includes an action learning component, in which participants undertake projects in organizations and apply research methods. Overall, the process and methods of evaluation stress the cumulative development of competencies and the capacity to apply the insights gained. Students are expected to have easy access to a computer and the Internet. Minimum computer specifications can be obtained from the program office.
Peace Operations, MS
Banner Code: PP-MS-PO

Academic Advising
560 Founders Hall
Arlington Campus
A201 Robinson Hall
Fairfax Campus

This program is designed for students and practicing professionals engaged in the planning, regulation, management, and conduct of peace operations. Students obtain a working knowledge of the theory, policy, law, research, and practices required to effectively and efficiently participate in or conduct a peace operation. Students also learn to think critically and analytically about the problems and challenges in this field and communicate their analyses clearly and effectively through written and oral presentations.

Admissions & Policies

Admissions
Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis.

Policies
Students admitted to a Schar program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses.

See AP.6 Graduate Policies (p. 87) for more information.

Degree Requirements
Total credits: 38

<table>
<thead>
<tr>
<th>Peace Operations Core Courses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 650 International Conflict and Crisis Response</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 651 Peace and Stabilization Operations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 652 Strategies for Peace and Stabilization Operations</td>
<td>4</td>
</tr>
<tr>
<td>PUBP 653 Interagency Operations in Conflict and Post-Conflict Settings</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 654 Analysis for Peace Operations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 655 State- and Institution-Building</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electives</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 503 Culture, Organization, and Technology (3 credits)</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives
Select 15 credits from the following, in consultation with the student’s advisor. 1

| PUBP 710 | Topics in Public Policy |  |
| PUBP 751 | International Police Operations |  |
| PUBP 765 | Human Smuggling and Trafficking |  |
| PUBP 794 | Internship |  |
| PUBP 796 | Directed Readings and Research |  |
| PUAD 505 | Introduction to Management of Nonprofits |  |
| PUAD 631 | Disaster Response Operations and Recovery |  |
| PUAD 636 | The NGO: Policy and Management |  |
| PUAD 738 | Issues in International Security |  |
| PUAD 739 | Issues in International Management |  |
| ITRN 701 | Special Topics in International Commerce and Policy |  |
| ITRN 702 | Special Topics in International Commerce and Policy: Study Abroad |  |
| ANTH 631 | Refugees in the Contemporary World |  |
| CONF 708 | Identity and Conflict |  |
| CONF 728 | Human Rights Theory and Practice in Comparative Perspective |  |

Total Credits 15

1 Other courses must be approved by the program director or academic advisor.

Political Communication Minor (Schar)
Banner Code: PCOM

Academic Advising
A201 Robinson Hall
Fairfax Campus

The interdisciplinary minor in political communication is offered jointly by the Schar School of Policy and Government and the CHSS Department of Communication.

Political communication explores the interaction among members of the public, the media, advocacy groups, and politicians in democratic society. This minor uses a diverse approach to questions of how mass and interpersonal communication influence democratic functioning, including

1. how political actors use strategic messaging to persuade and mobilize the public
2. how citizens make sense of these messages and their impact on engagement, deliberation, efficacy, knowledge, and participation
3. the role of the mass media in facilitating or hindering this relationship
Political communication includes explicitly political activities like voting and political campaigns. It also encompasses any issue of public debate or deliberation, including culture and social movements.

**Faculty**
Daigle (minor advisor for Schar)

**Admissions & Policies**

**Admissions**
This minor is available to all Mason undergraduate students with the exception of communication majors pursuing a concentration in political communication.

**Policies**
For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**
Total credits: 18

Students should be aware of the specific policies associated with this program, located on the Admissions & Policies (p. 318) tab.

**Coursework**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 327</td>
<td>Political Communication</td>
<td>3</td>
</tr>
<tr>
<td>COMM 412</td>
<td>Politics and the Mass Media</td>
<td>3</td>
</tr>
<tr>
<td>or GOVT 412</td>
<td>Politics and the Mass Media</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>6</td>
</tr>
</tbody>
</table>

**Communication and Political Process**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 326</td>
<td>Rhetoric of Social Movements and Political Controversy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>COMM 374</td>
<td>Political Journalism</td>
<td></td>
</tr>
<tr>
<td>COMM 431</td>
<td>New Media and Democracy</td>
<td></td>
</tr>
<tr>
<td>COMM 454</td>
<td>Free Speech and Ethics (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>GOVT 311</td>
<td>Public Opinion and Electoral Behavior</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

**Persuasion Theory**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 230</td>
<td>Case Studies in Persuasion</td>
<td>3</td>
</tr>
<tr>
<td>COMM 261</td>
<td>Theories of Argumentation</td>
<td></td>
</tr>
<tr>
<td>COMM 362</td>
<td>Argument and Public Policy (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>COMM 430</td>
<td>Persuasion</td>
<td></td>
</tr>
<tr>
<td>GOVT 313</td>
<td>Political Psychology</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

1. COMM 386 Special Topics in Political Communication may be substituted for any other COMM course with the permission of the minor director, depending on the specific topic. GOVT 319 Issues in Government and Politics may be substituted for any other GOVT course with the permission of the minor director, depending on the specific topic. Courses from the Schar School of Policy and Government (p. 906) may be substituted in the cultural politics, persuasion theory, or political process categories, with the permission of the minor director.

**Political Process**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 342</td>
<td>Diplomacy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Political Process**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 308</td>
<td>The American Presidency</td>
<td></td>
</tr>
<tr>
<td>GOVT 312</td>
<td>Political Parties and Campaigns</td>
<td></td>
</tr>
<tr>
<td>GOVT 318</td>
<td>Interest Groups, Lobbying, and the Political Process</td>
<td></td>
</tr>
<tr>
<td>GOVT 353</td>
<td>Social Entrepreneurship</td>
<td></td>
</tr>
<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
<td></td>
</tr>
<tr>
<td>GOVT 430</td>
<td>Comparative Political Leadership</td>
<td></td>
</tr>
<tr>
<td>GOVT 445</td>
<td>Human Rights</td>
<td></td>
</tr>
<tr>
<td>GOVT 447</td>
<td>Revolution and International Politics</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>3</td>
</tr>
</tbody>
</table>

1. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Political Science, MA**

**Banner Code:** PP-MA-POS

**Academic Advising**
560 Founders Hall
560 Founders Hall
Arlington Campus
A201 Robinson Hall
Fairfax Campus

The MA in political science program prepares students for advanced work in political science, teaching, and research about government; a career in government and politics; and work in domestic and international nongovernmental organizations.
The program is made up of four core courses in political science and completion of either a concentration in international security or a broader field of specialization in American government and politics, international relations, or comparative politics. Students choosing a specialization have interdisciplinary opportunities to take up to 9 credits in related fields such as history or public policy.

The master's degree is the first step in an engaging and stimulating career. Students develop a deeper understanding of political ideas and institutions, more sophisticated research skills, a better grasp of the intricacies of governments abroad, and a deeper knowledge of the complexities of international politics. This degree can lead to a career teaching about government; working with legislative bodies, government agencies, and international organizations; or doing research and writing about politics and government.

Admissions & Policies

Admissions

Requirements

See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found with Schar Admissions (http://schar.gmu.edu/admissions).

Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis. Students may be admitted for nondegree study and apply a limited number of credits toward the master's degree should they choose to apply to the degree program later, in accordance with university policy.

Policies

Termination from Program

Students admitted to an Schar program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).

Requirements

Degree Requirements

Total credits: 36

Students should develop an education plan with their advisors that lists the courses they plan to take. The plan is approved by the student's advisor. Students may include courses from other units to complement their field of specialization; they should reflect the ideas, institutions, or processes of contemporary governance.

Students who wish to begin a career in government and politics or to alter their current career path in government and politics are encouraged to take a 3-credit internship in their area of interest. Internships can be arranged through the Schar school.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 510</td>
<td>American Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 520</td>
<td>Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 530</td>
<td>Comparative Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Methods Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 500</td>
<td>The Scientific Method and Research Design</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Concentration or a Specialization

Select three to five courses in the concentration or a specialization 9-15

Total Credits: 9-15

Students complete the degree by completing additional coursework in the concentration or one of the specializations.

Concentration in International Security (INLS)

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 744</td>
<td>Foundations of Security Studies</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Select one to three courses from the following: 3-9

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 640</td>
<td>Strategic Responses to Terrorism: Coordinated Decision Making</td>
<td></td>
</tr>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
<td></td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 843</td>
<td>Diplomacy</td>
<td></td>
</tr>
<tr>
<td>BIOD 621</td>
<td>Ethics and International Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 622</td>
<td>Negotiating in the International Arena</td>
<td></td>
</tr>
<tr>
<td>BIOD 705</td>
<td>Intelligence: Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>BIOD 706</td>
<td>Nuclear, Biological, and Chemical Weapons Policy and Security</td>
<td></td>
</tr>
<tr>
<td>BIOD 709</td>
<td>Nonproliferation and Arms Control</td>
<td></td>
</tr>
<tr>
<td>BIOD 722</td>
<td>Examining Terrorist Groups</td>
<td></td>
</tr>
<tr>
<td>BIOD 725</td>
<td>Terrorism and Weapons of Mass Destruction</td>
<td></td>
</tr>
<tr>
<td>BIOD 760</td>
<td>National Security Technology and Policy</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>9-15</td>
</tr>
</tbody>
</table>

American Government and Politics Specialization

Required Field Seminars

Select two field seminars from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 603</td>
<td>Seminar in the Courts and Constitutional Law</td>
<td></td>
</tr>
<tr>
<td>GOVT 604</td>
<td>Seminar on Congress and Legislative Behavior</td>
<td></td>
</tr>
<tr>
<td>GOVT 605</td>
<td>Seminar on the Presidency</td>
<td></td>
</tr>
<tr>
<td>GOVT 706</td>
<td>Federalism and Intergovernmental Relations</td>
<td></td>
</tr>
</tbody>
</table>

Electives
### Comparative Politics Specialization

#### Required Field Seminars

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 631</td>
<td>Seminar in Comparative Politics and Institutions</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Electives

Select one to three electives.  
Total Credits: 9-15

### International Relations Specialization

#### Required Field Seminars

Select two field seminars from the following:  
Total Credits: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
</tr>
<tr>
<td>GOVT 743</td>
<td>International Political Economy</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
</tr>
</tbody>
</table>

#### Electives

Select one to three electives.  
Total Credits: 9-15

### Electives

Select up to two electives.  
Total Credits: 0-6

1 The number of electives students have will depend on how many credits they took in the concentration or field of specialization and whether they choose a 3-credit project or a 6-credit thesis. Students choose the remaining credits required for the degree, if any, from other courses in SPGIA, including an internship, additional courses in the field of specialization, or from course work offered by other units.

### 3 Credits of Project or 6 Credits of Thesis

A project or thesis is required for the MA in political science. Students who choose to do a project take 3 credits of GOVT 798 Political Science Research Project linked to an advanced specialty course and produce a final research project. Students who choose to do a thesis should be aware of the policies governing theses. Students must follow the enrollment policy of the university and, once enrolled in GOVT 799 Political Science Thesis, must maintain continuous enrollment as specified in AP.6.9.3 Master’s Thesis (p. 91). A thesis director and a committee of two additional faculty members appointed by the school read and approve the thesis. Students should make arrangements for doing a project or thesis with their advisor.

Select one from the following:  
Total Credits: 3-6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 798</td>
<td>Political Science Research Project</td>
</tr>
<tr>
<td>GOVT 799</td>
<td>Political Science Thesis</td>
</tr>
</tbody>
</table>

### Accelerated Master’s

#### Bachelor’s Degree (any)/Political Science, Accelerated MA

**Overview**

Highly-qualified undergraduates in any major may apply to the accelerated MA degree in political science. If accepted, students will be able to earn a bachelor’s degree in their chosen major and a MA in Political Science with a reduced number of overall credits and within a reduced time frame, sometimes five years. More information on bachelor’s/accelerated master’s programs may be found in AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. See AP.6.9 Requirements for Master’s Degrees. (p. 91)

#### Admission

See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines for the Political Science master’s program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits, including 12 GOVT credits, and have a minimum GPA of 3.50 in all coursework applied to the degree.

#### Accelerated Option Requirements

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are chosen from GOVT 500 The Scientific Method and Research Design, GOVT 510 American Government and Politics, GOVT 520 Political Theory, GOVT 530 Comparative Politics, GOVT 540 International Relations. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).

### Political Science, PhD

**Banner Code:** PP-PHD-POS

**Academic Advising**

560 Founders Hall  
Arlington Campus

A201 Robinson Hall  
Fairfax Campus
The doctoral program is designed to prepare students for teaching and conducting research about government, careers in government and politics, and work in domestic and international nongovernmental organizations. The program allows students to combine their academic education with experience in the kinds of complex domestic and international political organizations they are studying. This model for political science education, patterned after the American Political Science Association’s Congressional Fellows Program, is designed to foster scholarship and a firsthand understanding of domestic and international institutions such as think tanks, international bodies, nongovernmental organizations, journals of political opinion, and congressional and executive branch offices.

**Admissions & Policies**

**Admissions**

**Application Requirements**

Please see Graduate Admissions (p. 66) for general information on graduate admission to George Mason University. Please see the Schar School of Policy and Government Admissions website (http://schar.gmu.edu/admissions/doctorate-admissions) for application requirements and deadlines. Students are considered for admission for the Fall term only.

For students who have been admitted with a bachelor’s degree, the Faculty Review Committee will review each student’s progress after 30 credits of course work to determine whether the student will be allowed to continue their work toward the PhD. For students entering the program with a master’s degree, this review will occur after 12 credits in this program. Students who are not allowed to continue to work toward the PhD will be allowed to complete the MA degree.

**Policies**

**Academic Advising**

A total of 12 credits of supporting courses may be taken in other departments to fulfill a minority of the credits for any of the requirements below, including the methodology requirement, with prior written approval of the program director. All courses should be planned with an advisor and appear on a program of study, which requires the approval of the program director.

**Reduction of Credit**

For students entering the program with a master’s or MPA degree, the number of credits required for the doctorate may be reduced by up to 30 credits subject to approval of the graduate coordinator and the dean.

**Requirements**

**Degree Requirements**

Total credits: 72

**Core Courses**

Select three from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 510</td>
<td>American Government and Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 520</td>
<td>Political Theory</td>
<td></td>
</tr>
<tr>
<td>GOVT 530</td>
<td>Comparative Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 550</td>
<td>Seminar in Theories of Public Administration</td>
<td>9</td>
</tr>
</tbody>
</table>

**Advanced Courses in Two Major Fields**

Students choose two major fields from the four fields below and complete all course requirements for both fields of study for a total of 21 credits.

**American Government and Politics**

**Required Field Seminars**

Select two from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 603</td>
<td>Seminar in the Courts and Constitutional Law</td>
<td>6</td>
</tr>
<tr>
<td>GOVT 604</td>
<td>Seminar on Congress and Legislative Behavior</td>
<td></td>
</tr>
<tr>
<td>GOVT 605</td>
<td>Seminar on the Presidency</td>
<td></td>
</tr>
<tr>
<td>GOVT 706</td>
<td>Federalism and Intergovernmental Relations</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Select one to three electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 613</td>
<td>Seminar in Comparative Politics and Institutions</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 731</td>
<td>Advanced Seminar in Comparative Politics</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 641</td>
<td>Global Governance</td>
<td></td>
</tr>
<tr>
<td>GOVT 741</td>
<td>Advanced Seminar in International Politics</td>
<td></td>
</tr>
<tr>
<td>GOVT 743</td>
<td>International Political Economy</td>
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</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Select one to three electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 753</td>
<td>Third-Party Governance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 755</td>
<td>Seminar in Politics and Bureaucracy</td>
<td>3</td>
</tr>
</tbody>
</table>

**Public Administration**

**Required Field Seminars**

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 753</td>
<td>Third-Party Governance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 755</td>
<td>Seminar in Politics and Bureaucracy</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 753</td>
<td>Third-Party Governance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 755</td>
<td>Seminar in Politics and Bureaucracy</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one to three electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 753</td>
<td>Third-Party Governance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 755</td>
<td>Seminar in Politics and Bureaucracy</td>
<td>3</td>
</tr>
</tbody>
</table>
Advanced Courses in a Minor Field
Select three advanced courses in a minor field in consultation with an advisor. ¹

Total Credits 9

¹ The courses in the minor field should complement the two major fields and need the prior written approval of the advisor.

Advanced Courses in Methodology

Methodology Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 500</td>
<td>The Scientific Method and Research Design</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Methodology Course
Select an elective methodology course to meet dissertation research needs. ¹

Total Credits 9

¹ Course work in language or to help achieve proficiency in quantitative or qualitative research techniques may be used to meet this requirement with certification of proficiency by a specific outside examination.

Electives
Select 0-12 credits of electives

Total Credits 0-12

Advancement to Candidacy
To advance to candidacy, students must complete all course work required by their approved program of study. Students must also successfully complete and pass two qualifying exams in major fields. In addition, students must have an approved dissertation committee as well as an approved proposal. Evidence of the approved proposal must be on file in the Dean's Office before a student can advance to candidacy.

Dissertation Research
Once enrolled in GOVT 998 Doctoral Dissertation Proposal, students in this degree program must maintain continuous registration in GOVT 998 Doctoral Dissertation Proposal or GOVT 999 Doctoral Dissertation Research each semester (excluding summers) until the dissertation is submitted to and accepted by the University Libraries. Once enrolled in GOVT 999 Doctoral Dissertation Research, students must follow the university's continuous registration policy as specified in AP.6.10.6 Dissertation Research (p. 93). Students who defend in the summer must be registered for at least 1 credit of GOVT 999 Doctoral Dissertation Research.

Students may apply to this degree a minimum of 3 and a maximum of 6 credits of GOVT 998 Doctoral Dissertation Proposal and a minimum of 6 credits of GOVT 999 Doctoral Dissertation Research. They apply a minimum of 12 and a maximum of 24 dissertation credits (GOVT 998 Doctoral Dissertation Proposal and GOVT 999 Doctoral Dissertation Research combined) to the degree. Because of the continuous registration policy, students may be required to register for additional credits of these courses.

Students who do fewer than 24 credits of dissertation will complete their degree with additional electives.

Select 12-24 credits from the following: 12-24

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 998</td>
<td>Doctoral Dissertation Proposal (minimum of 3, maximum of 6 credits)</td>
<td></td>
</tr>
<tr>
<td>GOVT 999</td>
<td>Doctoral Dissertation Research (minimum of 6 credits)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12-24

Public Administration, BS
Banner Code: PP-BS-PUAD

Academic Advising
A201 Robinson Hall
Fairfax Campus
Email: puad@gmu.edu

Admissions & Policies

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Requirements

Degree Requirements
Total credits: minimum 120

Students must fulfill all Requirements for Bachelor’s Degrees (p. 84) including the Mason Core (p. 135). Students pursuing a BS in Public Administration and Policy must complete additional requirements for the BS degree in the Schar School of Policy and Government (p. 906).

Students must earn a minimum grade of 2.00 in each course applied to the major, including GOVT courses as well as the supporting courses in other disciplines used to fulfill the requirements below. See an advisor before registering.

Core Courses
The math or statistics core course cannot be used to fulfill the Mason Core requirement in quantitative reasoning.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 101</td>
<td>Democratic Theory and Practice (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 132</td>
<td>Introduction to International Politics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or GOVT 133</td>
<td>Introduction to Comparative Politics (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 300</td>
<td>Research Methods and Analysis (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>GOVT 351</td>
<td>Administration in the Political System</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 367</td>
<td>Money, Markets and Economic Policy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 368</td>
<td>Tools for Economic Policy Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>
Students may complete a concentration of at least 12 credits in one field to fulfill a concentration. Students who do not wish to pursue a concentration may choose at least 24 credits from any of the advanced public administration courses listed below (with restrictions noted below) for a broader learning experience. Up to three credits of GOVT 399 Research Practicum and GOVT 480 Internship may be used to fulfill the field course requirement with prior advisor approval. Up to six credits of GOVT 496 Directed Readings and Research may be used to fulfill this requirement with prior advisor approval. GOVT 490 Synthesis Seminar (Mason Core) (p. 135) or GOVT 491 Honors Seminar (Mason Core) (p. 135) may not be used to fulfill this requirement.

### Advanced Public Administration courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 309</td>
<td>Economic Problems and Public Policies</td>
<td>3</td>
</tr>
<tr>
<td>ECON 310</td>
<td>Money and Banking</td>
<td>3</td>
</tr>
<tr>
<td>ECON 320</td>
<td>Labor Problems</td>
<td>3</td>
</tr>
<tr>
<td>ECON 335</td>
<td>Environmental Economics</td>
<td>3</td>
</tr>
<tr>
<td>ECON 355</td>
<td>The Political Economy of Nonprofit Institutions</td>
<td>3</td>
</tr>
<tr>
<td>ECON 385</td>
<td>International Economic Policy</td>
<td>3</td>
</tr>
<tr>
<td>ECON 390</td>
<td>International Economics (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 301</td>
<td>Public Law and the Judicial Process</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 302</td>
<td>American Political Development</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 304</td>
<td>American State and Local Government</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 305</td>
<td>Contemporary American Federalism</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 307</td>
<td>Legislative Behavior</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 308</td>
<td>The American Presidency</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 309</td>
<td>Government and Politics of Metropolitan Areas</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 311</td>
<td>Public Opinion and Electoral Behavior</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 312</td>
<td>Political Parties and Campaigns</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 313</td>
<td>Political Psychology</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 318</td>
<td>Interest Groups, Lobbying, and the Political Process</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 322</td>
<td>International Relations Theory</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 339</td>
<td>Issues in the Politics of Advanced Industrial Societies</td>
<td>1-3</td>
</tr>
<tr>
<td>GOVT 343</td>
<td>International Political Economy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 346</td>
<td>American Security Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 347</td>
<td>International Security</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 353</td>
<td>Social Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 354</td>
<td>Third-Party Government and the Nonprofit Sector</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 355</td>
<td>Public Personnel Administration</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 356</td>
<td>Public Budgeting and Finance</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 358</td>
<td>Nonprofit Financial Planning</td>
<td>4</td>
</tr>
<tr>
<td>GOVT 361</td>
<td>Introduction to Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 364</td>
<td>Public Policy Making</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 366</td>
<td>Public Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 409</td>
<td>Virginia Government and Politics</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 412</td>
<td>Politics and the Mass Media</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 433</td>
<td>Political Economy of East Asia</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 446</td>
<td>International Law and Organization</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 452</td>
<td>Administrative Law and Procedures</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 464</td>
<td>Issues in Public Policy and Administration</td>
<td>1-3</td>
</tr>
<tr>
<td>GOVT 469</td>
<td>Philosophy, Politics, and Economics</td>
<td>3</td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
<td>4</td>
</tr>
<tr>
<td>INTS 431</td>
<td>Principles of Fund Raising</td>
<td>4</td>
</tr>
</tbody>
</table>

### Concentrations

Students may partially satisfy the field focus requirement by completing at least 12 credits in any one (1) approved concentration as described below.

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration in Administration and Management (ADMM)</td>
<td>GOVT 305</td>
<td>Contemporary American Federalism</td>
</tr>
<tr>
<td></td>
<td>GOVT 313</td>
<td>Political Psychology</td>
</tr>
<tr>
<td></td>
<td>GOVT 355</td>
<td>Public Personnel Administration</td>
</tr>
<tr>
<td></td>
<td>GOVT 356</td>
<td>Public Budgeting and Finance</td>
</tr>
<tr>
<td></td>
<td>GOVT 358</td>
<td>Nonprofit Financial Planning</td>
</tr>
<tr>
<td></td>
<td>GOVT 361</td>
<td>Introduction to Environmental Policy</td>
</tr>
<tr>
<td></td>
<td>GOVT 364</td>
<td>Public Policy Making</td>
</tr>
<tr>
<td></td>
<td>GOVT 366</td>
<td>Public Policy Analysis</td>
</tr>
<tr>
<td></td>
<td>GOVT 412</td>
<td>Politics and the Mass Media</td>
</tr>
<tr>
<td></td>
<td>GOVT 464</td>
<td>Issues in Public Policy and Administration</td>
</tr>
<tr>
<td></td>
<td>ECON 309</td>
<td>Economic Problems and Public Policies</td>
</tr>
<tr>
<td></td>
<td>ECON 335</td>
<td>Environmental Economics</td>
</tr>
<tr>
<td>Concentration in Public Policy (PUBP)</td>
<td>GOVT 312</td>
<td>Political Parties and Campaigns</td>
</tr>
<tr>
<td></td>
<td>GOVT 318</td>
<td>Interest Groups, Lobbying, and the Political Process</td>
</tr>
<tr>
<td></td>
<td>GOVT 346</td>
<td>American Security Policy</td>
</tr>
<tr>
<td></td>
<td>GOVT 347</td>
<td>International Security</td>
</tr>
<tr>
<td></td>
<td>GOVT 361</td>
<td>Introduction to Environmental Policy</td>
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<td></td>
<td>GOVT 364</td>
<td>Public Policy Making</td>
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<td></td>
<td>GOVT 464</td>
<td>Issues in Public Policy and Administration</td>
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<tr>
<td></td>
<td>ECON 309</td>
<td>Economic Problems and Public Policies</td>
</tr>
<tr>
<td></td>
<td>ECON 335</td>
<td>Environmental Economics</td>
</tr>
</tbody>
</table>

### Concentration in Nonprofit Management (NPMG)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 313</td>
<td>Political Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>
GOVT 353  Social Entrepreneurship  3
GOVT 354  Third-Party Government and the Nonprofit Sector  3
GOVT 358  Nonprofit Financial Planning  4
ECON 355  The Political Economy of Nonprofit Institutions  3
INTS 331  The Nonprofit Sector  4
INTS 431  Principles of Fund Raising  4

Concentration in US Government Institutions (USGI)
GOVT 301  Public Law and the Judicial Process  3
GOVT 302  American Political Development  3
GOVT 304  American State and Local Government  3
GOVT 305  Contemporary American Federalism  3
GOVT 307  Legislative Behavior  3
GOVT 308  The American Presidency  3
GOVT 309  Government and Politics of Metropolitan Areas  3
GOVT 311  Public Opinion and Electoral Behavior  3
GOVT 409  Virginia Government and Politics  3

Concentration in Economic Policy Analysis (ECPA)
ECON 309  Economic Problems and Public Policies (Mason Core) (p. 135)  3
ECON 310  Money and Banking  3
ECON 320  Labor Problems  3
ECON 335  Environmental Economics  3
ECON 355  The Political Economy of Nonprofit Institutions  3

Concentration in International Political Economy (IPE)
GOVT 322  International Relations Theory  3
GOVT 339  Issues in the Politics of Advanced Industrial Societies  1-3
GOVT 343  International Political Economy  3
GOVT 366  Public Policy Analysis  3
GOVT 433  Political Economy of East Asia  3
GOVT 446  International Law and Organization  3
GOVT 469  Philosophy, Politics, and Economics  3
ECON 385  International Economic Policy  3

Individualized Concentration (IND)
Create your own concentration consisting of four upper level courses with Director approval 1

1 A minimum of two courses in this concentration must be advanced public administration field courses.

Writing-Intensive Requirement
The university requires all students to complete at least one course designated "writing intensive" in their majors. Students majoring in public administration may fulfill this requirement by successfully completing GOVT 490 Synthesis Seminar (Mason Core) (p. 135) or GOVT 491 Honors Seminar (Mason Core) (p. 135) in their major programs.

Mason Core
Note: Some Mason Core (p. 135) requirements may already be fulfilled by the major requirements listed above. Students are strongly encouraged to consult their advisors to ensure they fulfill all remaining Mason Core (p. 135) requirements.

Code  Title  Credits
Written Communication (p. 135)  6
Oral Communication (p. 136)  3
Quantitative Reasoning (p. 136)  3
Information Technology (p. 136)  3-7

Core Requirements
Arts (p. 137)  3
Global Understanding (p. 139)  3
Literature (p. 140)  3
Natural Science (p. 141)  7
Social and Behavioral Sciences (p. 142)  3
Western Civilization/World History (p. 143)  3
Synthesis/Capstone Requirement 1
Synthesis/Capstone (p. 143)  3

Total Credits  40

1 minimum 3 credits

Honors

Honors in the Major
Highly qualified students majoring in Government and International Politics and Public Administration may pursue advanced work leading to graduation with honors in the major. Those students selected for participation in this program take a two-course sequence: GOVT 491 Honors Seminar (Mason Core) (p. 135) and GOVT 496 Directed Readings and Research. To graduate with honors in the major, students must complete these courses with a minimum GPA of 3.50.

Accelerated Master’s

Bachelor’s Degree (any)/Biodefense, Accelerated MS

Overview
Highly qualified undergraduates in any major may apply to the accelerated Biodefense, MS. If accepted, students will be able to earn a bachelor’s degree in their chosen major and a Biodefense, MS with a reduced number of overall credits and within a reduced time frame, sometimes within five years.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission
Please see the Graduate Admissions (p. 66) for general information on graduate admission to George Mason University. Information specific to
the accelerated MS program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are BIOD 604 Emerging Infectious Diseases I: Bacteria and Toxins, GOVT 500 The Scientific Method and Research Design, BIOD 605 Emerging Infectious Diseases II: Viral Agents and BIOD 620 Global Health Security Policy. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).

**Bachelor’s Degree (any)/International Security, Accelerated MA**

**Overview**

Highly-qualified undergraduates in any major may apply to the accelerated MA degree program in International Security. If accepted students will be able to earn a bachelor’s degree in their major and an MA in International Security with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor’s/accelerated master’s programs may be found in AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. See AP.6.9 Requirements for Master’s Degrees. (p. 91)

**Admission**

Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits, including at least 12 credits of Government, Economics and/or Global Affairs courses, and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 504</td>
<td>Grand Strategy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 506</td>
<td>Ethics and the Use of Force</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>or PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td></td>
</tr>
<tr>
<td>or PUAD 511</td>
<td>Problem Solving and Data Analysis I</td>
<td></td>
</tr>
</tbody>
</table>

Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).

**Bachelor’s Degree (any)/International Commerce and Policy, Accelerated MA**

**Overview**

Highly-qualified undergraduates in any major may apply to the accelerated MA degree program in International Commerce and Policy. If accepted students will be able to earn a bachelor’s degree in their major and an MA in International Commerce and Policy with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor’s/accelerated master’s programs may be found in AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. See AP.6.9 Requirements for Master’s Degrees. (p. 91)

**Admission**

Please see Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits, including at least 12 credits of Government, Economics and/or Global Affairs courses, and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 504</td>
<td>Grand Strategy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 506</td>
<td>Ethics and the Use of Force</td>
<td>3</td>
</tr>
<tr>
<td>GOVT 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>or PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td></td>
</tr>
<tr>
<td>or PUAD 511</td>
<td>Problem Solving and Data Analysis I</td>
<td></td>
</tr>
</tbody>
</table>

Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the
semester immediately following conferral of the undergraduate degree (excluding summer).

**Bachelor's Degree (any)/Political Science, Accelerated MA**

**Overview**

Highly-qualified undergraduates in any major may apply to the accelerated MA degree in political science. If accepted, students will be able to earn a bachelor’s degree in their chosen major and a MA in Political Science with a reduced number of overall credits and within a reduced time frame, sometimes five years. More information on bachelor’s/accelerated master’s programs may be found in AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. See AP.6.9 Requirements for Master’s Degrees. (p. 91)

**Admission**

See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines for the Political Science master’s program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits, including 12 GOVT credits, and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are chosen from GOVT 500 The Scientific Method and Research Design, GOVT 510 American Government and Politics, GOVT 520 Political Theory, GOVT 530 Comparative Politics, GOVT 540 International Relations. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).

**Bachelor’s Degree (any)/Public Policy, Accelerated MPP**

**Overview**

Highly-qualified undergraduates in any major may apply to the accelerated Master of Public Policy (MPP) program. If accepted students will be able to earn a bachelor's degree in their chosen major and the Master of Public Policy with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor’s/accelerated master’s programs may be found in AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Information specific to the accelerated MPA program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master’s program, applicants must have completed a minimum of 75 credits, including 12 GOVT credits, and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master’s degree. The courses are PUAD 502 Administration in Public and Nonprofit Organizations, PUAD 511 Problem Solving and Data Analysis I, PUAD 520 Organization Theory and Management Behavior and PUAD 540 Public Policy Process. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).

**Bachelor’s Degree (any)/Public Administration, Accelerated MPA**

**Overview**

Highly-qualified undergraduates in any major may apply to the accelerated master’s degree in public administration. If accepted, students will be able to earn a bachelor’s degree in their chosen major and a master’s degree in public administration with a reduced number of overall credits and within a reduced time frame, sometimes within five years. See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).
Government and/or Economics courses, and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master’s students complete two graduate courses (six credits) that may be counted toward both the bachelor’s and master’s degrees. In addition, students may take another two courses (six credits) from the following list to be held as reserve graduate credit and count only toward the master’s degree. The student must have a minimum GPA of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in these courses and in coursework applied to their major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 500</td>
<td>Theory and Practice in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 503</td>
<td>Culture, Organization, and Technology</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ITRN 503</td>
<td>Macroeconomic Policy in the Global Economy</td>
<td>3</td>
</tr>
</tbody>
</table>

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor’s/Accelerated Master’s Transition Form to apply credits to the master’s degree. Students must begin their master’s program the semester immediately following conferral of the undergraduate degree (excluding summer).

**Public Administration, MPA**

*Banner Code: PP-MPA-PUAD*

**Academic Advising**

560 Founders Hall  
Arlington Campus  
A201 Robinson Hall  
Fairfax Campus

Mission Statement: The Master of Public Administration (MPA) is designed for people who hold or aspire to hold leadership positions in organizations that participate in the development and implementation of public policy. The mission of the MPA program is to give graduate students the opportunity to build their knowledge of politics, public policy and management and to enhance their analytic, problem solving, and communication skills.

MPA students at Mason have the research and cultural resources of the Washington, D.C. area at their disposal. Government agencies representing all levels in the U.S. federal system are located close to the campus, as are the National Archives, the Library of Congress, and the Smithsonian Institution. Another benefit is the wide range of internship opportunities available in governmental and nonprofit organizations. The MPA Program regularly has internship invitations from national, state, and local government organizations, as well as from nonprofit organizations whose principal work is at the local, state, national, or international levels. Many of these internships are paid positions.

MPA courses are held at the Fairfax and the Arlington campuses during the week and on the weekend in an accelerated format.

**Admissions & Policies**

**Admissions**

**Requirements**

See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found with Schar Admissions (http://schar.gmu.edu/admissions).

Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis. Students may be admitted for nondegree study and apply a limited number of credits toward the master’s degree should they choose to apply to the degree program later, in accordance with university and school policy.

**Policies**

**Termination from Program**

Students admitted to a Schar program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).

**Program Requirements**

The MPA curriculum is arranged in a sequential manner. PUAD 500-level courses are foundation courses, 600-level courses are intermediate courses, and the 700-level courses are advanced courses. Students must take PUAD 500-level, or foundation courses, during the first two semesters, followed by 600-level classes. The PUAD 700-level courses should be taken during the last semester or two of enrollment in the MPA program.

For example, a full-time student should enroll in PUAD 502 Administration in Public and Nonprofit Organizations and two other 500-level courses, such as PUAD 511 Problem Solving and Data Analysis I and PUAD 520 Organization Theory and Management Behavior, during the first semester. In the second semester the student should enroll in PUAD 540 Public Policy Process and two intermediate courses such as PUAD 662 National Budgeting and a 600-level elective course.

Part-time students taking two courses a semester should take PUAD 502 Administration in Public and Nonprofit Organizations and either PUAD 511 Problem Solving and Data Analysis I or PUAD 520 Organization Theory and Management Behavior during the first semester, followed by either PUAD 511 Problem Solving and Data Analysis I or PUAD 520 Organization Theory and Management Behavior and PUAD 540 Public Policy Process in the second semester.

Requests for taking a course out of sequence must be made in writing to the student’s advisor and must be approved by the advisor before enrollment.

**Requirements**

**Degree Requirements**

Total credits: 36-39
The required courses emphasize the development of knowledge about public policy and management, as well as analytical problem-solving and communication skills, and third-party governance. Through these courses, students develop a shared knowledge base and skill set. The elective courses can be used by students to focus their knowledge and skill development within one concentration. Alternatively, the electives can be used to extend the breadth of study with courses drawn from a variety of concentrations or from other departments and schools across the university.

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 502</td>
<td>Administration in Public and Nonprofit Organizations</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 511</td>
<td>Problem Solving and Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 520</td>
<td>Organization Theory and Management Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 540</td>
<td>Public Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 700</td>
<td>Ethics and Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 703</td>
<td>Third-Party Governance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>18</td>
</tr>
</tbody>
</table>

Additional Methods Course

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 612</td>
<td>Problem Solving and Data Analysis II</td>
</tr>
<tr>
<td>PUAD 613</td>
<td>Economic Analysis in Public Administration</td>
</tr>
<tr>
<td>PUAD 645</td>
<td>Policy Analysis</td>
</tr>
<tr>
<td>PUAD 646</td>
<td>Program Evaluation</td>
</tr>
</tbody>
</table>

Total Credits 3

Accounting, Budgeting, and Financial Management

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 660</td>
<td>Public and Nonprofit Accounting and Finance</td>
</tr>
<tr>
<td>PUAD 662</td>
<td>National Budgeting</td>
</tr>
<tr>
<td>PUAD 663</td>
<td>State and Local Budgeting</td>
</tr>
<tr>
<td>PUAD 664</td>
<td>Nonprofit Financial Management</td>
</tr>
</tbody>
</table>

Total Credits 3

Electives

Select four electives

Total Credits 12

Students may take their electives within one of the concentrations which follow. As an alternative, with the approval of their advisor, students may select their electives from several concentrations or fields. Students not pursuing a concentration may select electives from Schar course offerings.

Concentrations

Students may declare only one concentration. PUAD 794 Internship and PUAD 796 Directed Readings and Research may be applied to a concentration where content is appropriate and with prior written approval of the student’s advisor. Other courses may also be applied to a concentration with prior written approval of the advisor.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
<td></td>
</tr>
<tr>
<td>COMM 637</td>
<td>Risk Communication</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**Concentration in Environmental Science and Public Policy (EVPP)**

CONF 695 Selected Topics and COMM 590 Seminar in Communication when topic is the environment, may be used to fulfill this requirement with the prior written approval of the student’s advisor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 642</td>
<td>Environmental Policy</td>
<td>3</td>
</tr>
<tr>
<td>Select three courses from the following:</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>PUAD 645</td>
<td>Program Evaluation</td>
<td></td>
</tr>
<tr>
<td>PUAD 646</td>
<td>Advocacy and Lobbying</td>
<td></td>
</tr>
<tr>
<td>PUAD 794</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>PUAD 796</td>
<td>Directed Readings and Research</td>
<td></td>
</tr>
<tr>
<td>EVPP 524</td>
<td>Introduction to Environmental and Resource Economics</td>
<td></td>
</tr>
<tr>
<td>EVPP 607</td>
<td>Fundamentals of Ecology</td>
<td></td>
</tr>
<tr>
<td>EVPP 638</td>
<td>Corporate Environmental Management and Policy</td>
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<tr>
<td>EVPP 641</td>
<td>Environmental Science and Public Policy</td>
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</tr>
<tr>
<td>EVPP 670</td>
<td>Environmental Law</td>
<td></td>
</tr>
<tr>
<td>CONF 695</td>
<td>Selected Topics</td>
<td></td>
</tr>
<tr>
<td>COMM 590</td>
<td>Seminar in Communication</td>
<td></td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
<td></td>
</tr>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>PUBP 796</td>
<td>Directed Readings and Research</td>
<td></td>
</tr>
<tr>
<td>ITRN 701</td>
<td>Special Topics in International Commerce and Policy</td>
<td></td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**Concentration in Human Resources Management (HRM)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 670</td>
<td>Human Resources Management in the Public Sector</td>
<td>3</td>
</tr>
<tr>
<td>Select three courses from the following:</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>PUAD 623</td>
<td>Managing Government Contracting</td>
<td></td>
</tr>
<tr>
<td>PUAD 652</td>
<td>Nonprofit Leadership and Change</td>
<td></td>
</tr>
<tr>
<td>PUAD 671</td>
<td>Public Employee Labor Relations</td>
<td></td>
</tr>
<tr>
<td>PUAD 672</td>
<td>Human Resources Reforms for Public Administration</td>
<td></td>
</tr>
<tr>
<td>PUAD 729</td>
<td>Issues in Public Management</td>
<td></td>
</tr>
<tr>
<td>PUAD 730</td>
<td>Professional Development Workshop</td>
<td></td>
</tr>
<tr>
<td>PUAD 794</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>PUAD 796</td>
<td>Directed Readings and Research</td>
<td></td>
</tr>
<tr>
<td>PSYC 631</td>
<td>Industrial and Personnel Testing and Evaluation</td>
<td></td>
</tr>
<tr>
<td>PSYC 636</td>
<td>Survey of Industrial Psychology</td>
<td></td>
</tr>
<tr>
<td>PSYC 638</td>
<td>Training: Psychological Contributions to Theory, Design, and Evaluation</td>
<td></td>
</tr>
<tr>
<td>PSYC 639</td>
<td>Survey of Organizational Processes</td>
<td></td>
</tr>
<tr>
<td>PUAD 504</td>
<td>Managing in the International Arena: Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>Select three courses from the following:</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>CONF courses (p. 1345)</td>
<td></td>
<td>1</td>
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<tr>
<td>ITRN courses (p. 1680)</td>
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<td>1</td>
</tr>
<tr>
<td>PUAD 634</td>
<td>Management of International Security</td>
<td></td>
</tr>
<tr>
<td>PUAD 636</td>
<td>The NGO: Policy and Management</td>
<td></td>
</tr>
<tr>
<td>PUAD 730</td>
<td>Professional Development Workshop</td>
<td></td>
</tr>
<tr>
<td>PUAD 738</td>
<td>Issues in International Security</td>
<td></td>
</tr>
<tr>
<td>PUAD 739</td>
<td>Issues in International Management</td>
<td></td>
</tr>
<tr>
<td>PUAD 794</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>PUAD 796</td>
<td>Directed Readings and Research</td>
<td></td>
</tr>
<tr>
<td>GOVT 540</td>
<td>International Relations</td>
<td></td>
</tr>
<tr>
<td>GOVT 631</td>
<td>Seminar in Comparative Politics and Institutions</td>
<td></td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
<td></td>
</tr>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>PUBP 796</td>
<td>Directed Readings and Research</td>
<td></td>
</tr>
<tr>
<td>ITRN 701</td>
<td>Special Topics in International Commerce and Policy</td>
<td></td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**Concentration in Nonprofit Management (NPMG)**

Students in the nonprofit concentration may take PUAD 505 Introduction to Management of Nonprofits as one of their first four courses and may take PUAD 505 Introduction to Management of Nonprofits simultaneously with PUAD 502 Administration in Public and Nonprofit Organizations. Likewise, students in the international concentration may take PUAD 504 Managing in the International Arena: Theory and Practice as one of their first four courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 505</td>
<td>Introduction to Management of Nonprofits</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 659</td>
<td>Nonprofit Law, Governance, and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>Select two courses from the following:</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>PSYC 667</td>
<td>Behavior in Small Groups and Teams</td>
<td></td>
</tr>
<tr>
<td>PSYC 739</td>
<td>Seminar in Industrial/Organizational Psychology</td>
<td></td>
</tr>
<tr>
<td>ODKM 705</td>
<td>Group Dynamics and Team Learning</td>
<td></td>
</tr>
<tr>
<td>ODKM 715</td>
<td>Creating Learning Organizations</td>
<td></td>
</tr>
<tr>
<td>ODKM 731</td>
<td>Consulting Skills for Organizational Change</td>
<td></td>
</tr>
<tr>
<td>ODKM 735</td>
<td>Organizational Development Practices</td>
<td></td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
<td></td>
</tr>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>PUBP 796</td>
<td>Directed Readings and Research</td>
<td></td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
<td></td>
</tr>
<tr>
<td>MBA 713</td>
<td>Managing Human Capital</td>
<td></td>
</tr>
</tbody>
</table>
### Concentration in Policy Studies (PS)
Select four courses from the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 615</td>
<td>Administrative Law</td>
</tr>
<tr>
<td>PUAD 622</td>
<td>Program Planning and Implementation</td>
</tr>
<tr>
<td>PUAD 645</td>
<td>Policy Analysis</td>
</tr>
<tr>
<td>PUAD 646</td>
<td>Program Evaluation</td>
</tr>
<tr>
<td>PUAD 649</td>
<td>Advocacy and Lobbying</td>
</tr>
<tr>
<td>PUAD 658</td>
<td>Social Entrepreneurship and Nonprofit Enterprise</td>
</tr>
<tr>
<td>PUAD 661</td>
<td>Public Budgeting Systems</td>
</tr>
<tr>
<td>PUAD 662</td>
<td>National Budgeting</td>
</tr>
<tr>
<td>PUAD 663</td>
<td>State and Local Budgeting</td>
</tr>
<tr>
<td>PUAD 680</td>
<td>Managing Information Resources</td>
</tr>
<tr>
<td>PUAD 727</td>
<td>Seminar in Risk Assessment and Decision Making</td>
</tr>
<tr>
<td>PUAD 730</td>
<td>Professional Development Workshop</td>
</tr>
<tr>
<td>PUAD 749</td>
<td>Issues in Public Policy</td>
</tr>
<tr>
<td>PUAD 750</td>
<td>Federalism and Intergovernmental Relations</td>
</tr>
<tr>
<td>PUAD 781</td>
<td>Information Management: Technology and Policy</td>
</tr>
<tr>
<td>PUAD 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUAD 796</td>
<td>Directed Readings and Research</td>
</tr>
<tr>
<td>GOVT 520</td>
<td>Political Theory</td>
</tr>
<tr>
<td>GOVT 605</td>
<td>Seminar on the Presidency</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
</tr>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUBP 796</td>
<td>Directed Readings and Research</td>
</tr>
</tbody>
</table>

Total Credits
12

### Concentration in Public Management (PMG)
Select four courses from the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 615</td>
<td>Administrative Law</td>
</tr>
<tr>
<td>PUAD 622</td>
<td>Program Planning and Implementation</td>
</tr>
<tr>
<td>PUAD 623</td>
<td>Managing Government Contracting</td>
</tr>
<tr>
<td>PUAD 646</td>
<td>Program Evaluation</td>
</tr>
<tr>
<td>PUAD 658</td>
<td>Social Entrepreneurship and Nonprofit Enterprise</td>
</tr>
<tr>
<td>PUAD 660</td>
<td>Public and Nonprofit Accounting and Finance</td>
</tr>
<tr>
<td>PUAD 661</td>
<td>Public Budgeting Systems</td>
</tr>
<tr>
<td>PUAD 662</td>
<td>National Budgeting</td>
</tr>
<tr>
<td>PUAD 663</td>
<td>State and Local Budgeting</td>
</tr>
<tr>
<td>PUAD 664</td>
<td>Nonprofit Financial Management</td>
</tr>
<tr>
<td>PUAD 670</td>
<td>Human Resources Management in the Public Sector</td>
</tr>
<tr>
<td>PUAD 672</td>
<td>Human Resources Reforms for Public Administration</td>
</tr>
<tr>
<td>PUAD 679</td>
<td>Leadership Skills for the 21st Century</td>
</tr>
<tr>
<td>PUAD 680</td>
<td>Managing Information Resources</td>
</tr>
<tr>
<td>PUAD 720</td>
<td>Performance Measurement</td>
</tr>
<tr>
<td>PUAD 729</td>
<td>Issues in Public Management</td>
</tr>
<tr>
<td>PUAD 730</td>
<td>Professional Development Workshop</td>
</tr>
<tr>
<td>PUAD 731</td>
<td>Homeland/Transportation Security Administration</td>
</tr>
<tr>
<td>PUAD 750</td>
<td>Federalism and Intergovernmental Relations</td>
</tr>
<tr>
<td>PUAD 781</td>
<td>Information Management: Technology and Policy</td>
</tr>
<tr>
<td>PUAD 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUAD 796</td>
<td>Directed Readings and Research</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
</tr>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUBP 796</td>
<td>Directed Readings and Research</td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
</tr>
</tbody>
</table>

Total Credits
12

### Concentration in Public and Nonprofit Finance (PNF)
Select four courses from the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 658</td>
<td>Social Entrepreneurship and Nonprofit Enterprise</td>
</tr>
<tr>
<td>PUAD 660</td>
<td>Public and Nonprofit Accounting and Finance</td>
</tr>
<tr>
<td>PUAD 661</td>
<td>Public Budgeting Systems</td>
</tr>
<tr>
<td>PUAD 662</td>
<td>National Budgeting</td>
</tr>
<tr>
<td>PUAD 663</td>
<td>State and Local Budgeting</td>
</tr>
<tr>
<td>PUAD 664</td>
<td>Nonprofit Financial Management</td>
</tr>
<tr>
<td>PUAD 729</td>
<td>Issues in Public Management</td>
</tr>
<tr>
<td>PUAD 730</td>
<td>Professional Development Workshop</td>
</tr>
<tr>
<td>PUAD 769</td>
<td>Issues in Public Financial Management</td>
</tr>
</tbody>
</table>

Total Credits
12
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUAD 796</td>
<td>Directed Readings and Research</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
</tr>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUBP 796</td>
<td>Directed Readings and Research</td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
</tr>
</tbody>
</table>

Concentration in State and Local Government (SLG)
Select four courses from the following:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 505</td>
<td>Introduction to Management of Nonprofits</td>
</tr>
<tr>
<td>PUAD 615</td>
<td>Administrative Law</td>
</tr>
<tr>
<td>PUAD 623</td>
<td>Managing Government Contracting</td>
</tr>
<tr>
<td>PUAD 630</td>
<td>Emergency Planning and Preparedness</td>
</tr>
<tr>
<td>PUAD 651</td>
<td>Virginia Politics, Policy, and Administration</td>
</tr>
<tr>
<td>PUAD 660</td>
<td>Public and Nonprofit Accounting and Finance</td>
</tr>
<tr>
<td>PUAD 661</td>
<td>Public Budgeting Systems</td>
</tr>
<tr>
<td>PUAD 662</td>
<td>National Budgeting</td>
</tr>
<tr>
<td>PUAD 663</td>
<td>State and Local Budgeting</td>
</tr>
<tr>
<td>PUAD 680</td>
<td>Managing Information Resources</td>
</tr>
<tr>
<td>PUAD 729</td>
<td>Issues in Public Management</td>
</tr>
<tr>
<td>PUAD 730</td>
<td>Professional Development Workshop</td>
</tr>
<tr>
<td>PUAD 750</td>
<td>Federalism and Intergovernmental Relations</td>
</tr>
<tr>
<td>PUAD 759</td>
<td>Issues in Local Government Administration</td>
</tr>
<tr>
<td>PUAD 781</td>
<td>Information Management: Technology and Policy</td>
</tr>
<tr>
<td>PUAD 679</td>
<td>Leadership Skills for the 21st Century</td>
</tr>
<tr>
<td>PUAD 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUAD 796</td>
<td>Directed Readings and Research</td>
</tr>
<tr>
<td>PUBP 710</td>
<td>Topics in Public Policy</td>
</tr>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
</tr>
<tr>
<td>PUBP 796</td>
<td>Directed Readings and Research</td>
</tr>
<tr>
<td>ITRN 702</td>
<td>Special Topics in International Commerce and Policy: Study Abroad</td>
</tr>
</tbody>
</table>

Total Credits: 12

Professional Experience Requirement
Certification that the student has experience in public administration outside the classroom and is ready to take leadership responsibilities must be exhibited by one of two ways:

- relevant professional experience, approved by the program director
- completion of PUAD 792 Advanced Seminar in Applied Public Administration Research

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 792</td>
<td>Advanced Seminar in Applied Public Administration Research</td>
</tr>
</tbody>
</table>

Total Credits: 3

Accelerated Master's

Bachelor's Degree (any)/Public Administration, Accelerated MPA

Overview
Highly-qualified undergraduates in any major may apply to the accelerated master's degree in public administration. If accepted, students will be able to earn a bachelor's degree in their chosen major and a master's degree in public administration with a reduced number of overall credits and within a reduced time frame, sometimes within five years. See AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission
Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Information specific to the accelerated MPA program may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master's program, applicants must have completed a minimum of 75 credits, including 12 GOVT credits, and have a minimum GPA of 3.50 in all coursework applied to the degree.

Accelerated Option Requirements
While undergraduate students, accelerated master's students complete two graduate courses (six credits) that may be counted toward both the bachelor's and master's degrees. In addition, students may take another two courses (six credits) to be held as reserve graduate credit and count only toward the master's degree. The courses are PUAD 502
Administration in Public and Nonprofit Organizations, PUAD 511
Problem Solving and Data Analysis I, PUAD 520 Organization Theory
and Management Behavior and PUAD 540 Public Policy Process.
Students must maintain a minimum GPA of 3.00 in these courses and in
coursework applied to their major.

Upon completion and conferral of the undergraduate degree in the
semester indicated in the application, students must submit the
Bachelor’s/Accelerated Master’s Transition Form to apply credits to
the master’s degree. Students must begin their master’s program the
semester immediately following conferral of the undergraduate degree
(excluding summer).

Public Management Graduate
Certificate
Banner Code: PP-CERG-PMG

Academic Advising
560 Founders Hall
Arlington Campus
A201 Robinson Hall
Fairfax Campus

The Schar School offers certificate programs in conjunction with its
master’s programs. Students already pursuing a master’s degree in the
school may, in most cases, after admission to a certificate program, earn
an additional six credits (two courses) in Schar to receive a certificate in
addition to the master’s degree.

The graduate certificate in public management may only be pursued on a
part-time basis.

Admissions & Policies

Admissions
Applicants to all graduate programs must meet the admission standards
and application requirements for graduate study as specified in Graduate
Admission Policies (p. 66). Participants must be admitted to a certificate
program. Admission requirements are the same as those for the master’s
programs and may be found on the Schar admissions website (http://
schar.gmu.edu/admissions).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements
for Graduate Certificates (p. 90).

Termination from Program
Students admitted to a Schar program will be terminated from that
program upon receiving one grade of F and are no longer eligible to take
courses in the school. Per university regulation, students are terminated
from the university after accumulating grades of F in two courses or
9 credits of unsatisfactory grades in graduate courses. For policies
governing all graduate degrees, see Graduate Policies (p. 87).

Requirements

Certificate Requirements
Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUAD 502</td>
<td>Administration in Public and Nonprofit Organizations</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 520</td>
<td>Organization Theory and Management Behavior</td>
<td>3</td>
</tr>
<tr>
<td>PUAD 540</td>
<td>Public Policy Process</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Electives
Select two electives in the public management area.  1

Total Credits: 6

1 See the Public Administration, MPA (p. 941), Public Management
Concentration (PMA) for a list of relevant electives.

Public Policy and Management Minor
Banner Code: PPMG

Academic Advising
A201 Robinson Hall
Fairfax Campus

This minor equips students with the background and tools to understand
the complexities of policy formation and implementation as leaders and
managers in the political arena.

Faculty
Conant (minor advisor)

Admissions & Policies

Policies
Students pursuing this minor must complete 18 credits in government
with a minimum grade of 2.0 in each course. Eight credits of coursework
must be unique to the minor. For policies governing all minors,
see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 18

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 103</td>
<td>Introduction to American Government</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(Mason Core)</td>
<td></td>
</tr>
<tr>
<td>GOVT 351</td>
<td>Administration in the Political System</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6
Elective Courses
Select four elective courses from the following: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOVT 35X</td>
<td>public administration</td>
</tr>
<tr>
<td>GOVT 36X</td>
<td>public policy</td>
</tr>
<tr>
<td>GOVT 45X</td>
<td>administration, law and procedures</td>
</tr>
<tr>
<td>GOVT 46X</td>
<td>public policy issues</td>
</tr>
<tr>
<td>GOVT 480</td>
<td>Internship</td>
</tr>
</tbody>
</table>

Total Credits 12

1 Only when relevant, with the prior written approval of the minor advisor.

Public Policy, MPP
Banner Code: PP-MPP-PUBP

Academic Advising
560 Founders Hall
Arlington Campus

A201 Robinson Hall
Fairfax Campus

The master’s program in public policy leads to a degree for aspiring or experienced professionals who seek career advancement through cutting-edge education and training in policy analysis and development in increasingly technical and global environments. The program prepares students to be reflective practitioners who develop, implement, manage, analyze, evaluate, and effect innovative change in the public and private sectors through a course of study that emphasizes the fundamentals of policy development; the role of technology, analytic assessment, and modeling for policy evaluation; and the implications of international and global perspectives on policy formation. Courses are offered primarily in late afternoon and evening to fit the schedules of busy professionals.

Admissions & Policies

Admissions
Requirements
See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found with Schar Admissions (http://schar.gmu.edu/admissions). Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis. Students may be admitted for nondegree study and apply a limited number of credits toward the master’s degree should they choose to apply to the degree program later, in accordance with university policy.

Policies
Termination from Program
Students admitted to a Schar program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).

Program Requirements
Students must complete 36 to 39 credits of coursework through a combination of core courses, electives, and a professional experience requirement. Appropriate professional experience can be demonstrated through previous employment or a supervised internship. Students will also be exposed to the global nature of public policy activity through the core requirement of international comparative policy assessment.

Requirements

Degree Requirements
Total credits: 36-39

Required Public Policy Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 500</td>
<td>Theory and Practice in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 503</td>
<td>Culture, Organization, and Technology (3 credits)</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ITRN 503</td>
<td>Macroeconomic Policy in the Global Economy (3 credits)</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 720</td>
<td>Managerial Economics and Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 741</td>
<td>U.S. Financial Policy Processes and Procedures</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following, or approved substitution: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 705</td>
<td>Advanced Statistical Methods in Policy Analysis</td>
</tr>
<tr>
<td>PUBP 713</td>
<td>Policy and Program Evaluation</td>
</tr>
<tr>
<td>PUBP 754</td>
<td>Geographic Information Systems and Spatial Analysis for Public Policy</td>
</tr>
</tbody>
</table>

Total Credits 21

Electives
Electives are chosen from one of the following policy emphasis areas. One of the courses in the emphasis sequence should have an international focus.

- Global Medical and Health Policy
- International Governance and Institutions
- National Security and Public Policy
- Public Finance and Budgeting
- Regional Economic Development
- Science and Technology Policy
- Social Policy
- Terrorism, Transnational Crime and Corruption
- Transportation Policy
- Urban Policy and Development
- US Government Institutions and Policy Management

Select 15 credits from the following in consultation with the student's advisor: 15

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 504</td>
<td>Grand Strategy</td>
</tr>
<tr>
<td>PUBP 506</td>
<td>Ethics and the Use of Force</td>
</tr>
</tbody>
</table>
Total Credits 15

1 Other courses must be approved by the advisor or program director.

**Professional Experience Requirement**
Certification that the student has experience in the public policy process outside the classroom and is ready to take leadership responsibilities must be exhibited by one of two ways: relevant professional experience, approved by the program director, or an approved internship.

Up to three credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 794</td>
<td>Internship</td>
</tr>
</tbody>
</table>

Total Credits 0-3

**Accelerated Master’s**

**Bachelor’s Degree (any)/Public Policy, Accelerated MPP**

**Overview**
Highly-qualified undergraduates in any major may apply to the accelerated Master of Public Policy (MPP) program. If accepted students will be able to earn a bachelor’s degree in their chosen major and the Master of Public Policy with a reduced number of overall credits and within a reduced time frame, sometimes within five years. More information on bachelor’s/accelerated master’s programs may be found in AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. See AP.6.9 Requirements for Master’s Degrees. (p. 91)

**Admission**
Please see the Graduate Admission Policies section in this catalog for general information on graduate admission to George Mason University. Information specific to the accelerated Master of Public Policy program
may be found on the Schar website (http://schar.gmu.edu/programs/undergraduate-degrees/accelerated-masters-programs).

To be considered for this accelerated master's program, applicants must have completed a minimum of 75 credits, including 12 credits of Government and/or Economics courses, and have a minimum GPA of 3.50 in all coursework applied to the degree.

**Accelerated Option Requirements**

While undergraduate students, accelerated master's students complete two graduate courses (six credits) that may be counted toward both the bachelor's and master's degrees. In addition, students may take another two courses (six credits) from the following list to be held as reserve graduate credit and count only toward the master's degree. The student must have a minimum GPA of 3.00 in each course. Students must maintain a minimum GPA of 3.00 in these courses and coursework applied to their major.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 500</td>
<td>Theory and Practice in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 503</td>
<td>Culture, Organization, and Technology</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ITRN 503</td>
<td>Macroeconomic Policy in the Global Economy</td>
<td>3</td>
</tr>
</tbody>
</table>

Upon completion and conferral of the undergraduate degree in the semester indicated in the application, students must submit the Bachelor's/Accelerated Master's Transition Form to apply credits to the master's degree. Students must begin their master's program the semester immediately following conferral of the undergraduate degree (excluding summer).

**Public Policy, PhD**

**Banner Code: PP-PHD-PUBP**

**Academic Advising**

560 Founders Hall
Arlington Campus

A201 Robinson Hall
Fairfax Campus

This program is distinctive in its heavy emphasis on the combined influence of technology, culture, and institutions on public policy. Students investigate the increasing tensions created by technologically driven organizational change. This doctoral program prepares its graduates to assume positions of significant responsibility in academia, government, and the private and public sectors. With a focus on analytical and research-based approaches to public policy, our students seek to understand the underlying determinants of public policy choices, analyze and improve the implementation of policy, and identify and assess new opportunities to address emerging issues.

To investigate the policy issues associated with substantive policy areas, students develop in-depth understanding of American institutions, values, and culture; competence in research methods and advanced analytical methodologies; and a comparative, international perspective. At the time of admission, each student is assigned a faculty advisor who assists in the design and development of the student's program.

**Admissions & Policies**

**Admissions**

**Requirements**

The program seeks students with exceptional potential for accumulating, sorting, analyzing, and communicating information and findings effectively. Public policy is inherently complex and value-laden. In the end, high-quality policy analysis requires thoughtful and judicious management of complex and incommensurate information, both quantitative and qualitative. Potential students must be able to manage and integrate both kinds of information and produce persuasive, well-organized, written syntheses and analytical insight.

The ideal applicant has demonstrated capabilities in research and writing, basic mathematical skills roughly equal to one semester of calculus, competence in statistics, some background in economics, and a theoretical and working knowledge of public policy processes. Applicants with strong records who are lacking in one or more of these areas may be admitted to the program and will receive assistance in making up deficiencies.

Applicants must hold a master's degree from a regionally-accredited institution and have a GPA of 3.00 or higher. Prospective students are encouraged to attend an information session.

See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. See Schar Admissions (http://schar.gmu.edu/admissions) for application requirements and deadlines for the PhD in Public Policy. Students are considered for admission for the Fall term only.

**Policies**

For policies governing all graduate degrees, see Graduate Policies (p. 87).

**Program Requirements**

Students are required to complete a minimum of 82 credits of graduate coursework, of which no more than 12 may be dissertation credits. Specific coursework requirements include four foundational core courses, one semester of participation in the research colloquium (public policy seminar), two advanced methodology courses, three courses in an area of program specialization, and three advanced courses tailored to the student's research needs and interests. Courses are determined in collaboration with the student's advisor and are drawn widely not only from Schar, but also from other programs at Mason.

At the completion of core skills coursework (Stage One), students must pass a qualifying exam that evaluates mastery of the first year’s material, as well as the ability to integrate that material when addressing important and complex public policy problems and issues. Students must then develop their research areas through specialized coursework, and pass a field exam structured around their specific field of proposed doctoral research (Stages Two and Three). Other requirements include the successful preparation and defense of a doctoral research proposal and the ensuing dissertation (Stage Four).

A complete description of the program policies, procedures, and requirements is in the PhD in Public Policy student and faculty handbook (http://schar.gmu.edu/current-students/student-services), which is published annually.
Reduction of Credit

Students must have a master's degree before being admitted to the PhD in public policy. Up to 30 credits from a prior master's degree may be applied toward the doctoral requirements at the program director's discretion. The program director determines whether the credits are eligible for reduction of credit and the number of credits to be reduced. Students who receive less than a 30 credit reduction may take additional specialized elective credit in Stage Two.

Prerequisites: Methodological and Substantive Foundations

PhD students are required to have competence in the following three areas, either by taking these courses or by proving competence through a placement exam and/or evidence of previous relevant coursework.

Prerequisite courses will not count as part of the 82 credit requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 511</td>
<td>Statistical Methods in Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 720</td>
<td>Managerial Economics and Policy Analysis</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 730</td>
<td>US Institutions and the Policy Process</td>
<td>3</td>
</tr>
</tbody>
</table>

Requirements

Degree Requirements

Total credits: minimum 82

Doctoral Coursework and Requirements

Stage One - Core Skills

Four credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 800</td>
<td>Culture and Public Policy</td>
<td>4</td>
</tr>
</tbody>
</table>

Four credits of

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 801</td>
<td>Research Design for Public Policy</td>
<td>4</td>
</tr>
<tr>
<td>PUBP 804</td>
<td>Multivariate Statistical Analysis in Public Policy</td>
<td>4</td>
</tr>
<tr>
<td>PUBP 805</td>
<td>Foundations of Social Science for Public Policy</td>
<td>4</td>
</tr>
</tbody>
</table>

Pass the comprehensive Qualifying Exam

Total Credits: 16

Stage Two - Policy Fields and Skills

After passing the qualifying exam, students assemble a Field Research Committee. By the end of their third semester, full-time students (fourth semester for part-time) must choose a chair for their Field Committee.

By the start of their fourth semester, full-time students (fifth semester for part-time) must submit to the chair of their Field Committee a plan for their Field of Study. The Field of Study Plan will describe a proposed research area, including citations relevant to current research in that field. The Plan must be approved by both the student's Field Committee chair and the program director.

Coursework taken in Stage Two includes:

Three courses in an area of program specialization, chosen in collaboration with advisor

One advanced methods course chosen from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 705</td>
<td>Advanced Statistical Methods in Policy Analysis</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Stage Three - Research Foundations

In Stage Three, students take coursework approved in the Field of Study Plan. Courses in the Field of Study Plan are intended to be taken concurrently with work on the Field Statement and Field Exam. Students may not present a dissertation proposal for approval until they have passed the Field Exam.

Students may choose one of the established fields of study or work with a faculty committee to create their own field of study. The established fields in the doctoral program are: regional development and transportation; technology, science and innovation; entrepreneurship, growth and public policy; U.S. governance; culture and society; organizational and information technology; and global and international systems.

Students must complete all of the following:

Three substantive Field of Study courses that will serve as a foundation for their Field

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 810</td>
<td>Regional Development and Transportation Policy</td>
</tr>
<tr>
<td>PUBP 811</td>
<td>Applied Methods in Regional Development and Transportation Policy</td>
</tr>
<tr>
<td>PUBP 820</td>
<td>Technology, Science, and Innovation: Institutions and Governance</td>
</tr>
<tr>
<td>PUBP 821</td>
<td>Analytic Methods for Technology, Science, and Innovation Policy</td>
</tr>
<tr>
<td>PUBP 834</td>
<td>Entrepreneurship, Growth, and Public Policy</td>
</tr>
<tr>
<td>PUBP 835</td>
<td>Entrepreneurship, Creativity, and Innovation</td>
</tr>
<tr>
<td>PUBP 840</td>
<td>U.S. Policy-Making Institutions</td>
</tr>
<tr>
<td>PUBP 841</td>
<td>U.S. Policy-Making Processes</td>
</tr>
<tr>
<td>PUBP 860</td>
<td>Social Theory, Culture, and Public Policy</td>
</tr>
<tr>
<td>PUBP 861</td>
<td>Culture and Social Policy Analysis</td>
</tr>
<tr>
<td>PUBP 880</td>
<td>Global and International Public Policy I</td>
</tr>
<tr>
<td>PUBP 881</td>
<td>International Trade Policy</td>
</tr>
</tbody>
</table>

One Advanced Methods course

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 705</td>
<td>Advanced Statistical Methods in Policy Analysis</td>
<td>3-4</td>
</tr>
<tr>
<td>PUBP 754</td>
<td>Geographic Information Systems and Spatial Analysis for Public Policy</td>
<td></td>
</tr>
<tr>
<td>PUBP 791</td>
<td>Advanced Field Research for Policy: Theory and Method</td>
<td>1</td>
</tr>
</tbody>
</table>
Field Statement

Field Exam

Total Credits 13-16

1 Courses must include at least one 800 level Schar from this list and no more than one substantive graduate course from outside Schar.

2 Other courses must be approved in writing by the Field Committee Chair and program director.

Note: Where appropriate courses are not available from Schar, students may petition the program director for substitute courses to count for their Field of Study Plan.

Dissertation Research

Qualifying Exams

Students must pass both a qualifying exam which is taken after the core courses are completed and a field examination.

When students have completed all coursework, have passed both the qualifying and field exams, have an approved dissertation committee and presented and successfully defended a dissertation proposal, they advance to candidacy.

Stage Four - Dissertation

Twelve credits of PUBP 998 and PUBP 999 must be applied to the degree. A minimum of six credits must be PUBP 999.

Up to six credits of 6

PUBP 998 Research/Proposal for Dissertation Proposal Oral Defense

At least six credits of 6

PUBP 999 Dissertation Dissertation Oral Defense

Total Credits 12

Science, Technology, and Security Graduate Certificate

Banner Code: PP-CERG-STS

Academic Advising

560 Founders Hall
Arlington Campus

A201 Robinson Hall
Fairfax Campus

The Schar School offers certificate programs in conjunction with its master’s programs. Students already pursuing a master’s degree in the school may, in most cases, after admission to a certificate program, earn an additional six credits (two courses) in Schar to receive a certificate in addition to the master’s degree. The certificate in science, technology, and security provides an introduction to the intersection of science and security, covering topics such as the technology of CBRN weapons, proliferation, technical countermeasures, and the role of science and technology in the policy-making process.

The graduate certificate in science, technology, and security may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Applicants to all graduate programs must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Participants must be admitted to a certificate program. Admission requirements are the same as those for the master’s programs and may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Termination from Program

Students admitted to a Schar program will be terminated from that program upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).

Requirements

Certificate Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 706</td>
<td>Nuclear, Biological, and Chemical Weapons Policy and Security</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 760</td>
<td>National Security Technology and Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Electives

Select three electives from the following: 9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 604</td>
<td>Emerging Infectious Diseases I: Bacteria and Toxins</td>
</tr>
<tr>
<td>BIOD 605</td>
<td>Emerging Infectious Diseases II: Viral Agents</td>
</tr>
<tr>
<td>BIOD 709</td>
<td>Nonproliferation and Arms Control</td>
</tr>
<tr>
<td>BIOD 725</td>
<td>Terrorism and Weapons of Mass Destruction</td>
</tr>
<tr>
<td>BIOD 751</td>
<td>Biosurveillance</td>
</tr>
</tbody>
</table>

Other course with prior written approval of program director

Total Credits 9
The Schar School offers certificate programs in conjunction with its master's programs. Students already pursuing a master's degree in the school may, in most cases, after admission to a certificate program, earn an additional six credits (two courses) in Schar to receive a certificate in addition to the master's degree. The certificate in terrorism and homeland security is an interdisciplinary introduction to the phenomenon of modern terrorism and its implications for US domestic and foreign policy. It focuses on multidisciplinary analysis and holistic cross-sectorial approaches to long-term prevention of and response to terrorism.

The Schar School offers certificate programs in conjunction with its master's programs. Students already pursuing a master's degree in the school may, in most cases, after admission to a certificate program, earn an additional six credits (two courses) in Schar to receive a certificate in addition to the master's degree. The certificate in terrorism and homeland security is an interdisciplinary introduction to the phenomenon of modern terrorism and its implications for US domestic and foreign policy. It focuses on multidisciplinary analysis and holistic cross-sectorial approaches to long-term prevention of and response to terrorism.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions

Applicants to all graduate programs must meet the admission standards and application requirements for graduate study as specified in Graduate Admission Policies (p. 66). Participants must be admitted to a certificate program. Admission requirements are the same as those for the master's programs and may be found on the Schar admissions website (http://schar.gmu.edu/admissions).

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Termination from Program

Students admitted to a Schar program will be terminated from that program upon receiving one grade of F and are no longer eligible to take courses in the school. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).

Requirements

Certificate Requirements

Total credits: 15

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 722</td>
<td>Examining Terrorist Groups</td>
<td>3</td>
</tr>
<tr>
<td>BIOD 725</td>
<td>Terrorism and Weapons of Mass Destruction</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>6</td>
</tr>
</tbody>
</table>

Electives Related to Terrorism Analysis or Response

Select three electives from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOD 609</td>
<td>Biodefense Strategy</td>
</tr>
<tr>
<td>BIOD 610</td>
<td>Advanced Topics in Global Health Security</td>
</tr>
<tr>
<td>BIOD 705</td>
<td>Intelligence: Theory and Practice</td>
</tr>
<tr>
<td>BIOD 706</td>
<td>Nuclear, Biological, and Chemical Weapons Policy and Security</td>
</tr>
<tr>
<td>BIOD 709</td>
<td>Nonproliferation and Arms Control</td>
</tr>
<tr>
<td>BIOD 726</td>
<td>Food Security</td>
</tr>
<tr>
<td>GOVT 744</td>
<td>Foundations of Security Studies</td>
</tr>
<tr>
<td>GOVT 745</td>
<td>International Security</td>
</tr>
<tr>
<td>GOVT 746</td>
<td>Media and International Affairs</td>
</tr>
<tr>
<td>GOVT 758</td>
<td>Homeland/Transportation Security Administration</td>
</tr>
<tr>
<td>PUAD 630</td>
<td>Emergency Planning and Preparedness</td>
</tr>
<tr>
<td>PUAD 631</td>
<td>Disaster Response Operations and Recovery</td>
</tr>
<tr>
<td>PUAD 633</td>
<td>Hazard Mitigation Policy</td>
</tr>
<tr>
<td>PUAD 635</td>
<td>Emergency Preparedness: Interagency Communication and Coordination</td>
</tr>
<tr>
<td>PUAD 637</td>
<td>Managing Homeland Security</td>
</tr>
<tr>
<td>PUAD 731</td>
<td>Homeland/Transportation Security Administration</td>
</tr>
<tr>
<td>PUBP 742</td>
<td>Transportation Safety and Security</td>
</tr>
<tr>
<td>PUBP 763</td>
<td>Illicit Trade</td>
</tr>
<tr>
<td>PUBP 764</td>
<td>Transnational Crime and Corruption</td>
</tr>
<tr>
<td>PUBP 777</td>
<td>Critical Infrastructure Protection: Policy and Practice</td>
</tr>
<tr>
<td>CONF 501</td>
<td>Introduction to Conflict Analysis and Resolution</td>
</tr>
<tr>
<td>GGS 590</td>
<td>Selected Topics in Geography</td>
</tr>
<tr>
<td></td>
<td>Other course with prior written approval of the advisor</td>
</tr>
</tbody>
</table>

Total Credits: 9

1 Only when topic is Geography of Terrorism and Homeland Security.

Transportation Policy, Operations, and Logistics, MA

Banner Code: PP-MA-TPOL

Academic Advising

560 Founders Hall
Arlington Campus

A201 Robinson Hall
Fairfax Campus

The MA in Transportation Policy, Operations, and Logistics (TPOL) program is designed for students and practicing professionals engaged in planning, regulating, managing, and operating transportation facilities and services. Students obtain a working knowledge of the theory, policy, law, research, and practices required to effectively and efficiently supply and operate transportation facilities and services. They also learn to think
critically and analytically about the problems and challenges in this field and communicate their analyses clearly and effectively through written and oral presentations.

Admissions & Policies

Admissions

Requirements

See Graduate Admission Policies (p. 66) for general information on graduate admission to George Mason University. Specific information on application requirements and deadlines may be found with Schar Admissions (http://schar.gmu.edu/admissions).

Completed applications for fall and spring semesters are reviewed on a rolling basis, with late applications considered on a space-available basis. Students may be admitted for nondegree study and apply a limited number of credits toward the master's degree should they choose to apply to the degree program later, in accordance with university policy.

Policies

Termination from Program

Students admitted to an Schar program will be terminated from Schar upon receiving one grade of F and are no longer eligible to take courses in Schar. Per university regulation, students are terminated from the university after accumulating grades of F in two courses or 9 credits of unsatisfactory grades in graduate courses. For policies governing all graduate degrees, see Graduate Policies (p. 87).

Requirements

Degree Requirements

Total credits: 34

TPOL Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 715</td>
<td>Introduction to Transportation Systems</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 716</td>
<td>Transportation Operations and Logistics</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 717</td>
<td>Analysis for Transportation Managers</td>
<td>4</td>
</tr>
<tr>
<td>PUBP 718</td>
<td>Transportation Planning and Policy</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 721</td>
<td>Transportation Economics</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 722</td>
<td>Practicum in Transportation Policy, Operations, and Logistics</td>
<td>3</td>
</tr>
<tr>
<td>PUBP 500</td>
<td>Theory and Practice in Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>Three credits of PUBP 503</td>
<td>Culture, Organization, and Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 25

Electives

Electives must be approved by the program director or academic advisor.

Total Credits 9

Urban and Suburban Studies Minor

Banner Code: USSD

Academic Advising

Volgenau School of Engineering

2303 Nguyen Engineering Building
Fairfax Campus
MSN: 3D5
Phone: 703-993-1505 (Graduate)
703-993-1511 (Undergraduate)
Website: volgenau.gmu.edu

Administration

• Kenneth S. Ball, P.E. (Texas), Dean
The Volgenau School offers the following Bachelor of Science programs:

- Composition and Communication
- Applicable to the major. Each program strongly emphasizes English courses in mathematics, humanities, Mason Core, and specialty courses.

The requirements for the bachelor's degrees include required and elective into professional employment or continue studies at the graduate level. Our undergraduate degree programs prepare students to enter directly technology in the classroom.

Undergraduate Programs
Undergraduate Mission and Goals
The undergraduate mission is to provide a quality education to support the needs of Virginia and the nation. The goal is to graduate students who are technically competent, prepared for ethical professional practice and a lifetime of learning, able to communicate effectively and work as members or leaders of technical teams, and able to understand the global nature and effect of information technology and engineering.

Bachelor of Science Programs
Our undergraduate degree programs prepare students to enter directly into professional employment or continue studies at the graduate level. The requirements for the bachelor's degrees include required and elective courses in mathematics, humanities, Mason Core, and specialty courses applicable to the major. Each program strongly emphasizes English composition and communication.

The Volgenau School offers the following Bachelor of Science programs:

- Applied Computer Science
- Bioengineering
- Civil and Infrastructure Engineering
- Computer Engineering
- Computer Science
- Cyber Security Engineering
- Electrical Engineering
- Information Technology
- Mechanical Engineering
- Statistics (pending SCHEV approval)

Minors
Minors are available in aviation flight training and management, computer science, data analysis, environmental engineering, information technology, mechanical engineering, software engineering, statistics, and systems engineering and operations research.

BS/Accelerated MS Programs
Many of the BS degree programs offered within the Volgenau School may be packaged with some of the MS degree programs in ways that reduce the total number of credits required. Details can be found in the individual bachelor's and master's listings.

Graduate Programs
Master of Science Programs
The ever-increasing complexity and technical challenges in engineering, computer science, and information technology demand studies beyond the bachelor's degree.

The Volgenau School offers a number of master's programs:

- Applied Information Technology
- Bioengineering (pending SCHEV Approval)
- Biostatistics
- Civil and Infrastructure Engineering
- Computer Engineering
- Computer Science
- Data Analytics Engineering (title change Pending SCHEV Approval)
- Digital Forensics and Cyber Analysis
- Electrical Engineering
- Geotechnical, Construction, and Structural Engineering
- Information Security and Assurance
- Information Systems
- Management of Secure Information Systems
- Operations Research
- Software Engineering
- Statistical Science
- Systems Engineering
- Telecommunications

Doctor of Philosophy Programs
PhD students will gain comprehensive knowledge in their area of study and will be prepared for careers in higher education and scientific research. They are required to demonstrate a comprehensive understanding and complete research that adds significantly to the body of knowledge in engineering, computer science, information technology or statistics.

The Volgenau School offers seven doctoral programs:

- Bioengineering
- Civil and Infrastructure Engineering
- Computer Science
- Electrical and Computer Engineering
- Information Technology
Commonwealth Graduate Engineering Program (CGEP)

Commonwealth Graduate Engineering Program (CGEP) CGEP is the premier provider of high-quality post-baccalaureate online engineering education in the Commonwealth of Virginia. Oriented for practicing engineers and scientists interested in maintaining and enhancing their skills, the universities participating are: George Mason University (Mason); Old Dominion University (ODU); University of Virginia (UVA); Virginia Commonwealth University (VCU); and Virginia Tech (VT).

Offerings include master's degrees and certificate programs.

While each program is offered by one of the five participating universities, the collaboration between universities allows students more flexibility and variety in course offerings. A substantial number of course requirements can be taken at any of the five participating universities to satisfy the degree or certificate program. Prospective students should apply directly to the university offering the degree of interest. Mason has a number of degree and certificate programs available through CGEP. These programs follow all policies stated in this catalog for the program, with the exception of allowing up to 50% of the required credits to be completed at other CGEP participating universities. Faculty advisor approval is needed.

Policies for other universities’ programs are determined by those institutions. Please consult with the university offering the program of interest for details.

For more information including the Mason programs available through CGEP, visit http://cgep.virginia.gov/.

Requirements & Policies

Undergraduate Requirements

Degree Requirements

The following general requirements must be completed by all undergraduate students:

- At least 120 credits of academic work including at least 45 credits of upper-level courses (numbered 300 or above);
- At least 6 credits of English composition, 3 credits of literature, and 3 credits of oral communication (Mason Core courses);
- At least 3 credits of arts, 3 credits of Western civilization or world history, 3 credits of social and behavioral science, and 3 credits of global understanding issues (Mason Core courses);
- At least 24 credits of social science and humanities course work, which is normally satisfied by the 24 credits of Mason Core courses described above;

All requirements are listed in the sections for specific Volgenau School majors. These include university requirements for mathematics, natural science, information technology including ethics, and synthesis. Sample schedules that fulfill degree requirements for individual programs within the Volgenau School are available from the departments.

Undergraduate Policies

Academic Policies

Students should become familiar with the Academic Policies (p. 74) in the University Catalog in addition to policies specific to each academic unit. The Academic Policies (p. 74) also lists additional university requirements for minor programs and double majors.

Academic Appeal of Policies and Actions

A student’s instructor, academic advisor and/or department can resolve most academic issues. If, however, an undergraduate student disagrees with a decision at the department level and feels that there may be reasonable grounds for appeal, the student should contact the Volgenau School Undergraduate Student Services Office at 703-993-1511 for guidance in preparing a request to the Associate Dean for Undergraduate Programs or other offices as appropriate.

Academic Progression

Students majoring in Volgenau School programs are expected to have an acceptable plan of study on file, formulated with assistance from their departmental advisor. They are expected to make reasonable progress toward their degree during each semester in which they are enrolled.

Sample Schedules

Sample schedules that fulfill degree requirements for individual programs within the Volgenau School are available from the departments.

Change of Major

1. Criteria for freshman students in their first semester at Mason

   Freshman students who have been admitted to any VSE Engineering or Computer Science program may change their major to any other Engineering or Computer Science program before the final drop deadline of their first semester at Mason.

   Freshman students who have been admitted to Information Technology, Statistics, VSE Undeclared, or any non-VSE major must have departmental approval to change their major to a VSE program before the final drop deadline of their first semester at Mason.

   Any change of major requests made after this deadline are bound to the change of major criteria outlined in section 3 and require the completion of at least one semester at Mason.

2. Criteria for transfer students in their first semester at Mason

   Transfer students who have been admitted to any VSE Engineering program may change their major to any other Engineering program before the final drop deadline of their first semester at Mason.

   Transfer students who have been admitted to Computer Science, Information Technology, Statistics, VSE Undeclared, or any non-VSE major must have departmental approval to change their major to a VSE program before the final drop deadline of their first semester at Mason.

   Any change of major requests made after this deadline are bound to the change of major criteria outlined in section 3 and require the completion of at least one semester at Mason.

3. Criteria for students who have completed at least one semester at Mason

   Students who have completed at least one semester at Mason and who are considering changing their major to any VSE engineering program should consult with the Volgenau School of Engineering Coordinator of Undergraduate Advising, 2500 Nguyen Engineering Building. These students must have successfully completed MATH 114, PHYS 160 and PHYS 161 (with a grade of at least C) and should have a minimum Mason GPA of 2.75* in all technical coursework. Technical coursework refers to any math, physics, engineering, statistics and computer sciences courses completed thus far at Mason and that are applicable to the intended
engineering major. At least 6 credits of these technical courses should have been completed successfully at Mason.

*Students considering changing their major to Bioengineering with a Pre-Health concentration need to meet the above VSE engineering program requirements furthermore with a minimum Mason GPA of 3.00.

Students considering changing their major to Applied Computer Science, Computer Science, Information Technology, or Statistics should consult with the Volgenau School of Engineering Coordinator of Undergraduate Advising, 2500 Nguyen Engineering Building. These students need to meet the criteria for that program as defined in the change of major section for that program in the catalog. Minimum GPA requirements stated for those programs are based on courses taken at Mason.

Exceptions to the policy may only be granted at the discretion of the chair or associate chair of the department.

Undeclared Students in the Volgenau School of Engineering

Students who are undecided about their specific major may select Volgenau School Undeclared as their major. This should be done as soon as possible after a student enrolls at Mason. Students will be advised to follow an initial semester or two of courses that could be applicable to majors that are of interest to them. This may involve taking courses that help the student better understand different engineering and computing areas, but which may not contribute to the total credits needed for the major they eventually choose.

Students who apply to a VSE major but do not meet major admissions criteria may also be accepted into VSE Undeclared, and become eligible to declare a VSE major after meeting specific requirements as determined by that particular major.

VSE Undeclared students are advised by the Coordinator of Undergraduate Academic Advising in the Student Services Office. Students should seek advising at least once each semester.

Writing-Intensive Requirement

The university requires all undergraduate students to successfully complete a course, or a combination of courses, designated “writing intensive” in their majors at the 300 level or above. To determine the writing-intensive course requirements for specific degrees, refer to the major program descriptions in the following department sections.

Restricted Courses

Students are encouraged to take advantage of the many excellent courses available to broaden their educational experience or strengthen their background; however, some credits earned may not satisfy any degree requirements. Degree requirements for Volgenau School undergraduate programs may not include credits earned in military science. At most 3 credits of 100-level RECR coursework may be taken to satisfy the degree requirements of those VSE programs that allow general electives. Whenever there is uncertainty, students must consult with an academic advisor in their department.

Online Education Programs

In order to increase access to Volgenau School education while meeting the needs of the School’s student population, select degree programs and courses may be completed via online education. All academic policies and procedures apply to online education programs and courses as referenced in the appropriate sections of this catalog. Some instructors may require exams and/or other meetings to take place in a proctored or on-campus environment. Students should contact the instructor concerning these requirements if not explicitly stated on Patriot Web. Space permitting and if desired, students enrolled in the online sections are also permitted to attend the instructor’s campus-based classroom section if offered during the same semester.

For more information about the Volgenau School programs available online, visit Mason Online (http://masononline.gmu.edu).

Termination from the Major

No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

Graduate Policies

Admission

Admission decisions are made by the faculty committee or graduate coordinator of the respective graduate program. Denial of admission is not subject to appeal. Applicants denied admission to a program are not permitted to enroll in courses in that graduate program, though they may apply for either non-degree enrollment or admission to another program.

If an applicant is offered graduate admission, the college reserves the right to withdraw that offer of admission if:

• During his or her academic studies, the admitted applicant has a significant drop in academic performance or fails to graduate with a degree prior to the first day of classes for the term admitted.
• There has been a misrepresentation in the application process.
• Prior to the first day of classes for the term admitted, the school learns that the admitted applicant has engaged in behavior that indicates a serious lack of judgment or integrity, irrespective of the outcome of any disciplinary process related to such behavior.
• Students admitted to an accelerated master’s program do not maintain satisfactory progress in his or her undergraduate program, do not receive a minimum grade of 3.00 in the graduate classes taken
as an undergraduate, or otherwise does not meet the conditions specified on the application and admission letter.

The university further reserves the right to require the applicant to provide additional information (and/or authorization for the release of information) about any such matter.

Non-degree
Non-degree graduate students taking courses in the Volgenau School may not register for classes numbered 700 or higher. All MS degree programs require at least 18 credits to be completed in degree status at Mason to be considered for graduation; as a result, a maximum of 12 credits of non-degree coursework can be transferred to a degree program.

Readmission after Termination
Graduate students who have been terminated, dismissed, or have resigned from a program in the Volgenau School and want to reapply to the same program must wait three calendar years before submitting a new application for admission. A full application for admission as well as all application materials required of that program must be submitted (or resubmitted). GRE scores, if required, cannot be older than five years. Previous admission to a program does not guarantee readmission to the same program. The circumstances of the prior termination will be a factor in the decision-making process. Graduate credit earned prior to termination can be applied to the degree program as long as the requirements for Transfer of Credit (section AP.6.5.3) are met.

Online Education Programs
In order to increase access to Volgenau School education while meeting the needs of the School’s student population, select degree programs and courses may be completed via online education. All academic policies and procedures apply to online education programs and courses as referred to in the appropriate sections of this catalog. Some instructors may require exams and/or other meetings to take place in a proctored or on-campus environment. Students should contact the instructor concerning these requirements if not explicitly stated on Patriot Web. Space permitting and if desired, students enrolled in the online sections are also permitted to attend the instructor's campus-based classroom section if offered during the same semester.

For more information about the Volgenau School programs available online, visit Mason Online (http://masononline.gmu.edu).

Cyber Security Engineering, BS
Banner Code: VS-BS-CYSE
2215 Nguyen Engineering Building
Fairfax Campus
Phone: 703-993-1502
Email: pbrouse@gmu.edu

Cyber Security Engineering is concerned with the development of cyber-resilient systems which include the protection of physical as well as computer and network systems. It requires a proactive approach in engineering design of physical systems with cyber security incorporated from the beginning of system development. Cyber security engineering is an important quantitative methodology to be used in all industries including transportation, energy, healthcare, infrastructure, finance, government (federal, state, and local), and defense. The program is focused on the cyber security engineering of integrated cyber-physical systems. This degree provides a foundation in cyber security engineering, and is most appropriate for students with a strong mathematics and science background.

Admissions & Policies

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Advising and Plan of Study
All cyber security engineering students are assigned a faculty advisor. With the advisor’s help and approval, each student is required to complete a plan of study, which constitutes a learning plan for the degree program. The plan of study must be signed by the student’s advisor and the Program Chair and be updated and signed by the advisor at least once a year.

Change of Major
See Change of Major (p. 955) for more information.

Termination from the Major
No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor.
their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

### Requirements

#### Degree Requirements

Total credits: 126

##### Cyber Security Engineering Core

**Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYSE 101</td>
<td>Introduction to Cyber Security Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 205</td>
<td>Systems Engineering Principles</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 211</td>
<td>Operating Systems and Lab</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 220</td>
<td>Systems Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 230</td>
<td>Computer Networking</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 325</td>
<td>Discrete Events Systems Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 330</td>
<td>Introduction to Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 411</td>
<td>Secure Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 421</td>
<td>Industrial Control Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 425</td>
<td>Secure RF Communications</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 430</td>
<td>Critical Infrastructure Protection</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 445</td>
<td>System Security and Resilience</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 450</td>
<td>Cyber Vulnerability Lab</td>
<td>1</td>
</tr>
<tr>
<td>CYSE 465</td>
<td>Transportation Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 470</td>
<td>Human Factors and Cyber Security Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 475</td>
<td>Cyber Physical Systems</td>
<td>3</td>
</tr>
<tr>
<td>CYSE 491</td>
<td>Engineering Senior Seminar</td>
<td>2</td>
</tr>
<tr>
<td>CYSE 492</td>
<td>Senior Advanced Design Project I</td>
<td>2</td>
</tr>
<tr>
<td>CYSE 493</td>
<td>Senior Advanced Design Project II (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Technical Electives**

Select 9 credits from the following approved technical courses:

- CYSE 424 Embeded and Real Time Systems
- CYSE 460 Power Systems and Smart Grid
- CYSE 461 Power Grid Security
- CYSE 462 Mobile Devices and Network Security
- CYSE 467 GPS Security
- CYSE 476 Cryptography and Computer Network Security

### Electrical Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 301</td>
<td>Digital Electronics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 62

1. A grade of C or better is required for all CYSE courses.
2. Fulfills the university writing intensive requirement for the major.
3. Fulfills the Mason Core (p. 135) synthesis requirement for the major.
4. Electives allow students to gain special expertise in selected areas of cyber security engineering.

### Mathematics and Statistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 20

1. Must be completed with a grade of C or better.

### Natural Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 8

1. Must be completed with a grade of C or better.

### Computer Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CS 222</td>
<td>Computer Programming for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 7

1. Must be completed with a grade of C or better.

### Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core)</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 2
Oral Communication and Economics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 101</td>
<td>Interpersonal and Group Interaction (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

**Remaining Mason Core**

Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements.

| Written Communication (p. 135) | 6 |
| Literature (p. 140)            | 3 |
| Arts (p. 137)                  | 3 |
| Western Civilization/World History (p. 143) | 3 |
| Global Understanding (p. 139)  | 3 |

**Total Credits**: 18

**Note:**

All students must submit at least 24 credits of social science and humanities coursework, which is normally satisfied by the 24 credits of Mason Core (p. 135) social science and humanities courses listed above and with the oral communication and economics requirement.

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**Accelerated Options**

**Cyber Security Engineering, BS/Digital Forensics and Cyber Analysis, Accelerated MS**

**Overview**

Highly-qualified students in the Cyber Security Engineering, BS (p. 957) have the option of obtaining an accelerated Digital Forensics and Cyber Analysis, MS (p. 1025).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Cyber Security Engineering, BS (p. 957) program may apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Digital Forensics and Cyber Analysis, MS (p. 1025) program.

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping.

Students register for two Digital Forensics and Cyber Analysis core courses (6 credits) in place of two of the three required technical electives, as part of the undergraduate degree requirements. Specifically, students must take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRS 500</td>
<td>Introduction to Forensic Technology and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>and one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFRS 510</td>
<td>Digital Forensics Analysis (satisfies the IT 357 requirement for the INFS concentration in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 660</td>
<td>Network Forensics (satisfies one NTEL concentration course in the BS program)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 6

Note: Students complete all Digital Forensics and Cyber Analysis, MS (p. 1025) core courses and apply the two courses from the above list toward the Digital Forensics and Cyber Analysis, MS (p. 1025) requirements.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.

**Data Analytics Engineering, MS**

**Banner Code**: VS-MS-DAEN

**Email**: datamine@gmu.edu

The MS in Data Analytics Engineering is designed to provide students with an understanding of the technologies and methodologies necessary for data-driven decision-making. Students study topics such as data mining, information technology, statistical modeling, predictive analytics, optimization, risk analysis, and data visualization. It is aimed at students who wish to become data scientists and analysts in finance, marketing, operations, business/government intelligence and other information intensive groups generating and consuming large amounts of data.

**Admissions & Policies**

**Admissions**

Applicants must have completed a baccalaureate degree from a regionally accredited program with a reputation for high academic standards and an earned GPA of 3.00 or better in their 60 highest-level credits. While no specific undergraduate degree is required, a background in engineering, business, computer science, statistics, mathematics, or information technology, is desirable, or alternatively strong work experience with data or analytics may be used. DAEN 500 Data Analytics Fundamentals may be required for students without a basic foundation in Data Analytics.

For each of the concentrations there are additional admission requirements. These are listed in the descriptions of the individual concentrations.

In addition to fulfilling Mason’s admission requirements for graduate study, applicants must provide:
• Two letters of recommendation, preferably from academic references or references in industry or government who are familiar with the applicant’s professional or academic accomplishments.
• Resume.
• Detailed statement of career goals and professional aspirations.
• Completed self-evaluation form.
• If the applicant’s native language is not English, proof of English competency with a minimum TOEFL score of 575 for the paper-based exam or 230 for the computer-based exam.

Requirements

Degree Requirements
Total credits: 30

Core Courses
The following core coursework covers the basic elements of data analytics at the graduate level.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 580</td>
<td>Analytics: Big Data to Information</td>
<td>3</td>
</tr>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining</td>
<td>3</td>
</tr>
<tr>
<td>or CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td></td>
</tr>
<tr>
<td>DAEN 690</td>
<td>Data Analytics Project</td>
<td>3</td>
</tr>
<tr>
<td>OR 531</td>
<td>Analytics and Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 515</td>
<td>Applied Statistics and Visualization for</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 554</td>
<td>Applied Statistics I</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining (for all</td>
<td></td>
</tr>
<tr>
<td>concentrations except Data Mining) or CS 584 Theory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Applications of Data Mining (for the Data Mining concentration only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 515</td>
<td>Applied Statistics and Visualization for Analytics (for all concentrations except Statistics for Analytics) or STAT 554 Applied Statistics I (for the Statistics for Analytics concentration only)</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentrations

Students can elect a concentration that corresponds to a specialized technical area. Students not interested in a concentration can work with an advisor to select 15 credits of electives from among courses allowed in all the concentrations.

Concentration in Applied Analytics (APAN)
Focuses on the practical elements of adapting big data approaches to common analytic problems and government operations.

Additional Admission Requirements
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 106</td>
<td>Introduction to IT Problem Solving Using Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Concentration Courses
All students are required to take one fundamental course:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 524</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

In addition, students in this concentration may choose four courses from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 582</td>
<td>Applications of Metadata in Complex Big Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>AIT 614</td>
<td>Big Data Essentials</td>
<td>3</td>
</tr>
<tr>
<td>AIT 622</td>
<td>Determining Needs for Complex Big Data Systems</td>
<td>3</td>
</tr>
<tr>
<td>AIT 624</td>
<td>Knowledge Mining from Big-Data</td>
<td>3</td>
</tr>
<tr>
<td>AIT 664</td>
<td>Information: Representation, Processing and Visualization</td>
<td>3</td>
</tr>
<tr>
<td>DAEN 698</td>
<td>Data Analytics Research Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15

Concentration in Bioengineering (BIOE)
Bioengineering, whether it is mapping the human genome or computer aided diagnosis, is an exercise in data analytics.

Additional Admission Requirements
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 320</td>
<td>Bioengineering Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Students with some deficiencies in preparation may be admitted provisionally pending completion of foundation courses in mathematics or computer science. Undergraduate credit earned for this purpose may not be applied toward the graduate degree.

Required Concentration Courses
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 501</td>
<td>Bioengineering Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>BENG 551</td>
<td>Translational Bioengineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 535</td>
<td>Digital Signal Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 525</td>
<td>Neural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>BENG 538</td>
<td>Medical Imaging</td>
<td>3</td>
</tr>
<tr>
<td>ECE 537</td>
<td>Introduction to Digital Image Processing (DIP)</td>
<td>3</td>
</tr>
<tr>
<td>BENG 550</td>
<td>Advanced Biomechanics</td>
<td>3</td>
</tr>
<tr>
<td>BENG 636</td>
<td>Advanced Biomedical Signal Processing</td>
<td>3</td>
</tr>
<tr>
<td>DAEN 698</td>
<td>Data Analytics Research Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15
Concentration in Business Analytics (BUSA)

Additional Admission Requirements
Students entering the program must have successfully completed STAT 515 Applied Statistics and Visualization for Analytics or STAT 554 Applied Statistics I with a grade of B or better.

Required Concentration Courses
- GBUS 720 Marketing Analytics 3
- GBUS 721 Marketing Research 3
- GBUS 738 Data Mining for Business Analytics 3
- GBUS 739 Advanced Data Mining for Business Analytics 3
- GBUS 744 Fraud Examination 3

Total Credits 15

Concentration in Data Mining (DTM)

Aimed at students who are interested in understanding data mining, advanced database systems, MapReduce programming, pattern recognition, decision guidance systems, and Bayesian inference as they relate to data analytics.

Additional Admission Requirements
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:
- CS 310 Data Structures 3
- CS 330 Formal Methods and Models 3
- CS 367 Computer Systems and Programming 4
- CS 465 Computer Systems Architecture 3
- MATH 125 Discrete Mathematics I (Mason Core) 3

Note: all prerequisites must be met.

Total Credits 15

Concentration in Digital Forensics (DFOR)

Deals with the process of acquiring, extracting, integrating, transforming, and modeling data with the goal of deriving useful information that is suitable for presentation in a court of law. Digital forensics is a key component in criminal, civil, intelligence, and counter-terrorism matters. Students will be able to apply data analytics to such areas as digital media, intercepted (network) data, mobile media, unknown code, and leverage that analysis in order to determine, intent, attribution, cause, effect, and context.

Additional Admission Requirements
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:
- IT 342 Operating Systems Fundamentals 3
- IT 441 Network Servers and Infrastructures 3
- IT 341 Data Communications and Network Principles 3
- IT 445 Advanced Networking Principles 3

Note: Students with some deficiencies in preparation may be admitted provisionally pending completion of foundation courses in mathematics or computer science. Undergraduate credit earned for this purpose may not be applied toward the graduate degree.

Required Concentration Courses
- CFRS 500 Introduction to Forensic Technology and Analysis 3
- CFRS 660 Network Forensics 3
- Select three from the following: 9
  - CFRS 510 Digital Forensics Analysis
  - CFRS 661 Digital Media Forensics
  - CFRS 663 Operations of Intrusion Detection for Forensics
  - CFRS 664 Incident Response Forensics
  - CFRS 698 Independent Reading and Research
  - CFRS 761 Malware Reverse Engineering
  - CFRS 762 Mobile Device Forensics
  - CFRS 763 Registry Forensics - Windows
  - CFRS 764 Mac Forensics
  - CFRS 767 Penetration Testing in Computer Forensics
  - CFRS 768 Digital Warfare
  - CFRS 780 Advanced Topics in Computer Forensics
  - DAEN 698 Data Analytics Research Project

Total Credits 15

Concentration in Financial Engineering (FNNE)
The concentration emphasizes both analytical and practical aspects of financial and econometric data analytics. Students are expected to demonstrate proficiency in several quantitative modeling disciplines.

Students are also expected to understand issues relevant to practical aspects of investment and hedging decision making, derivative valuation, and risk analysis. The students will learn the techniques to analyze large financial and economic data to derive meaningful knowledge, which will be useful for developing effective business and risk mitigation strategies and making sound financial, marketing, and investment decisions. The concentration prepares students for careers in business analytics with a focus on practical applications in financial operations, investment, and risk mitigation strategy development.

Additional Admission Requirements
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Concentration Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST/OR 538</td>
<td>Analytics for Financial Engineering and Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>SYST/OR 588</td>
<td>Financial Systems Engineering I: Introduction to Options, Futures, and Derivatives</td>
<td>3</td>
</tr>
<tr>
<td>SYST/OR 688</td>
<td>Financial Systems Engineering II: Derivative Products and Risk Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAEN 698</td>
<td>Data Analytics Research Project</td>
<td></td>
</tr>
<tr>
<td>SYST/OR 568</td>
<td>Applied Predictive Analytics</td>
<td></td>
</tr>
<tr>
<td>SYST 573</td>
<td>Decision and Risk Analysis</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
<tr>
<td>SYST/OR 671</td>
<td>Judgment and Choice Processing and Decision Making</td>
<td></td>
</tr>
<tr>
<td>OR 604</td>
<td>Practical Optimization</td>
<td></td>
</tr>
<tr>
<td>OR 645</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

Concentration in Health Data Analytics (HDAN)

Required Concentration Courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 720</td>
<td>Health Data Integration</td>
<td>3</td>
</tr>
<tr>
<td>HAP 725</td>
<td>Statistical Process Control in Healthcare</td>
<td>3</td>
</tr>
<tr>
<td>HAP 780</td>
<td>Data Mining in Health Care</td>
<td>3</td>
</tr>
<tr>
<td>or HAP 880</td>
<td>Advanced Health Data Mining</td>
<td></td>
</tr>
</tbody>
</table>

Select two from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAEN 698</td>
<td>Data Analytics Research Project</td>
<td></td>
</tr>
<tr>
<td>HAP 701</td>
<td>Health Data: Vocabulary and Standards</td>
<td></td>
</tr>
<tr>
<td>HAP 719</td>
<td>Advanced Statistics in Health Services Research I</td>
<td></td>
</tr>
<tr>
<td>HAP 730</td>
<td>Health Care Decision Analysis</td>
<td></td>
</tr>
<tr>
<td>or HAP 770</td>
<td>Medical Decision Making and Decision Support Systems</td>
<td></td>
</tr>
<tr>
<td>HAP 819</td>
<td>Advanced Statistics in Health Services Research II</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

HAP 823 Comparative Effectiveness Analysis using Observational Data

Concentration in Predictive Analytics (PRAN)

The ultimate goal of analytics of Big Data is to derive value by suggesting effective actions for the future. Predictive analytics focuses on the methods for deciding on the best course of action, taken into account possible constraints and risks. The concentration will provide students with skills that drive effective decision making and optimization. Students will learn the techniques to analyze both structured and unstructured data to derive meaningful knowledge, which will be useful for developing effective strategies and making optimal decisions.

The concentration emphasizes both analytical and practical aspects of predictive analytics. Students are expected to master the practical aspects of modeling and methods for optimization. Students are also expected to demonstrate proficiency in decision making, design of decision support systems, and risk analysis. The program prepares students for careers in big data analytics with a focus on strategic decision making in practical applications including financial engineering, health care, transportation, and intelligence.

Additional Admission Requirements
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Concentration Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 604</td>
<td>Practical Optimization</td>
<td>3</td>
</tr>
<tr>
<td>SYST 542</td>
<td>Decision Support Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 568</td>
<td>Applied Predictive Analytics</td>
<td>3</td>
</tr>
<tr>
<td>or OR 568</td>
<td>Applied Predictive Analytics</td>
<td></td>
</tr>
<tr>
<td>SYST 573</td>
<td>Decision and Risk Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAEN 698</td>
<td>Data Analytics Research Project</td>
<td></td>
</tr>
<tr>
<td>OR 603</td>
<td>Sports Analytics</td>
<td></td>
</tr>
<tr>
<td>STAT 663</td>
<td>Statistical Graphics and Data Exploration I</td>
<td></td>
</tr>
<tr>
<td>SYST 508</td>
<td>Complex Systems Engineering Management</td>
<td></td>
</tr>
<tr>
<td>SYST 584</td>
<td>Heterogeneous Data Fusion</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
<tr>
<td>SYST 670</td>
<td>Metaheuristics for Optimization</td>
<td></td>
</tr>
<tr>
<td>or OR 670</td>
<td>Metaheuristics for Optimization</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

Concentration in Statistical Analytics (STLA)

Provides students with skills necessary for gaining insight from data. Enables students to evaluate large data-sets from a rigorous statistical perspective, including theoretical, computational, and analytical techniques. Emphasis will be placed on developing deep analytical talent in the two areas of statistical modeling and data visualization. "Big Data" are well-known to encompass high levels of uncertainty and
complex interactions and relationships. To gain knowledge from these data and hence inform decisions, elucidation of the core interactions and relationships must be done in a manner that acknowledges uncertainties in order to both minimize false signals and maximize true discoveries. Statistical modeling does exactly this – it accounts for uncertainty while identifying relationships. Visualization is often a critical component of modeling, but visualization also stands alone as an important tool for presentation of information, decision analysis, and process improvement.

Additional Admission Requirements
Students entering the program should have completed the following George Mason undergraduate courses or their equivalents:

- MATH 203: Linear Algebra 3
- MATH 213: Analytic Geometry and Calculus III 3
- STAT 346: Probability for Engineers or MATH 351: Probability 3

Required Concentration Courses
- STAT 544: Applied Probability 3
- STAT 554: Applied Statistics I 3

And three courses from the following:
- DAEN 698: Data Analytics Research Project
- STAT 654: Applied Statistics II
- STAT 662: Multivariate Statistical Methods
- STAT 663: Statistical Graphics and Data Exploration I
- STAT 672: Statistical Learning and Data Analytics

Total Credits: 15

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with six credits overlap chosen from the courses in the following table. For BS candidates, these graduate courses replace the corresponding undergraduate courses listed. The undergraduate version of these courses may not be applied toward the MS degree.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 473</td>
<td>SYST 573</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 541</td>
</tr>
</tbody>
</table>

For the predictive analytics concentration, any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

OR 541 Operations Research: Deterministic Models will substitute for the OR 531 Analytics and Decision Analysis core requirement in the MS DAE program.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Applied Computer Science, BS/Data Analytics Engineering, Accelerated MS

Overview
Highly-qualified students in the Applied Computer Science, BS (p. 983) have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959) with a concentration in predictive analytics.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
While no specific undergraduate degree is required, Mason undergraduate students majoring in systems engineering or any other engineering, business, computer science, statistics, mathematics, or information technology may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30.

For the predictive analytics concentration, students must submit evidence of:

- Satisfactory completion of courses in calculus, applied probability and statistics, and a scientific programming language.
- Familiarity with analytical modeling software, such as spreadsheets or math packages.

For the predictive analytics concentration, any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

OR 541 Operations Research: Deterministic Models will substitute for the OR 531 Analytics and Decision Analysis core requirement in the MS DAE program.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Applied Computer Science, BS/Data Analytics Engineering, Accelerated MS

Overview
Highly-qualified students in the Applied Computer Science, BS (p. 983) have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Applied Computer Science, BS (p. 983) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>10</td>
</tr>
</tbody>
</table>

Accelerated Option Requirements
Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students must register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the
undergraduate degree requirements. Specifically, students in all concentrations of the Applied Computer Science, BS program must register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Students in the Software Engineering and Bioinformatics concentrations of the Applied Computer Science, BS (p. 983) program must also register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Students in the Computer Game Design and Geography concentrations of the Applied Computer Science, BS (p. 983) program must also register for one of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:

For students in the Computer Game Design and Geography concentrations of the Applied Computer Science, BS (p. 983) program, one of the 500 level courses will count as an elective towards their undergraduate degree.

Students are permitted to take additional graduate basic courses in their undergraduate programs. In such cases, those classes cannot be counted toward requirements for the MS.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Bioengineering, BS/Data Analytics Engineering, Accelerated MS

Overview

Highly-qualified students in the Bioengineering, BS (p. 970) have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959) with a concentration in Bioengineering.

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Bioengineering, BS (p. 970) program may apply to this option if they have earned 95 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 222 Computer Programming for Engineers and BENG 320 Bioengineering Signals and Systems. Criteria for admission are identical to criteria for admission to the Bioengineering concentration of the Data Analytics Engineering, M (p. 959) program.

Accelerated Option Requirements

Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of 500-level basic courses in place of the corresponding BENG 400-level courses required for the undergraduate degree requirements. Specifically, students must register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 501</td>
<td>Bioengineering Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining (in place of BENG 420)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Note:

Students are permitted to take additional graduate basic courses in their undergraduate programs. In such cases, those classes cannot be counted toward requirements for the MS.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Computer Science, BS/Data Analytics Engineering, Accelerated MS

Overview

Highly-qualified students in the Computer Science, BS (p. 991) have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Computer Science, BS (p. 991) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 310 Data Structures, CS 330 Formal Methods and Models and CS 367 Computer Systems and Programming.

Accelerated Option Requirements

Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>
Select one of the following courses in place of the corresponding 400-level courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

Note:
Students are permitted to take additional graduate basic courses in their undergraduate programs. In such cases, those classes cannot be counted toward requirements for the MS.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.

Data Analytics Graduate Certificate

Banner Code: VS-CERG-DNIC

Email: datamine@gmu.edu

This graduate certificate provides a broad overview of the end-to-end value chain for Big Data Analytics, from the capture and management of the data, through the analytics that harness the data to create value. The certificate is designed to provide a framework for the methodologies for organizing and integrating disparate data, analyzing and visualizing the integrated data, and determining what decisions or actions should be taken to generate value from the data.

This certificate is intended for students who are interested in addressing the challenge of transforming the massive data arising in applications such as business analytics, cyber defense/forensics, energy, finance, genomics, healthcare, intelligence, law enforcement, or transportation, into meaningful information. The certificate is intended for graduate students in areas where applications of big data may arise.

The graduate certificate may only be pursued on a part-time basis.

Requirements

Certificate Requirements
Total credits: 12

Coursework
Students must achieve a total GPA of at least 3.00, with no more than three credits of a grade of C from the following courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 580</td>
<td>Analytics: Big Data to Information</td>
<td>3</td>
</tr>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining</td>
<td>3</td>
</tr>
<tr>
<td>OR 531</td>
<td>Analytics and Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 515</td>
<td>Applied Statistics and Visualization for Analytics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

Information Technology, PhD

Banner Code: VS-PHD-INFT

2400 Nguyen Engineering Building
Fairfax Campus

Phone: 703-993-1504
Email: vsephd@gmu.edu

Information Technology (IT) is a multidisciplinary PhD program that spans all of the research areas available within the School of Engineering, as well as collaboration with faculty across the campus. The Information Technology PhD program emphasizes the particular aspects of technology located in the Northern Virginia Technology Corridor and around the globe. The relevance of the IT doctoral program has grown significantly as the world has become more dependent on the effective use of information. Our focus on the science, engineering, and technology of information processing complements and enhances traditional approaches to engineering that are more strongly based on the physical and material sciences. The Information Technology PhD program is broad, and can be customized to support individual research interests. Students are encouraged to enter into an established concentration to provide focus to their program.

Admissions & Policies

Admissions

Applicants should have an undergraduate degree from an accredited institution, with a GPA of at least 3.00 in their last 60 credits of study. While no specific undergraduate degree is required, a background in engineering, business, computer science, math, or information technology is desirable; alternatively, strong work experience with data or analytics may be used. Current graduate students in the Volgenau School of Engineering and the School of Business (p. 846) can elect this certificate with the Graduate Secondary Certificate Program Application from the Office of the University Registrar (http://registrar.gmu.edu).
without an MS may be accepted, but will be required to take more courses.

An undergraduate GPA of 3.00 and a graduate GPA of 3.50 are basic requirements for applicants. Applicants are required to submit: application for admission, undergraduate and graduate transcripts from previous colleges and universities, GRE test results, three letters of reference (preferably from college instructors), a résumé, a personal goal statement, and a self-evaluation form to identify research areas of interest. Foreign transcripts must be translated and evaluated (course-by-course preferred) by a member of the NACES Membership. Evaluations can be also be done by George Mason University, at no extra cost to the applicant; however, this typically adds 6-8 weeks to the application processing time. Please review George Mason University’s Policy on International Transcript Submission (p. 68). An applicant’s entire background is examined before an admission decision is made.

To ensure a common ground of fundamentals, students should have a background in such topics as calculus, differential equations, linear algebra, discrete structures, probability, and statistics. In addition, students entering the PhD in Information Technology Program must have a sound working knowledge in computing as demonstrated by examples of programs or applications developed and tested in at least one high level programming language environment. Because much of the coursework within this program requires computational proficiency, experience with a variety of languages and computer hardware is useful as is an understanding of computer architecture. Highly-qualified students who do not present evidence of appropriate coursework may be admitted and then required to take appropriate articulation courses.

Those who wish to be considered for Mason’s Presidential Scholarship, which provides a stipend and tuition support for three years, must be full-time students, with a minimum GPA of 3.5 or higher in their most recently earned degree, and submit GRE scores with a combined math and verbal score of 1200 on exams taken prior to August 1, 2011; combined score of 310 on the new revised GRE scale for exams taken August 1, 2011 and beyond. Scores must have been earned within the last five years. Only one Presidential Scholarship is awarded per PhD program per year.

**Policies**

The general doctoral requirements (p. 87) of Mason apply to this program.

**Reduction of Credit**

Students must complete a minimum of 72 graduate credits, which may be reduced by a maximum of 30 credits from an approved and completed master’s degree. Reduction of credit requires the approval of the program director/dean or designee of the school. They determine whether the credits are eligible for reduction of credit and applicable to the degree program and the number of credits to be reduced.

**Program Requirements**

Information Technology doctoral candidates must earn a minimum of 72 graduate credits. The program is made up of a breadth requirement (assessed via qualifying exams) and specialized coursework (assessed via the comprehensive exam), followed by preparation of a dissertation proposal, an original research project, and final defense. To advance to candidacy, students must complete all coursework, pass the qualifying and comprehensive examinations, and defend a dissertation proposal.

### Requirements

#### Degree Requirements

**Total credits: minimum 72**

The degree plan outlined here is based on a student who receives a full 30 credit reduction. Students who do not receive a full credit reduction will be required to choose additional credits in consultation with their advisors.

**Plan of Study**

Students are strongly encouraged to select a concentration area. However, the ability exists to progress with only a Plan of Study. Students who declare a concentration will have the concentration noted on their transcript. The plan of study is a well-defined set of advanced courses in a focused area. Successful completion of this requirement should enable the student to do basic or applied research in a significant contemporary area in IT.

The 18 credits of graduate-level coursework must fulfill the following requirements:

- Coursework must be independent of the courses students take to prepare for the qualifying exams.
- Courses that cannot be included in any plan of study are any INFS 500-level courses; certain AIT courses; OR 540 Management Science; STAT 501 SAS Language and Basic Procedures, STAT 502 Introduction to SAS Statistical Graphics, STAT 503 SAS Macro Language, STAT 535 Analysis of Experimental Data; and SYST 500 Quantitative Foundations for Systems Engineering. Exceptions must be approved in advance by the senior associate dean.
- At least 12 of the 18 credits must be in courses numbered 700 or higher, and these 12 credits cannot include directed reading, project, or thesis courses.
- A cumulative GPA of 3.50 is required in courses taken in the plan of study.

#### Concentrations

**Digital Forensics (DFOR)**

In addition to courses taken to prepare for the Qualifying Exams, select six courses from the following, no more than two courses (6 credit hours) taken at the 600 level:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 701</td>
<td>Cyber Security: Emerging Threats and Countermeasures</td>
</tr>
<tr>
<td>CFRS 661</td>
<td>Digital Media Forensics</td>
</tr>
<tr>
<td>CFRS 663</td>
<td>Operations of Intrusion Detection for Forensics</td>
</tr>
<tr>
<td>CFRS 664</td>
<td>Incident Response Forensics</td>
</tr>
<tr>
<td>CFRS 730</td>
<td>Forensic Deep Packet Inspection</td>
</tr>
<tr>
<td>CFRS 760</td>
<td>Legal and Ethical Issues in IT</td>
</tr>
<tr>
<td>CFRS 761</td>
<td>Malware Reverse Engineering</td>
</tr>
<tr>
<td>CFRS 762</td>
<td>Mobile Device Forensics</td>
</tr>
<tr>
<td>CFRS 763</td>
<td>Registry Forensics - Windows</td>
</tr>
<tr>
<td>CFRS 764</td>
<td>Mac Forensics</td>
</tr>
<tr>
<td>CFRS 767</td>
<td>Penetration Testing in Computer Forensics</td>
</tr>
<tr>
<td>CFRS 768</td>
<td>Digital Warfare</td>
</tr>
<tr>
<td>CFRS 769</td>
<td>Anti-Forensics</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>CFRS 770</td>
<td>Fraud and Forensics in Accounting</td>
</tr>
<tr>
<td>CFRS 771</td>
<td>Digital Forensic Profiling</td>
</tr>
<tr>
<td>CFRS 772</td>
<td>Forensic Artifact Extraction</td>
</tr>
<tr>
<td>CFRS 773</td>
<td>Mobile Application Forensics and Analysis</td>
</tr>
<tr>
<td>CFRS 775</td>
<td>Kernel Forensics and Analysis</td>
</tr>
<tr>
<td>CFRS 780</td>
<td>Advanced Topics in Computer Forensics</td>
</tr>
<tr>
<td>CFRS 790</td>
<td>Advanced Computer Forensics</td>
</tr>
<tr>
<td>ECE 611</td>
<td>Advanced Microprocessors</td>
</tr>
<tr>
<td>ECE 645</td>
<td>Computer Arithmetic</td>
</tr>
<tr>
<td>ECE 646</td>
<td>Cryptography and Computer Network Security</td>
</tr>
<tr>
<td>ECE 746</td>
<td>Advanced Applied Cryptography</td>
</tr>
<tr>
<td>ISA 650</td>
<td>Security Policy</td>
</tr>
<tr>
<td>ISA 652</td>
<td>Security Audit and Compliance Testing</td>
</tr>
<tr>
<td>ISA 656</td>
<td>Network Security</td>
</tr>
<tr>
<td>ISA 674</td>
<td>Intrusion Detection</td>
</tr>
<tr>
<td>ISA 785</td>
<td>Research in Digital Forensics</td>
</tr>
<tr>
<td>IT 796</td>
<td>Directed Reading and Research</td>
</tr>
</tbody>
</table>

**Total Credits:** 18

1 Can only be taken once for PhD credit in the digital forensics concentration.

**Note:** Where appropriate and with doctoral advisor approval, a maximum of two emphasis courses may be substituted with relevant courses from other Volgenau School departments. The student's overall coursework must satisfy the University requirement for the PhD in Information Technology.

### Information Sciences and Technology (ISTC)

Select at least 18 credit hours from the following with no more than two courses (6 credit hours) taken at the 500 or 600 levels:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 582</td>
<td>Applications of Metadata in Complex Big Data Problems</td>
</tr>
<tr>
<td>AIT 614</td>
<td>Big Data Essentials</td>
</tr>
<tr>
<td>AIT 624</td>
<td>Knowledge Mining from Big-Data</td>
</tr>
<tr>
<td>AIT 701</td>
<td>Cyber Security: Emerging Threats and Countermeasures</td>
</tr>
<tr>
<td>AIT 711</td>
<td>Rapid Development of Scalable Applications</td>
</tr>
<tr>
<td>AIT 716</td>
<td>Human Computer Interaction</td>
</tr>
<tr>
<td>AIT 724</td>
<td>Data Analytics in Social Media</td>
</tr>
<tr>
<td>AIT 734</td>
<td>Advanced Web Analytics Using Semantics</td>
</tr>
<tr>
<td>Other VSE courses with the approval of an advisor or program director.</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits:** 18

### Information Security and Assurance (ISA)

Select at least 18 credit hours, of which 12 credits must be numbered 700 and above, and with at least 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISA 656</td>
<td>Network Security</td>
</tr>
<tr>
<td>ISA 673</td>
<td>Operating Systems Security</td>
</tr>
<tr>
<td>ISA 674</td>
<td>Intrusion Detection</td>
</tr>
<tr>
<td>ISA 681</td>
<td>Secure Software Design</td>
</tr>
<tr>
<td>ISA 697</td>
<td>Topics in Information Security</td>
</tr>
<tr>
<td>ISA 763</td>
<td>Security Protocol Analysis</td>
</tr>
<tr>
<td>ISA 764</td>
<td>Security Experimentation</td>
</tr>
<tr>
<td>ISA 796</td>
<td>Directed Readings in Information Security</td>
</tr>
<tr>
<td>ISA 862</td>
<td>Models for Computer Security</td>
</tr>
<tr>
<td>ISA 863</td>
<td>Advanced Topics in Computer Security</td>
</tr>
<tr>
<td>CS 700</td>
<td>Quantitative Methods and Experimental Design in Computer Science</td>
</tr>
<tr>
<td>Any CS, INFS or SWE course numbered 700 or higher, subject to the approval of the student's academic advisor.</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits:** 18

1 Students without a credit reduction should select the remaining credits from any 600 level or higher INFS, ISA, CS or SWE courses or courses approved in advance by the student's academic advisor.
Mechanical Engineering (ME)
Courses that constitute a student’s plan of study should be chosen in consultation with the student’s advisor and/or dissertation committee.

Students must take a minimum of 18 credit hours, with at least 12 credits numbered 700 or higher:

- **600/700-level courses outside the ME department (typically physics, mathematics, etc.)** 6
- **700-level courses within the ME department in subjects within the student’s area of specialization** 6
- **700-level courses within the ME department in subjects outside the student’s area of specialization** 6

Available courses include:
- ME 621 Foundations of Fluid Mechanics
- ME 722 Introduction to Turbulence
- ME 714 Fracture Mechanics
- ME 715 Impact Dynamics

| Total Credits | 18 |

Software Engineering (SWE)
Select at least 18 credit hours with at least 12 credits at the 700 level as follows:

- SWE 763 Software Engineering Experimentation
- or CS 700 Quantitative Methods and Experimental Design in Computer Science
- SWE 721 Reusable Software Architectures
- SWE 722 Service Oriented Architecture
- SWE 727 Quality of Service for Software Architectures
- SWE 760 Software Analysis and Design of Real-Time Systems
- SWE 795 Advanced Topics in Software Engineering
- SWE 796 Directed Readings in Software Engineering
- SWE 798 Research Project
- SWE 825 Special Topics in Web-Based Software

Select 6 credits from the following:

- SWE 619 Object-Oriented Software Specification and Construction
- SWE 620 Software Requirements Analysis and Specification
- SWE 621 Software Modeling and Architectural Design
- SWE 622 Distributed Software Engineering
- SWE 631 Software Design Patterns
- SWE 632 User Interface Design and Development
- SWE 637 Software Testing
- SWE 642 Software Engineering for the World Wide Web
- SWE 645 Component-Based Software Development
- SWE 681 Secure Software Design and Programming
- CS 706 Concurrent Software Systems
- INFS 740 Database Programming for the World Wide Web
- INFS 760 Advanced Database Management

| Total Credits | 24 |

Qualifying Exams
To satisfy the breadth requirement of the PhD degree, students must pass a set of written qualifying exams designed to test fundamental knowledge. Students who have already obtained an IT-relevant Master's degree may already be prepared for the qualifying exams. These exams correspond to a set of disciplines related to the individual Master's programs in the Volgenau School. Each exam is based on an established reading list. The qualifying exams are not associated with specific courses, although some courses may help students prepare for these exams. The qualifying exams are offered twice a year just before the fall and spring semesters. Each exam is allocated two hours and graded on a pass or fail basis. Students select their exams using a request form submitted to the Graduate Student Affairs Office.

Students must attempt a set of four exams no later than the first opportunity following the completion of 18 credits, or 30 credits if the student enters the program without a Master's degree. Each student must pass all four exams in two consecutive offerings. Four exams must be attempted in the first offering. The exams attempted on the second offering need not be the same as in the first. A student who fails to pass four qualifying exams in two consecutive semesters is subject to termination from the program.

Dissertation Research

| IT 990 | Dissertation Topic Presentation |
| Select 23 additional credits from the following: |
| IT 998 | Doctoral Dissertation Proposal |
| IT 999 | Doctoral Dissertation (minimum 12 credits required) |

| Total Credits | 24 |

Doctoral Supervisory Committee
On admission to the program, students are assigned a temporary academic advisor. Students are responsible for working with the temporary advisor until they choose a dissertation director and establish a doctoral supervisory committee.

The doctoral supervisory committee includes the dissertation director, who must be a member of the Mason graduate faculty, and at least three other people from the Mason graduate faculty. The dissertation director and chair of a PhD in IT dissertation committee must have at least a 50% appointment in the Volgenau School. This rule does not apply to a co-director, provided that the chair and other co-director satisfies the "at least 50% rule." At least three committee members must be from the Volgenau School, and at least two of the departments of the Volgenau School must be represented on this committee.

In addition, industrial representatives and faculty members from departments outside the school are highly desirable, but not required, on the committee. The doctoral supervisory committee administers the comprehensive exam, dissertation proposal presentation, and the
dissertation predefense and defense. Permission for the comprehensive exam and dissertation defense are requested from the Volgenau School senior associate dean on the basis of a written request and plan that has been approved by the supervisory committee.

Comprehensive Exam

The comprehensive exam is an oral exam taken after students have satisfactorily completed all coursework requirements in their approved plan of study. To initiate the exam process, the student meets with the dissertation advisor to prepare a permission form, which has to be approved by the entire dissertation supervisory committee one month prior to the exam, to be forwarded to the senior associate dean for final approval. The permission form must be submitted with:

1. a one page description of the intended area of research; and
2. a reading list on which the student will be examined.

The reading list should include articles and/or books that cover the fundamentals, state-of-the-art, and tools needed to perform research in the intended area.

The objective of the comprehensive exam is to allow the dissertation supervisory committee to assess the student's readiness to complete doctoral research in an area of concentration. The duration of the oral exam is typically two hours. Students who fail the exam are allowed to retake it once. Failure in the second attempt results in termination from the program. Students must pass the comprehensive exam and dissertation proposal defense before being advanced to candidacy. The comprehensive exam must be attempted for the first time no later than one year after completing all coursework requirements (excluding IT 990 Dissertation Topic Presentation, IT 998 Doctoral Dissertation Proposal, and IT 999 Doctoral Dissertation).

Dissertation Proposal Presentation

Near the end of the coursework, doctoral students prepare a written dissertation proposal to present to the doctoral supervisory committee. The proposal must be delivered by hard copy to the doctoral supervisory committee at least two weeks before the presentation. Students should enroll in IT 998 Doctoral Dissertation Proposal to complete this effort (note: students must pass the qualifying exams before enrolling in IT 998 Doctoral Dissertation Proposal). During the term the student expects to present the dissertation proposal to the committee (or perhaps the prior term), the student is should enroll in IT 990 Dissertation Topic Presentation. The dissertation proposal presentation must be at least one week after passing the comprehensive exam. After successfully completing the dissertation-proposal requirement, the student is formally admitted as a candidate for the PhD degree. The application for candidacy is submitted to the senior associate dean on a standard form.

Dissertation and Final Defense

With the concurrence of the dissertation supervisory committee, students proceed with the doctoral research, during which time they must be continuously enrolled in IT 999 Doctoral Dissertation. When the central portions of the research have been completed to the point that students are able to describe the original contributions of the dissertation effort, they submit the written dissertation to the committee and schedule an oral predefense to the committee. The predefense is to be held no sooner than one month after members of the committee have copies of the dissertation. Once the committee believes the student is ready, a final public oral defense may be scheduled no sooner than one month after the conclusion of the predefense so that the announcement is posted for at least two weeks. The entire dissertation committee and the senior associate dean must be present at the defense, unless an exception is approved by the senior associate dean in advance of the defense.

Following satisfactory evaluation of the oral defense of the dissertation by the committee, the student must prepare, with supervision from the dissertation director, a final publishable dissertation that represents a definitive contribution to knowledge in IT. If the candidate successfully defends the dissertation, the dissertation committee recommends that the final form of the dissertation be completed and the Volgenau School faculty and the graduate faculty of Mason accept the candidate for the PhD degree.

If the student fails to successfully defend the dissertation, the student may request a second defense, following the same procedures as for the initial defense. There is no time limit for this request other than general time limits for the doctoral degree. An additional predefense is not required, but students are strongly advised to consult with the committee before scheduling a second defense. If the student fails on the second attempt to defend the dissertation, the student will be terminated from the program.

Management of Secure Information Systems, MS (VSE)

Banner Code: BU-MS-MSIS

Phone: 703-993-1880
Email: cyber@gmu.edu

The Executive Management of Secure Information Systems MS, a multidisciplinary program offered by the Volgenau School of Engineering, the School of Business, and the Schar School of Policy and Government prepares professionals for the challenges of modern computerized information systems that have become increasingly complex and vulnerable to cyber-attacks, resulting in a significant number of government regulations. Consequently, those responsible for the safe, secure, and efficient operation of such systems need to grasp their technical aspects and be familiar with both the principles of management and the public policy impact of regulatory and organizational decisions.

The program is run as a cohort with no electives. The entire program has a duration of 16 months including about seven days of study abroad, which is included in the tuition.
<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSEC 510</td>
<td>Foundations of Cyber Security</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 511</td>
<td>Security Practices in the Enterprise</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 520</td>
<td>Networking Principles</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 620</td>
<td>Networking Security</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 630</td>
<td>Secure Information System Governance, Regulation, and Compliance</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 641</td>
<td>Enterprise Security Threats</td>
<td>1</td>
</tr>
<tr>
<td>MSEC 642</td>
<td>Enterprise Security Technologies</td>
<td>2</td>
</tr>
<tr>
<td>MSEC 650</td>
<td>Seminar: Enterprise Security Case Studies</td>
<td>2</td>
</tr>
<tr>
<td>PUBP 610</td>
<td>Organizations, Management, and Work: Theory and Practice</td>
<td>2</td>
</tr>
<tr>
<td>PUBP 611</td>
<td>Critical Infrastructure Protection in Theory, Policy and Practice</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 611</td>
<td>Leadership and Change Management</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 614</td>
<td>Financial and Cost Accounting</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 620</td>
<td>Economics of Technology Management</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 635</td>
<td>Decision Models and Methods</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 643</td>
<td>Managerial Finance</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 747</td>
<td>Enterprise Information Security Audit</td>
<td>2</td>
</tr>
<tr>
<td>MSIS 735</td>
<td>Capstone Project</td>
<td>3</td>
</tr>
<tr>
<td>or MSEC 720</td>
<td>Capstone Project in Management of Secure Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>MSIS 750</td>
<td>Global Practices in Security of Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>or MSEC 710</td>
<td>Global Residency</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 36

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**Department of Bioengineering**

Phone: 703-993-5846  
Email: bioeng@gmu.edu  
Website: bioengineering.gmu.edu

Bioengineering involves the application of tools and concepts in engineering and computation to problems in biology or medicine. The impact of engineering and computer science on biomedicine is wide ranging, from advanced biomedical imaging technologies to novel computational models of protein dynamics. With an aging population, the growing costs of health care, and the impact of novel technology to fundamental understanding in biosciences, the demand for bioengineers is growing. This program provides students with a solid foundation in engineering while offering in-depth exposure to the life sciences. Bioengineering faculty members collaborate with colleagues at George Mason University and nearby institutions including Inova Health Center, and federal laboratories such as the Naval Research Laboratory, the National Institutes of Health Clinical Center, and the National Institute of Standards and Technology. Research areas include:

- biomechanics
- biomedical imaging
- neuroengineering
- computational neuroscience
- nanoscale technology

The BS in Bioengineering is a challenging multidisciplinary training program with the goal of enabling graduates to be competitive for an entry-level position in the biomedical industry or to continue their education in graduate school or medical school. The curriculum provides a strong background in the biological and engineering fundamentals of bioengineering as well as upper level courses in areas of biomedical measurements, biomedical systems modeling, and bioinformatics. The department offers three concentrations: Biomedical Signals and Systems, Bioengineering Healthcare Informatics, and Bioengineering Prehealth. In addition the Bioengineering, BS program offers an Honors Program to outstanding students. Entry is by invitation and based on academic performance achieved at Mason.

The Bioengineering, MS (pending SCHEV Approval) prepares students for research and professional practice in bioengineering and related fields. This program comprises four core areas: biomechanics, biomaterials, biomedical imaging, and neuroengineering while offering three different options. Students can choose to focus their graduate work toward a career in academia (thesis option), or in industry (practicum or coursework option).

The Bioengineering, PhD is a research-intensive, multifaceted program which is comprised of four different concentrations. Students can choose to focus their graduate work in nanoscale bioengineering, neuroengineering, biomedical imaging or data-driven biomechanical modeling.

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**Faculty**

**Professors**  
Ascoli, Blackwell, Cebral, Mark (acting chair)

**Associate Professors**  
Ikonomidou, Sikdar

**Assistant Professors**  
Agrawal, Bray, Chitnis, Joiner, Salvador Morales, Wei

**Affiliated Professors**  
Civillico, Cohen, Cortes, Katona, Pancrazio, Peixoto, Pritz, Rangwala, Seshaiyer, Shah, Shehu, Shobeiri

**Programs**

- Bioengineering, BS  
- Bioengineering, MS (pending SCHEV approval)  
- Bioengineering, PhD

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**Bioengineering, BS**  
Banner Code: VS-BS-BIOE  
Academic Advising  
Phone: 703-993-4190  
Email: cborke@gmu.edu  
Website: http://bioengineering.gmu.edu/bs-in-bioengineering/
Bioengineering, also referred to as biomedical engineering, is the application of engineering tools and approaches to solve problems in biology and medicine. It is a broad and growing field that draws upon rapid advances in technology and computation, as well as on unprecedented growth in basic biological understanding.

This program concentrates on making measurements and analyzing complex data. It is challenging since it will provide a solid foundation in engineering, and also give in-depth exposure to the life sciences. The impact of engineering and computer science on biomedicine is wide, ranging from improved medical diagnosis through advanced imaging technologies, to enhanced understanding in rehabilitation gained by computational models of limb movement. With the growing demand for better health care, the need for bioengineers is expected to be high.

The multidisciplinary training in this field will make graduates competitive for a position in government or the biomedical industry. It also enables students to continue their education in graduate school or medical school.

The bachelor's program in Bioengineering is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

**Concentrations**

The concentrations in the BS Bioengineering program are:

- Biomedical Signals and Systems (BMSS)
- Bioengineering Healthcare Informatics (BHI)
- Bioengineering Prehealth (BMPH)

The BMSS concentration emphasizes the systems and methods for acquisition and analysis of biomedical signals whereas the BHI concentration focuses on the management, analysis and visualization of data related to biomedical and healthcare applications. The BMPH concentration prepares students for continued studies as a health care professional in medicine, dentistry, or veterinary medicine.

**Educational Objectives**

The educational objectives of the Bioengineering undergraduate program are the following:

- Alumni electing to work after graduation (for example, in industry or government) will contribute to the development or application of new products or processes that are of benefit to society.
- Alumni electing to continue their formal education will have completed their studies, or will have made demonstrable progress toward an advanced degree in their chosen profession.
- Alumni will communicate and perform effectively as members or leaders of multi-disciplinary teams.
- Alumni will continue to enhance their skills and knowledge in a quest for further professional development.

**Advising**

All Bioengineering students are required to meet with their departmental academic advisor prior to course registration each semester. Students who are considering bioengineering as their major must meet with the Volgenau School of Engineering Coordinator of Undergraduate Advising in 2500 Nguyen Engineering Building.

**Change of Major**

See Change of Major (p. 955) for more information.

**Termination from the Major**

No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student's advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student's major was at the time the courses were taken.

**Writing-Intensive Requirement**

Mason’s writing-intensive requirement is satisfied by BENG 304 Modeling and Control of Physiological Systems and BENG 495 Bioengineering Senior Seminar II in which faculty provide feedback on student writing assignments.

**Requirements**

**Degree Requirements**

Total credits: 120-135

Students must complete each BENG, BIOL, ECE and ENGR course presented as part of the required credits for the degree with a grade of C or better.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 101</td>
<td>Introduction to Bioengineering</td>
<td>3</td>
</tr>
<tr>
<td>BENG 220</td>
<td>Physical Bases of Biomedical Systems</td>
<td>3</td>
</tr>
</tbody>
</table>
Bioengineering, BS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BENG 301</td>
<td>Bioengineering Measurements</td>
<td>3</td>
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<tr>
<td>BENG 302</td>
<td>Bioengineering Measurements Lab</td>
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</tr>
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<td>BENG 304</td>
<td>Modeling and Control of Physiological Systems</td>
<td>3</td>
</tr>
<tr>
<td>BENG 320</td>
<td>Bioengineering Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>BENG 380</td>
<td>Introduction to Circuits and Electronics</td>
<td>3</td>
</tr>
<tr>
<td>BENG 381</td>
<td>Circuits and Electronics Lab</td>
<td>1</td>
</tr>
<tr>
<td>BENG 420</td>
<td>Bioinformatics for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>BENG 491</td>
<td>Bioengineering Senior Seminar I</td>
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</tr>
<tr>
<td>BENG 492</td>
<td>Senior Advanced Design Project I (Mason Core)</td>
<td>2</td>
</tr>
<tr>
<td>BENG 493</td>
<td>RS: Senior Advanced Design Project II (Mason Core)</td>
<td>2</td>
</tr>
<tr>
<td>BENG 495</td>
<td>Bioengineering Senior Seminar II</td>
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</table>

Total Credits: 29

<table>
<thead>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BENG 313</td>
<td>Physiology for Engineers</td>
<td>3</td>
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Total Credits: 7

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<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CS 211</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>or CS 222</td>
<td>Computer Programming for Engineers</td>
<td></td>
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Total Credits: 7

<table>
<thead>
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
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</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 20

1 All students in the Bioengineering program are required to register for the specific section of MATH 203 that includes a 1-hour recitation with Matlab applications.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core)</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 8

Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core)</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 2

Communication

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 101</td>
<td>Interpersonal and Group Interaction (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

Concentrations

Select one concentration and complete all requirements therein.

Concentration in Bioengineering Healthcare Informatics (BHI)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 322</td>
<td>Health Data Challenges</td>
<td>3</td>
</tr>
<tr>
<td>or HAP 436</td>
<td>Electronic Health Data in Process Improvement</td>
<td></td>
</tr>
</tbody>
</table>

Chemistry

Select 4 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 251</td>
<td>General Chemistry for Engineers (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Health Administration & Policy

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 301</td>
<td>Health Care Delivery in the United States</td>
<td>3</td>
</tr>
<tr>
<td>HAP 360</td>
<td>Introduction to Health Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Information Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>or HAP 361</td>
<td>Health Databases</td>
<td></td>
</tr>
</tbody>
</table>

Social and Behavioral Science

Choose one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 101</td>
<td>Introductory Sociology (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Technical Electives

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 341</td>
<td>Introduction to Biomaterials</td>
<td>3</td>
</tr>
<tr>
<td>BENG 390</td>
<td>Engineering Design and Fabrication</td>
<td></td>
</tr>
<tr>
<td>BENG 392</td>
<td>Engineering Design Studio</td>
<td></td>
</tr>
<tr>
<td>BENG 395</td>
<td>RS: Mentored Research in Bioengineering</td>
<td></td>
</tr>
<tr>
<td>BENG 406</td>
<td>Introduction to Biomechanics</td>
<td></td>
</tr>
<tr>
<td>BENG 421</td>
<td>Introduction to Tissue Engineering</td>
<td></td>
</tr>
<tr>
<td>BENG 437</td>
<td>Medical Image Processing</td>
<td></td>
</tr>
<tr>
<td>BENG 441</td>
<td>Nanotechnology in Health</td>
<td></td>
</tr>
<tr>
<td>BENG 451</td>
<td>Translation and Entrepreneurship in Bioengineering</td>
<td></td>
</tr>
<tr>
<td>BENG 499</td>
<td>Special Topics in Bioengineering</td>
<td></td>
</tr>
<tr>
<td>BENG 525</td>
<td>Neural Engineering</td>
<td></td>
</tr>
<tr>
<td>BENG 538</td>
<td>Medical Imaging</td>
<td></td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>BENG 541</td>
<td>Biomaterials</td>
<td></td>
</tr>
<tr>
<td>BENG 550</td>
<td>Advanced Biomechanics</td>
<td></td>
</tr>
<tr>
<td>ECE 305</td>
<td>Electromagnetic Theory</td>
<td></td>
</tr>
<tr>
<td>ECE 350</td>
<td>Embedded Systems and Hardware Interfaces</td>
<td></td>
</tr>
<tr>
<td>ECE 370</td>
<td>Robot Design</td>
<td></td>
</tr>
<tr>
<td>ECE 410</td>
<td>Applications of Discrete-Time Signal</td>
<td></td>
</tr>
<tr>
<td>ECE 421</td>
<td>Classical Systems and Control Theory</td>
<td></td>
</tr>
<tr>
<td>ECE 450</td>
<td>Introduction to Robotics</td>
<td></td>
</tr>
<tr>
<td>ME 313</td>
<td>Material Science</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 28

Students may choose to substitute one of the technical electives with one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 305 &amp; BIOL 306</td>
<td>Biology of Microorganisms and Biology of Microorganisms Laboratory</td>
</tr>
<tr>
<td>CHEM 313 &amp; CHEM 315</td>
<td>Organic Chemistry I and Organic Chemistry Lab I</td>
</tr>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
</tr>
<tr>
<td>CS 444</td>
<td>Introduction to Computational Biology</td>
</tr>
<tr>
<td>CS 445</td>
<td>Computational Methods for Genomics</td>
</tr>
<tr>
<td>NEUR 327</td>
<td>Cellular, Neurophysiological, and</td>
</tr>
<tr>
<td></td>
<td>Pharmacological Neuroscience</td>
</tr>
<tr>
<td>PSYC 372</td>
<td>Physiological Psychology</td>
</tr>
</tbody>
</table>

**Concentration in Bioengineering Prehealth (BMPH)**

**Biology**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 305 &amp; BIOL 306</td>
<td>Biology of Microorganisms and Biology of Microorganisms Laboratory</td>
</tr>
<tr>
<td>BIOL 311</td>
<td>General Genetics</td>
</tr>
<tr>
<td>BIOL 322 &amp; BIOL 323</td>
<td>Developmental Biology and Lab for Developmental Biology</td>
</tr>
<tr>
<td>BIOL 326</td>
<td>Animal Physiology</td>
</tr>
<tr>
<td>BIOL 382</td>
<td>Introduction to Virology</td>
</tr>
<tr>
<td>BIOL 430</td>
<td>Advanced Human Anatomy and Physiology I</td>
</tr>
</tbody>
</table>

And select one from the following: 3-4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td></td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHEM 212 &amp; CHEM 214</td>
<td>General Chemistry II (Mason Core) (p. 135)</td>
</tr>
<tr>
<td></td>
<td>General Chemistry Laboratory II (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHEM 313</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>CHEM 314</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>CHEM 315</td>
<td>Organic Chemistry Lab I</td>
</tr>
<tr>
<td>CHEM 318</td>
<td>Organic Chemistry Lab II</td>
</tr>
</tbody>
</table>

**Chemistry**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 301</td>
<td>Digital Electronics</td>
</tr>
</tbody>
</table>

**Psychology and Sociology**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 100</td>
<td>Basic Concepts in Psychology (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>SOCI 101</td>
<td>Introductory Sociology (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

**Technical Electives**

Select 6 credits from the following: 6

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 341</td>
<td>Introduction to Biomaterials</td>
</tr>
<tr>
<td>BENG 390</td>
<td>Engineering Design and Fabrication</td>
</tr>
<tr>
<td>BENG 392</td>
<td>Engineering Design Studio</td>
</tr>
<tr>
<td>BENG 395</td>
<td>RS: Mentored Research in Bioengineering</td>
</tr>
<tr>
<td>BENG 406</td>
<td>Introduction to Biomechanics</td>
</tr>
<tr>
<td>BENG 421</td>
<td>Introduction to Tissue Engineering</td>
</tr>
<tr>
<td>BENG 437</td>
<td>Medical Image Processing</td>
</tr>
<tr>
<td>BENG 441</td>
<td>Nanotechnology in Health</td>
</tr>
<tr>
<td>BENG 499</td>
<td>Special Topics in Bioengineering</td>
</tr>
<tr>
<td>BENG 525</td>
<td>Neural Engineering</td>
</tr>
<tr>
<td>BENG 538</td>
<td>Medical Imaging</td>
</tr>
<tr>
<td>BENG 541</td>
<td>Biomaterials</td>
</tr>
<tr>
<td>BENG 550</td>
<td>Advanced Biomechanics</td>
</tr>
<tr>
<td>ECE 305</td>
<td>Electromagnetic Theory</td>
</tr>
<tr>
<td>ECE 350</td>
<td>Embedded Systems and Hardware Interfaces</td>
</tr>
<tr>
<td>ME 313</td>
<td>Material Science</td>
</tr>
</tbody>
</table>

Total Credits: 40-41

**Concentration in Biomedical Signals and Systems (BMSS)**

**Chemistry/Physics**

Choose one of the following: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 251</td>
<td>General Chemistry for Engineers (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>CHEM 211 &amp; CHEM 213</td>
<td>General Chemistry I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td></td>
<td>General Chemistry Laboratory I (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Select one sequence of Mason Core Natural Science: 4

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 262 &amp; PHYS 263</td>
<td>University Physics III (Mason Core) (p. 135)</td>
</tr>
<tr>
<td></td>
<td>General Chemistry Laboratory II (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

**Social and Behavioral Science**

Choose one of the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>
PSYC 100  Basic Concepts in Psychology (Mason Core) (p. 135)

SOCI 101  Introductory Sociology (Mason Core) (p. 135)

Electrical and Computer Engineering
ECE 301  Digital Electronics  3

Technical Electives
Select 12 credits from the following:  12
BENG 341  Introduction to Biomaterials  3
BENG 390  Engineering Design and Fabrication  3
BENG 392  Engineering Design Studio  1
BENG 395  RS: Mentored Research in Bioengineering  1-3
BENG 406  Introduction to Biomechanics  3
BENG 421  Introduction to Tissue Engineering  3
BENG 437  Medical Image Processing  3
BENG 441  Nanotechnology in Health  3
BENG 451  Translation and Entrepreneurship in Bioengineering  3
BENG 499  Special Topics in Bioengineering  4
BENG 525  Neural Engineering  3
BENG 538  Medical Imaging  3
BENG 541  Biomaterials  3
BENG 550  Advanced Biomechanics  3
ECE 305  Electromagnetic Theory  3
ECE 350  Embedded Systems and Hardware Interfaces  3
ECE 370  Robot Design  3
ECE 410  Applications of Discrete-Time Signal Processing  3
ECE 421  Classical Systems and Control Theory  3
ECE 450  Introduction to Robotics  3
ME 313  Material Science  3

Total Credits  86-88

1 Students may substitute CHEM 212 and CHEM 214 for PHYS 262 and PHYS 263.

Students may choose to substitute one of the technical electives with one of the following:

BIOL 305  Biology of Microorganisms  4
& BIOL 306  and Biology of Microorganisms Laboratory
CHEM 313  Organic Chemistry I  5
& CHEM 315  and Organic Chemistry Lab I
CS 310  Data Structures  3
CS 444  Introduction to Computational Biology  3
CS 445  Computational Methods for Genomics  3
NEUR 327  Cellular, Neurophysiological, and Pharmacological Neuroscience  3
PSYC 372  Physiological Psychology  3

Additional Mason Core
Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements. BENG 492 Senior Advanced Design Project I (Mason Core) (p. 135) and BENG 493 RS: Senior Advanced Design Project II (Mason Core) (p. 135) are approved to meet the Synthesis/Capstone requirement.

Written Communication (p. 135)  6
Literature (p. 140)  3
Arts (p. 137)  3
Western Civilization/World History (p. 143)  3
Global Understanding (p. 139)  3

Total Credits  18

Honors

Honors in the Major
The Department of Bioengineering offers an Honors Program that creates a community of outstanding scholars in bioengineering who share a commitment to learning, service, and leadership. The Program is based on the bioengineering curriculum, and is distinct from the University Honors Curriculum.

Eligibility
Entry to the Honors Program is by invitation, extended to students with a declared major in Bioengineering who have completed a minimum of 30 credit hours at Mason with a minimum cumulative GPA of 3.50 and a minimum GPA of 3.20 in each prior semester.

Honors Requirements
The Honors Program is challenging and designed for the highly motivated student with interests in any of the bioengineering concentrations. Honors students must satisfy requirements in addition to those of the normal BS degree in bioengineering, including:

- Successful completion of BENG 395 RS: Mentored Research in Bioengineering
- Six credits must be earned by taking a combination of BENG 5XX/6XX level courses. With permission of the Department of Bioengineering, 5XX/6XX level courses from other Volgenau School of Engineering programs may be considered.

Once admitted to the Honors Program, students must remain in good standing and maintain a minimum cumulative GPA of 3.50 and a minimum GPA of 3.20 in each semester for all courses counting toward the BS degree in bioengineering, maintain continuous enrollment working towards the degree, and abide by the Mason Honor Code.

Accelerated Master's

BS (selected)/Statistical Science, Accelerated MS
Overview
Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Statistical Science, MS (p. 1064). Students in an accelerated degree program must fulfill all university requirements for the master’s degree.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).
Admission Requirements

Students enrolled in a BS degree in any one of the Volgenau School (p. 953) major areas, in the Mathematics, BS (p. 716) program from the College of Science (p. 593), or in the Economics, BS (p. 342) program from the College of Humanities and Social Sciences (p. 295) may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.00. Criteria for admission are identical to criteria for admission to the Statistical Science, MS (p. 1064) program, which include successful completion of the following Mason courses each with a grade of C or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 321</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 351</td>
<td>Probability</td>
<td></td>
</tr>
</tbody>
</table>

Accelerated Option Requirements

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with grades of B or better in two 500-level STAT courses selected from STAT 544 Applied Probability, STAT 554 Applied Statistics I, and STAT 574 Survey Sampling I.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and Graduate Recruitment and Enrollment Services. At the completion of MS requirements, a master’s degree is conferred.

BS (selected)/Data Analytics Engineering, Accelerated MS

Overview

Qualified undergraduate students have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959) with a concentration in predictive analytics.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

While no specific undergraduate degree is required, Mason undergraduate students majoring in systems engineering or any other engineering, business, computer science, statistics, mathematics, or information technology may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30.

For the predictive analytics concentration, students must submit evidence of:

- Satisfactory completion of courses in calculus, applied probability and statistics, and a scientific programming language.
- Familiarity with analytical modeling software, such as spreadsheets or math packages.

Accelerated Option Requirements

Students must complete all credits that satisfy requirements for the BS and MS programs, with six credits overlap chosen from the courses in the following table. For BS candidates, these graduate courses replace the corresponding undergraduate courses listed. The undergraduate version of these courses may not be applied toward the MS degree.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 473</td>
<td>SYST 573</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 541</td>
</tr>
</tbody>
</table>

For the predictive analytics concentration, any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

OR 541 Operations Research: Deterministic Models will substitute for the OR 531 Analytics and Decision Analysis core requirement in the MS DAE program.

Bioengineering, BS/Data Analytics Engineering, Accelerated MS

Overview

Highly-qualified students in the Bioengineering, BS (p. 970) have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959) with a concentration in Bioengineering.

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Bioengineering, BS (p. 970) program may apply to this option if they have earned 95 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 222 Computer Programming for Engineers and BENG 320 Bioengineering Signals and Systems. Criteria for admission are identical to criteria for admission to the Bioengineering concentration of the Data Analytics Engineering, M (p. 959)S program.
Accelerated Option Requirements

Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of 500-level basic courses in place of the corresponding BENG 400-level courses required for the undergraduate degree requirements. Specifically, students must register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 501</td>
<td>Bioengineering Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining (in place of BENG 420)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

Note:

Students are permitted to take additional graduate basic courses in their undergraduate programs. In such cases, those classes cannot be counted toward requirements for the MS.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Bioengineering, MS (pending SCHEV approval)

Banner Code: VS-MS-BIOE

Academic Advising

Phone: 703-993-2218
Email: lbray2@gmu.edu
Website: bioengineering.gmu.edu/bioengineering-masters-program/

Note: as of catalog publication in April, the program described below has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia for consideration as a new degree program. The university cannot accept applications or enroll students in this program until SCHEV approval has been granted. Check the college/school website for current program status.

The Bioengineering graduate program prepares students for research and professional practice in bioengineering and related fields. The program includes both fundamentals and advanced work to apply engineering techniques to solve problems in biology and medicine. A major distinguishing feature of the curriculum is that it is designed to educate leaders who understand and appreciate how biomedical technology is translated from bench to bedside. Regardless whether they will eventually serve at universities, industry or government, they will understand that new types of devices and processes resulting from their graduate experience need to be improved and made cost-effective to reach the public. As demanded by their leadership positions, they will recognize that entrepreneurial considerations that are essential for determining whether a planned diagnostic or therapeutic approach is practical from an investment perspective and is likely to produce societal benefit.

Admissions & Policies

Admissions

Applicants must have completed a baccalaureate degree in engineering or the sciences from an accredited program and an earned GPA of 3.0 or better in their 60 highest-level credits.

In addition to fulfilling Mason’s admission requirements for graduate study, applicants seeking to be admitted must:

- Demonstrate interest in combining engineering or natural sciences with basic or applied biology as demonstrated by the BS degree, course selection, or project work.
- Provide two letters of recommendation, from references who are familiar with the applicant’s professional accomplishments.
- Provide a resume and detailed statement of career goals and professional aspirations.
- If their native language is not English, students must earn a minimum TOEFL score of 575 for the paper-based exam or 230 for the computer-based exam.
- Official GRE scores.

Requirements

Degree Requirements

Total credits: 30-33

Students complete the Core Bioengineering requirements, the Additional Training Requirement, and Requirements within one selected option.

Core Bioengineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 525</td>
<td>Neural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>BENG 538</td>
<td>Medical Imaging</td>
<td>3</td>
</tr>
<tr>
<td>BENG 541</td>
<td>Biomaterials</td>
<td>3</td>
</tr>
<tr>
<td>BENG 550</td>
<td>Advanced Biomechanics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

Thesis Option

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 501</td>
<td>Bioengineering Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>Thesis Research</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits: 9

Career Specialization

These courses are to be chosen to give students career skills in teaching, entrepreneurship and/or health care policy.

Select one course from one of the following specializations: 3

Teaching

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HE 602</td>
<td>College Teaching</td>
</tr>
<tr>
<td>HE 704</td>
<td>The Scholarship of Teaching and Learning</td>
</tr>
</tbody>
</table>

Entrepreneurship

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 781</td>
<td>Entrepreneurship and Economic Development</td>
</tr>
</tbody>
</table>
Health Care Policy

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HAP 715</td>
<td>Health Economics</td>
</tr>
<tr>
<td>HAP 742</td>
<td>Health Policy Development and Analysis</td>
</tr>
<tr>
<td>HAP 762</td>
<td>Cost-Effectiveness for Health Care Management and Policy Decisions</td>
</tr>
</tbody>
</table>

Total Credits 3

Technical Specialization

These upper-level technical courses are to be chosen to give students technical depth in an area of their interest. The courses are to be selected under the guidance and with the approval of the student’s advisor. At least one of the two classes must be at the 700 level.

Select two of the following: 6

<table>
<thead>
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</tr>
<tr>
<td>CS 795</td>
<td>Advanced Topics in CS</td>
</tr>
<tr>
<td>CSI 720</td>
<td>Fluid Mechanics</td>
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<td>CSI 742</td>
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<tr>
<td>CSI 780</td>
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<td>Introduction to Digital Image Processing (DIP)</td>
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<td>PHYS 612</td>
<td>Physics of Modern Imaging</td>
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<td>PSYC 701</td>
<td>Cognitive Bases of Behavior</td>
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<td>Advanced Topics in Statistical Analysis</td>
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</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
</tr>
</tbody>
</table>

Total Credits 6

Students cannot begin thesis research until the completion of their second semester of coursework. Once enrolled students must maintain continuous registration in thesis research until graduation, excluding summers. Students who defend in the summer must be registered for at least 1 credit of thesis research during that summer term.

Committee Selection

Each student must form a master’s committee comprising three individuals. A minimum of two members of the committee must be tenured or tenure-track faculty in the Department of Bioengineering (p. 970). The other member must be from outside the department.

Thesis Research Proposal

Each student must prepare a written thesis proposal, and it must be presented before the completion of the first semester. The proposal must be made available to the committee at least two weeks in advance of the presentation. The proposal must be presented to and approved by the committee. The committee determines whether the proposal has merit and can lead to significant contributions to the area and whether the student has the knowledge and skills to complete the proposed work successfully and in a timely manner. If the student fails to defend the proposal, the student may present a proposal a second time, no later than 60 days from the first attempt. Failure in the second attempt results in dismissal from the program.

Thesis Preparation and Defense

While preparing the thesis, the candidate enrolls in thesis research. The candidate can proceed to a public defense of the thesis once it has been approved by the committee.

The defense must be announced at least two weeks in advance. The thesis draft must be submitted to the library and made publicly available at least two weeks in advance of the defense. The entire committee must be present at the defense. If the candidate fails to defend the thesis, the candidate may request a second defense, following the same procedures as for the initial defense. A candidate who fails a second attempt to defend the thesis is terminated from the program.

Practicum Option

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BENG 551</td>
<td>Translational Bioengineering</td>
</tr>
</tbody>
</table>

Internship/Co-Op

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 798</td>
<td>Independent Reading and Research in Bioengineering</td>
</tr>
</tbody>
</table>

Total Credits 9

1 Students are expected to complete 6 credits of BENG 798 Independent Reading and Research in Bioengineering towards their degree. Students cannot enroll in BENG 798 Independent Reading and Research in Bioengineering until the completion of their second semester of coursework. These credits must be taken along with an internship/co-op opportunity. Therefore, a letter from the specific employer must be provided on behalf of the student.

Electives

Career Specialization

These courses are to be chosen to give students career skills in teaching, entrepreneurship and/or health care policy.

Select one course from the following: 3
### Technical Specialization

These upper-level technical courses are to be chosen to give students technical depth in an area of their interest. The courses are to be selected under the guidance and with the approval of the student's advisor. At least one of the two classes must be at the 700 level.

Select two of the following:

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<td>PSYC 757</td>
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Total Credits: 6
under the guidance and with the approval of the student’s advisor. At least two of the four classes must be at the 700 level.

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</tr>
</tbody>
</table>

Total Credits 12

Note: Students who elect to the coursework option will complete a minimum of 33 credit hours.

Additional Training Requirement
Bioengineering Seminar
All MS students are required to attend a minimum of two departmental seminars per semester. Students will sign an attendance sheet available at the end of each seminar.

Bioengineering, PhD
Banner Code: VS-PHD-BIOE

Academic Advising
Phone: 703-993-5846
Email: amoon4@gmu.edu
Website: http://bioengineering.gmu.edu/bioengineering-phd-program/

Rapid advances in understanding the fundamental processes of disease have opened up new opportunities to advance human health through research that integrates biology, engineering, physics, and computer science. The doctoral program will prepare leaders in bioengineering in this broader, integrative sense of the discipline. A major distinguishing feature of the curriculum is its emphasis on understanding how biomedical technology is translated from bench to bedside. Graduates from this program will eventually serve at universities, industry or government in a variety of roles, including scientific research, technology development, and regulatory affairs.

Available Concentrations
Four concentration areas are offered, aligned with current faculty research expertise:

- Biomedical Imaging
- Data-driven Biomechanical Modeling
- Nano-scale Bioengineering
- NeuroEngineering

Admissions & Policies

Admissions

Application Requirements
In addition to fulfilling Mason’s admission requirements for graduate study, applicants should:

- Have a baccalaureate degree in engineering or the sciences from an accredited program with a reputation for high academic standards and an earned GPA of 3.3 or better in their highest-level engineering-related credits.
- Provide official GRE Scores: Quantitative (>70% percentile), Verbal (>50% percentile), and Analytical (>50% percentile).
- Provide three letters of recommendation, preferably from academic references or references in industry or government who are familiar with the applicant’s professional accomplishments.
- Provide a resume and detailed statement of career goals and professional aspirations.
- Demonstrate interest in combining engineering and the natural sciences with discovery and application in the life science; i.e., via a degree which reflects the desired combination (such as bioengineering, biophysics); a degree in engineering or the natural sciences which includes course work in life sciences; a degree
in biology which includes course work in mathematics, physics, or engineering; a project or research experience with combined complementary expertise.

- For international students only: Official TOEFL scores with a minimum requirement of 570 (paper-based), 230 (computer-based), or 88 points total AND no less than 20 points in each subsection (internet-based).

**Policies**

**Reduction of Credit**

Students must complete a minimum of 72 graduate credits, which may be reduced by a maximum of 30 credits from a related master's degree. Reduction of credit requires the approval of the program director or designee and the dean or designee of the school. They determine how many credits are eligible for the reduction of credit.

For students to remain eligible for the PhD program, they must maintain a “B” average. Grades of “C” or lower in courses cannot be counted towards degree completion.

**Program Requirements**

The bioengineering PhD program requires successful completion of coursework detailed in a plan of study, qualifying examination, dissertation proposal, and final dissertation defense. Additional training requirements include seminar attendance, ethics training, and mentoring and teaching experience. All the general requirements for doctoral degrees at Mason apply to this program as well.

**Requirements**

**Degree Requirements**

Total credits: 72-73

**Core Science**

**Biology Core**

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 682</td>
<td>Advanced Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>BMED 601</td>
<td>Cell and Molecular Physiology</td>
</tr>
<tr>
<td>BMED 605</td>
<td>Introduction to Human Anatomy</td>
</tr>
<tr>
<td>RHBS 710</td>
<td>Applied Physiology</td>
</tr>
</tbody>
</table>

Or equivalent courses approved by the student's advisor and director of the program

**Computation/Mathematics Core**

Select two from the following:

<table>
<thead>
<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
</tr>
<tr>
<td>ECE 535</td>
<td>Digital Signal Processing</td>
</tr>
<tr>
<td>MATH 685</td>
<td>Numerical Analysis</td>
</tr>
</tbody>
</table>

Or equivalent courses approved by the student's advisor and director of the program

**Total Credits**

9-10

1 Students who elect to take BMED 601 Cell and Molecular Physiology in the Biology Core will complete a minimum of 73 credit hours.

**Core Bioengineering**

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<tr>
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<td>Translational Bioengineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

**Technical Electives**

These graduate courses develop additional technical expertise in a student's PhD concentration, and provide background for career skills in the student's chosen path for professional development. A minimum of 9 credits should be at the 600-level or higher. These technical electives should cover scientific and/or technical (12 credits) and career (3 credits) skills, as detailed below:

**Scientific and/or Technical Skills**

Select 4 courses

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<td>Numerical Analysis</td>
</tr>
</tbody>
</table>

Or equivalent courses approved by the student's advisor and director of the program

**Total Credits**

12

1 To be chosen under the guidance and approval of the student's advisor.

**Career Skills**

One course will be focused on developing career skills relevant to college level teaching, entrepreneurship, or health care policy.

Select a 3 credit hour course from the following:

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PUBP 781</td>
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<td>HE 704</td>
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</tr>
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</table>

**Total Credits**

3

**Concentrations**

Select one concentration and complete the requirements therein.

**Biomedical Imaging (BMI)**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 538</td>
<td>Medical Imaging</td>
<td>3</td>
</tr>
<tr>
<td>BENG 537</td>
<td>Introduction to Medical Image Processing</td>
<td>3</td>
</tr>
<tr>
<td>BENG 738</td>
<td>Advanced Medical Image Processing</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select three more upper-level courses under the guidance and approval of the student's advisor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 636</td>
<td>Advanced Biomedical Signal Processing</td>
</tr>
<tr>
<td>BENG 830</td>
<td>Seminar in Biomedical Imaging</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
</tr>
<tr>
<td>CS 657</td>
<td>Mining Massive Datasets with MapReduce</td>
</tr>
<tr>
<td>CS 688</td>
<td>Pattern Recognition</td>
</tr>
<tr>
<td>ECE 738</td>
<td>Advanced Digital Signal Processing</td>
</tr>
</tbody>
</table>

1 Students who elect to take BMED 601 Cell and Molecular Physiology in the Biology Core will complete a minimum of 73 credit hours.
ECE 754  Optimum Array Processing I
OR 842  Models of Probabilistic Reasoning
PHYS 612  Physics of Modern Imaging
PSYC 757  Advanced Topics in Statistical Analysis
PSYC 768  Advanced Topics in Cognitive Science
STAT 760  Advanced Biostatistical Methods
SYST 842  Models of Probabilistic Reasoning

Or equivalent courses approved by the student's advisor and director of the program

Total Credits 18

1 At least two of the three classes must be at the 700-800 level.

Concentration in Data-Driven Biomechanical Modeling (DDBM)

Required Courses
BENG 538  Medical Imaging 3
BENG 550  Advanced Biomechanics 3
BENG 750  Modeling and Simulation of Human Movement 3

Electives
Select three more upper-level courses under the guidance and approval of the student’s advisor. 1
BENG 636  Advanced Biomedical Signal Processing
BENG 725  Computational Motor Control
BENG 738  Advanced Medical Image Processing
BENG 850  Seminar in Biomechanics
CS 795  Advanced Topics in CS
CSI 742  The Mathematics of the Finite Element Method
RHBS 711  Applied Physiology II
RHBS 746  Movement Control and Learning
STAT 662  Multivariate Statistical Methods
SYST 664  Bayesian Inference and Decision Theory

Or equivalent courses approved by the student's advisor and director of the program

Total Credits 18

1 At least two of the three classes must be at the 700-800 level.

Concentration in Nano-Scale Bioengineering (NBNR)

Required Courses
BENG 541  Biomaterials 3
BENG 641  Advanced Nanotechnology in Health 3
BENG 745  Biomedical Systems and Microdevices 3

Electives
Select three more upper-level courses under the guidance and approval of the student’s advisor. 1
BENG 840  Seminar in Nano-scale Bioengineering
BINF 740  Introduction to Biophysics
BIOL 669  Pathogenic Microbiology
CHEM 641  Solid State Chemistry
CHEM 660  Protein Biochemistry
CHEM 728  Introduction to Solid Surfaces
CHEM 814  Advanced Bioorganic Chemistry
CHEM 833  Physical Chemistry and Biochemistry

Or equivalent courses approved by the student's advisor and director of the program

Total Credits 18

1 At least two of the three classes must be at the 700-800 level.

Qualifying Examination
All students entering the Bioengineering PhD program are expected to pass a qualifying exam any time within the first year. The goal of the qualifying exam is to test the student’s preparation to undertake doctoral level research.

A committee consisting of the student’s advisor and at least two other members of the bioengineering graduate faculty will administer the exam. At least one of the faculty in the Qualifying Exam Committee must be from the bioengineering core faculty. The exam will test the student’s research competency as well as knowledge of core bioengineering concepts and competency in mathematics and computational methods. The exam will consist of a written research report submitted by the student, a research presentation by the student based on the report, and an oral exam by the committee.

Upon starting the PhD program, the student in consultation with their advisor will define a plan of study and a research topic for the qualifying exam. The topic could be a short original research project, or a review of relevant research in the student’s area. The qualifying exam committee will provide the student a list of readings that the student is expected to
master. The student will be expected to submit a research report to the committee and give a research presentation. The report and presentation should demonstrate the student's ability to articulate a research question or a testable hypothesis, an understanding of the significance of the work informed by a critical review of the relevant literature, an understanding of the relevant research methods, and the ability to analyze and interpret relevant data. Following the research presentation, the committee will administer a closed-door oral exam that will probe in depth of the student's understanding of the relevant concepts.

The Bioengineering PhD Committee will review the plan of study, the recommendation of the qualifying exam committee and the students' academic record. Based on this information, the PhD Committee will determine whether or not the student is qualified for the PhD program. If the student does not qualify on their first try, they will be allowed to repeat the exam in the following semester, but the same committee will administer the exam. A student who fails to qualify on their second try will be removed from the program.

**Dissertation Proposal**

Each student must prepare a written dissertation proposal. While preparing this proposal, the student enrolls in BENG 998 Doctoral Dissertation Proposal. The proposal must be made available to the committee at least two weeks in advance of the presentation. The proposal must be presented to and approved by the dissertation committee. The committee determines whether the proposal has merit and can lead to significant contributions to the area and whether the student has the knowledge and skills to complete the proposed work successfully and in a timely manner. Students may present their dissertation proposal only after passing the qualifying exam, and the presentation may not be on the same day as the qualifying exam. If the student fails to defend the proposal, the student may present a dissertation proposal a second time at a later date. Failure in the second attempt results in dismissal from the program. On completing this requirement successfully, the student is advanced to candidacy for the PhD degree.

**Advancement to Candidacy**

Each student must present and defend a written dissertation proposal to advance to candidacy. The student is eligible to advance to candidacy after passing the qualifying exam, and satisfactorily completing the required courses in an approved plan of study filed by the student, and completing a minimum of 6 credits of BENG 998 Doctoral Dissertation Proposal. All students must advance to candidacy within four years after initial enrollment in the program, unless special waiver is granted by the PhD committee for extenuating circumstances. If the student has not demonstrated satisfactory progress to the PhD committee by the end of the 4th year, they can be terminated from the program.

The proposal should at a minimum clearly articulate the research question and the specific aims of the research, provide a critical review of the literature and present the rationale and the significance of the research in addressing a gap in scientific knowledge, describe the research methods and study design in sufficient detail and present preliminary results demonstrating the feasibility of the research.

The proposal must be made available to the committee at least two weeks in advance of the presentation. The committee determines whether the proposal has merit and can lead to significant original contributions to the area.

Following the research presentation, the dissertation committee will ask the students a number of questions in a closed session to evaluate the students understanding of the relevant literature and methods that are broadly related to the chosen area of research, and whether the student has the knowledge and skills to complete the proposed work successfully and in a timely manner. If the dissertation committee feels that the student is not adequately prepared, they may recommend remedial measures, including additional coursework to address any gaps in knowledge, or modification of the aims of the proposal. The student can appear for advancement to candidacy a second time anytime within one year. Failure in the second attempt results in dismissal from the program. On completing this requirement successfully, the student is advanced to candidacy for the PhD degree.

**Dissertation Research**

Students are expected to complete 24 credits of BENG 998 Doctoral Dissertation Proposal and BENG 999 Doctoral Dissertation towards their degree. Students cannot enroll in BENG 998 Doctoral Dissertation Proposal before they have passed the qualifying exam. Students cannot enroll in BENG 999 Doctoral Dissertation before they have advanced to candidacy. Students who advanced to candidacy after the add period for a given semester must wait until the following semester to register for BENG 999 Doctoral Dissertation. Students cannot advance to candidacy and defend their dissertation during the same semester. In special cases, waivers may be granted by the PhD committee. Once enrolled in BENG 999 Doctoral Dissertation, students must maintain continuous registration in BENG 999 Doctoral Dissertation each semester until graduation, excluding summers. Students who defend in the summer must be registered for at least 1 credit of BENG 999 Doctoral Dissertation during that summer term.

<table>
<thead>
<tr>
<th>Select 24 credits from the following:</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>BENG 998 Doctoral Dissertation Proposal (9 credit minimum, 12 credit maximum)</td>
<td></td>
</tr>
<tr>
<td>BENG 999 Doctoral Dissertation (12 credit minimum)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

24

**Dissertation Committee Selection**

Each student must form a dissertation committee, comprising four or five individuals, including the members selected for the qualifying exam. A minimum of two members of the committee must be tenured or tenure-track faculty in the Department of Bioengineering. One member must be from outside the department. The chair of the dissertation committee must be tenured or tenure-track faculty in the Department of Bioengineering. The dissertation director can be a member of the Bioengineering graduate faculty with primary appointment outside of the Department of Bioengineering. The committee and the chair must be approved by the chair of the Department of Bioengineering.

**Dissertation Preparation and Defense**

While preparing the dissertation, the candidate enrolls in BENG 999 Doctoral Dissertation. The candidate can proceed to a public defense of the dissertation once their dissertation has been approved by the dissertation committee.

The dissertation must make significant contributions to its area as evidenced by refereed journal and/or conference publications. All students are expected to defend their dissertation within three years after defending their proposal, unless special waiver is granted by the PhD committee for extenuating circumstances.

The defense must be announced at least two weeks in advance. The dissertation draft must be submitted to the library and made publicly
available at least two weeks in advance of the defense. The entire dissertation committee must be present at the defense, unless an exception is approved by the director of the PhD in Bioengineering Program in advance of the defense. If the candidate fails to defend the dissertation, the candidate may request a second defense, following the same procedures as for the initial defense. There is no time limit for this request other than general time limits for the doctoral degree. A candidate who fails a second attempt to defend the dissertation is terminated from the program.

**Additional Training Requirements**

**Bioengineering Seminar**
All PhD students are required to attend a minimum of 3 departmental seminars per semester. Students will sign an attendance sheet available at the end of each seminar.

**Ethics Training**
Prior to beginning research studies in a Bioengineering laboratory, all PhD students must complete the on-line Collaborative Institutional Training Initiative (CITI) Responsible Conduct of Research course. CITI training modules provide students with an understanding of conflicts of interest, research misconduct, peer review, and authorship.

**Bioengineering Mentorship**
All PhD students are required to participate in mentoring at least one undergraduate Bioengineering senior design team for a duration of 1 year. PhD students work with the faculty advisor for the senior design team and are expected to apply translational and entrepreneurial concepts towards the mentorship of the team.

**Teaching Requirement**
All PhD students are required to participate in teaching activities in consultation with their major advisors. Teaching opportunities include presenting lectures, conducting recitation sessions, serving as a teaching assistant, working as a laboratory assistant, participating in teaching workshops, preparing course materials, and other related activities approved by the student’s advisor.

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**Department of Computer Science**

PhD program: csphd@gmu.edu  
MS programs: csgrad@gmu.edu  
Undergraduate programs: csug@gmu.edu  
General information: csinfo@gmu.edu  

Phone: 703-993-1530  
Fax: 703-993-1710  
Website: cs.gmu.edu

Computer science is a discipline concerned with the analysis, design, implementation, maintenance, and evolution of computer-based systems used in almost all walks of life. Computer science is at the center of the information revolution in the 21st century. Advanced computation tools and techniques are revolutionizing and transforming the way we work, play, communicate, collaborate, and conduct business. In addition, computational approaches are integral to several scientific and engineering fields such as computational sciences, bioinformatics, and health informatics, to name a few.

Computer scientists must be well-grounded not only in the theory of computing, but also in its application to diverse areas. Computer scientists must be capable of working closely with members of other professions associated with computing. Students who pursue this discipline will learn about programming languages, data structures, algorithms, operating systems, artificial intelligence, robotics, data mining, computer networking, cyber-security, databases and software engineering.

**Faculty**

**Department Faculty**

**Professors**

**Associate professors**
Allbeck, Ammann, Aydin, Domeniconi, Duric, Kosecka, Li, Lien, Lin, T. Maddox, Rangwala, Richards, Shehu, Stavrou, P. Wang, X. Wang, White

**Assistant professors**
Baldimitsi, Bell, Dobolyi, Gingold, Gordon, Kauffman, Kim, LaToza, Pathak, Snyder, Soundararajan, Zhong

**Instructors**
Otten, Russell

**Adjunct professors**
Baldo, Barlow, Batarseh, Conroy, Curts, Dubey, Ellis, Geldon, Greensberg, Greenland, Guidorizzi, He, Kacem, Kaznachey, King, Kodali, Kowalski, Macdowall, M. Maddox, Molloy, Nidiffer, Norbisrath, Pettit, Rasheed, Shin, Shuman, Smith, Wheeler

**Emeritus faculty**
Baum, DeJong, Hamburger, Rine, Sibley

**Programs**

- Applied Computer Science, BS  
- Computer Science Minor  
- Computer Science Undergraduate Certificate  
- Computer Science, BS  
- Computer Science, MS  
- Computer Science, PhD  
- Foundations of Information Systems Graduate Certificate  
- Information Security and Assurance Graduate Certificate  
- Information Security and Assurance, MS  
- Information Systems, MS  
- Software Engineering Graduate Certificate  
- Software Engineering Minor  
- Software Engineering, MS  
- Web-Based Software Engineering Graduate Certificate

**Applied Computer Science, BS**

Banner Code: VS-BS-ACS

**Academic Advising**
This program presents an innovative approach to the integration of computer science with other disciplines that require expertise in computing techniques. These disciplines do not merely use computing but create new and interesting problems for computer scientists.

### Admissions & Policies

#### Policies

**Advanced Placement, Credit by Exam**
A score of 4 on the Advanced Placement (AP) computer science exam qualifies students for credit in CS 112 Introduction to Computer Programming (Mason Core) (p. 135). A score of 4 on the International Baccalaureate (IB) computer science exam qualifies students for credits in CS 112 Introduction to Computer Programming (Mason Core) (p. 135), and a score of 5 or more qualifies students for credit in CS 211 Object-Oriented Programming.

#### Change of Major
Students requesting a change of major to Applied Computer Science must meet with the Volgenau School of Engineering Coordinator of Undergraduate Advising, 2500 Nguyen Engineering Building. Students requesting a change of major to Applied Computer Science must have a GPA of at least 2.75 in computer science and math courses and successfully completed one of CS 112 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=302778) or CS 211 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=302780), and one of MATH 113 (http://catalog.gmu.edu/preview_program.php?catoid=29&poid=28176) or MATH 114 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=305053), or MATH 125 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=305056), with a grade of B or better at Mason. See Change of Major (p. 955) for more information.

#### Grades
Students must earn a C or better in any course intended to satisfy a prerequisite for a computer science course. Applied Computer Science majors may not use more than one course with a grade of C- or D toward department requirements.

#### Program Requirements
For the BS ACS degree, students must complete 120 credits, including the Mason Core (p. 135) requirements. The program requires foundation, core, and concentration courses. These course requirements provide expertise in programming, computer systems, software requirements and modeling, formal methods, and analysis of algorithms.

#### Repeating Courses
Students may attempt an undergraduate course taught by the Volgenau School of Engineering twice. A third attempt requires approval of the department offering the course. This policy does not apply to STAT 250 Introductory Statistics I (Mason Core) (p. 135), which follows the normal university policy for repeating undergraduate courses.

The CS Department may not allow students to retake certain high-demand CS courses in which they have already earned a grade of C or better simply to improve their GPA.

#### Termination from the Major
No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

#### Writing-Intensive Requirement
Computer science majors complete the writing-intensive requirement through a sequence of projects and reports in CS 306 Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135) and CS 321 Software Engineering. Faculty members provide feedback on students’ expository writing.

### Requirements

#### Degree Requirements
Total credits: 120

Students must complete all foundation, core, elective, and communication requirements, and the requirements from one selected concentration.

#### Foundation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 110</td>
<td>Essentials of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CS 211</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
</tbody>
</table>

1. This course is an AP or IB requirement.
MATH 125  Discrete Mathematics I (Mason Core)  3
MATH 203  Linear Algebra  3
Total Credits  24
1 Must be taken within a student’s first year at the university.

Note:
MATH 104 Trigonometry and Transcendental Functions, MATH 105 Precalculus Mathematics, MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135), and courses with an IT designation (and any associated cross-listed courses) cannot be counted toward this degree.

Core
CS 262  Introduction to Low-Level Programming  3
CS 310  Data Structures  3
CS 321  Software Engineering  3
CS 330  Formal Methods and Models  3
CS 367  Computer Systems and Programming  4
CS 471  Operating Systems  3
CS 483  Analysis of Algorithms  3
Total Credits  22

Elective
Select one CS course numbered above 400, except CS 498 (p. 1328)  3
Total Credits  3

Communication
COMM 100  Public Speaking (Mason Core) (p. 135)  3
Total Credits  3

Concentration in Bioinformatics (BNF)
Foundation
PHYS 160  University Physics I (Mason Core) (p. 135)  3
PHYS 161  University Physics I Laboratory (Mason Core) (p. 135)  1
CHEM 201  Introductory Chemistry I (Mason Core) (p. 135)  3
BIOL 213  Cell Structure and Function (Mason Core) (p. 135)  4
CS 306  Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135)  3
STAT 344  Probability and Statistics for Engineers and Scientists I  3
Total Credits  17
1 Requires a grade of C or better to satisfy the Mason Core (http://catalog.gmu.edu/content.php?catoid=29&navoid=6253) synthesis requirement.

Core
BINF 450  Bioinformatics for Life Sciences  4
BIOL 482  Introduction to Molecular Genetics  3
BIOL 580  Computer Applications for the Life Sciences  3
CS 450  Database Concepts  3
BINF 401  Bioinformatics and Computational Biology I  3
or CS 444  Introduction to Computational Biology  3
BINF 402  Bioinformatics and Computational Biology II  3
or CS 445  Computational Methods for Genomics  3
Total Credits  19

Two Approved Electives Related to Bioinformatics
Select two approved electives (6 credits) related to bioinformatics with the student’s advisor and approved by the CS department  6
Total Credits  6

Additional Mason Core
Written Communication (p. 135)  6
Literature (p. 140)  3
Arts (p. 137)  3
Western Civilization/World History (p. 143)  3
Social and Behavioral Sciences (p. 142)  3
Global Understanding (p. 139)  3
Total Credits  21
1 Applied Computer Science majors must take the Natural Sciences section of ENGH 302 Advanced Composition (Mason Core) (p. 135).

Electives
Select 5 credits of electives  5
Total Credits  5

Concentration in Computer Game Design (CGDS)
Foundation
GAME 230  History of Computer Game Design  3
CS 306  Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135)  3
CS 325  Introduction to Game Design  3
CS 351  Visual Computing  3
AVT 104  Two-Dimensional Design and Color (Mason Core) (p. 135)  4
STAT 344  Probability and Statistics for Engineers and Scientists I  3
Total Credits  19
1 Requires a grade of C or better to satisfy the Mason Core (http://catalog.gmu.edu/content.php?catoid=29&navoid=6253) synthesis requirement.

Core
CS 425  Game Programming I  3
CS 426  Game Programming II  3
CS 451  Computer Graphics  3
AVT 382  2D Experimental Animation  3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVT 383</td>
<td>3D Experimental Animation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

**Approved Elective Related to Game Design**

Select one course from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 332</td>
<td>Object-Oriented Software Design and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>CS 455</td>
<td>Computer Communications and Networking</td>
<td></td>
</tr>
<tr>
<td>CS 475</td>
<td>Concurrent and Distributed Systems</td>
<td></td>
</tr>
<tr>
<td>CS 480</td>
<td>Introduction to Artificial Intelligence</td>
<td></td>
</tr>
<tr>
<td>CS 485</td>
<td>Autonomous Robotics</td>
<td></td>
</tr>
<tr>
<td>SWE 432</td>
<td>Design and Implementation of Software for the Web</td>
<td></td>
</tr>
<tr>
<td>GAME 332</td>
<td>RS: Story Design for Computer Games</td>
<td></td>
</tr>
<tr>
<td>AVT 370</td>
<td>Entrepreneurship in the Arts</td>
<td></td>
</tr>
<tr>
<td>AVT 374</td>
<td>Sound Art I</td>
<td></td>
</tr>
<tr>
<td>AVT 487</td>
<td>Advanced Topics: New Media Art</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

**Natural Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
</tbody>
</table>

Select one additional lab science

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

**Additional Mason Core**

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Communication (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>Literature (p. 140)</td>
<td>3</td>
</tr>
<tr>
<td>Western Civilization/World History (p. 143)</td>
<td>3</td>
</tr>
<tr>
<td>Social and Behavioral Sciences (p. 142)</td>
<td>3</td>
</tr>
<tr>
<td>Global Understanding (p. 139)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

**Concentration in Geography (GEOG)**

**Foundation**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 306</td>
<td>Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td>3</td>
</tr>
<tr>
<td>GGS 300</td>
<td>Quantitative Methods for Geographical Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

Select 6 credits of electives

<table>
<thead>
<tr>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
</tr>
</tbody>
</table>

**Concentration in Software Engineering (SWE)**

**Foundation**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
<tr>
<td>CS 306</td>
<td>Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

| Requires a grade of C or better to satisfy the Mason Core (http://catalog.gmu.edu/content.php?catoid=29&navoid=6253) synthesis requirement. |

**Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE 205</td>
<td>Software Usability Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>SWE 301</td>
<td>Internship Preparation</td>
<td>0</td>
</tr>
<tr>
<td>SWE 401</td>
<td>Internship Reflection</td>
<td>1</td>
</tr>
<tr>
<td>CS 332</td>
<td>Object-Oriented Software Design and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>SWE 437</td>
<td>Software Testing and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

**Concentration in Geography (GEOG)**

**Foundation**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 306</td>
<td>Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 101</td>
<td>Major World Regions (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 102</td>
<td>Physical Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 103</td>
<td>Human Geography (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>GGS 110</td>
<td>Introduction to Geoinformation Technologies</td>
<td>3</td>
</tr>
<tr>
<td>GGS 300</td>
<td>Quantitative Methods for Geographical Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

| Requires a grade of C or better to satisfy the Mason Core (http://catalog.gmu.edu/content.php?catoid=29&navoid=6253) synthesis requirement. |
SWE Related
Select 15 credits from the following:  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 450</td>
<td>Database Concepts</td>
<td></td>
</tr>
<tr>
<td>CS 455</td>
<td>Computer Communications and Networking</td>
<td></td>
</tr>
<tr>
<td>CS 463</td>
<td>Comparative Programming Languages</td>
<td></td>
</tr>
<tr>
<td>CS 465</td>
<td>Computer Systems Architecture</td>
<td></td>
</tr>
<tr>
<td>CS 468</td>
<td>Secure Programming and Systems</td>
<td></td>
</tr>
<tr>
<td>CS 475</td>
<td>Concurrent and Distributed Systems</td>
<td></td>
</tr>
<tr>
<td>CS 491</td>
<td>Industry-Sponsored Senior Design Project</td>
<td></td>
</tr>
<tr>
<td>SWE 432</td>
<td>Design and Implementation of Software for the Web</td>
<td></td>
</tr>
<tr>
<td>SWE 443</td>
<td>Software Architectures</td>
<td></td>
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</table>

Total Credits 15

Cross-Disciplinary

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGH 388</td>
<td>Professional and Technical Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following:  

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 333</td>
<td>Industrial and Organizational Psychology</td>
<td></td>
</tr>
<tr>
<td>COMM 320</td>
<td>Business and Professional Communication</td>
<td></td>
</tr>
<tr>
<td>COMM 335</td>
<td>Organizational Communication</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

Additional Mason Core

Written Communication (p. 135)  

- Literature (p. 140)  
- Arts (p. 137)  
- Western Civilization/World History (p. 143)  
- Social and Behavioral Sciences (p. 142)  
- Global Understanding (p. 139)  
- Natural Science (p. 141)

Total Credits 28

1 Applied Computer Science majors must take the Natural Sciences section of ENGH 302 Advanced Composition (Mason Core) (p. 135).

Honors Requirements

CS Honors Program students must fulfill all standard courses required by the Bachelor of Science in Computer Science or Applied Computer Science degree as well as the following additional requirements:

- GPA Requirement: Students must maintain an overall GPA of at least 3.50 and a GPA of at least 3.50 for courses which count towards the BS/CS or BS/ACS major including math, natural sciences, and all CS/SWE courses.
- Research Project Requirement: Students must complete a significant research project prior to graduation. Students should seek out a CS faculty member willing to serve as their research advisor for the project. The project should comprise original work by the student and be demonstrated via two channels:
  - a written project report that is approved by the student’s research advisor and submitted to the department;
  - a presentation of the project to an audience of students and/or faculty.
- Advanced Course Requirement: At least two Advanced Courses must be completed. A complete list of acceptable advanced courses is maintained by the CS department and is available on the department web site.

Accelerated Master’s

Applied Computer Science, BS/Computer Science, Accelerated MS

Overview

Highly-qualified students in the Applied Computer Science, BS (p. 983) have the option of obtaining an accelerated Computer Science, MS (p. 996).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Applied Computer Science, BS (p. 983) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 10

Accelerated Option Requirements

Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for CS 583...
Analysis of Algorithms and one of the following courses in place of the corresponding 400-level course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:

Students are permitted to take additional graduate basic courses in their undergraduate programs. In such cases, those classes cannot be counted toward requirements for the MS.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Applied Computer Science, BS/Data Analytics Engineering, Accelerated MS**

**Overview**

Highly-qualified students in the Applied Computer Science, BS (p. 983) have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Applied Computer Science, BS (p. 983) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
</tbody>
</table>

**Accelerated Option Requirements**

Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students must register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students in all concentrations of the Applied Computer Science, BS program must register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

3

Students in the Software Engineering and Bioinformatics concentrations of the Applied Computer Science, BS (p. 983) program must also register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

3

Students in the Computer Game Design and Geography concentrations of the Applied Computer Science, BS (p. 983) program must also register for one of the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
</tbody>
</table>

**Note:**

For students in the Computer Game Design and Geography concentrations of the Applied Computer Science, BS (p. 983) program, one of the 500 level courses will count as an elective towards their undergraduate degree.

Students are permitted to take additional graduate basic courses in their undergraduate programs. In such cases, those classes cannot be counted toward requirements for the MS.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Applied Computer Science, BS/Information Security and Assurance, Accelerated MS**

**Overview**

Highly-qualified students in the Applied Computer Science, BS (p. 983) program have the option of obtaining an accelerated Information Security and Assurance, MS (p. 1002) program.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Applied Computer Science, BS (p. 983) program can apply for this option if they have earned 90 undergraduate credits
with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

**Accelerated Option Requirements**

Students must complete all requirements for the BS and MS programs, with 6 credits overlapping.

Students register for two 500-level computer science core courses (6 credits) in place of the corresponding 400-level computer science courses, as part of the undergraduate degree requirements. Specifically, students must take

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following: 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
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</tr>
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<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td></td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Note:

Students complete all MS in Information Security and Assurance (p. 1002) core courses and apply the two courses from the above list toward the degree requirements.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Applied Computer Science, BS/Information Systems, Accelerated MS**

Highly-qualified students in the Applied Computer Science, BS (p. 983) program have the option of obtaining an accelerated Information Systems, MS (p. 1006). See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Applied Computer Science, BS (p. 983) program can apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Data Structures</td>
<td>3</td>
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<td>Formal Methods and Models</td>
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<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap.

Students register for two 500-level computer science core courses (6 credits) in place of the corresponding 400-level computer science courses, as part of the undergraduate degree requirements. Specifically, students must take

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following: 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
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<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
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<td>Computer Graphics</td>
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<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Note:

Students complete all MS in Information Systems core courses and apply the two courses from above toward the elective requirements.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Applied Computer Science, BS/Software Engineering, Accelerated MS**

Highly-qualified students in the Applied Computer Science, BS (p. 983) have the option of obtaining an accelerated Software Engineering, MS (p. 1012). See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89).
Students in an accelerated degree program must fulfill all university requirements for the master’s degree. For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Applied Computer Science, BS (p. 983) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
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<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
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<td>4</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>10</strong></td>
</tr>
</tbody>
</table>

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap.

Students register for two 500-level computer science core courses (6 credits) in place of the corresponding 400-level computer science courses, as part of the undergraduate degree requirements. Specifically, students must take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td></td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td></td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td></td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td></td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td></td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Note:

Students complete all Software Engineering, MS (p. 1012) core courses and apply the two courses from the above list toward the elective requirements.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Computer Science Minor**

**Banner Code:** CS

**Academic Advising**

Phone: 703-993-1530

Email: csinfo@gmu.edu
Website: http://cs.gmu.edu/prospective-students/undergraduate-programs/minors-and-undergraduate-certificate/

**Admissions & Policies**

**Admissions**

**Declaring a CS Minor**

Students requesting a Computer Science Minor must have completed CS 112 Introduction to Computer Programming (Mason Core) (p. 135) or CS 211 Object-Oriented Programming with a grade of B or better.

**Policies**

**Grades**

No more than 3 credits of D grades may be used to satisfy requirements for the Computer Science Minor.

**Program Requirements**

The minor in computer science requires completion of at least 19 credits. Students should pay careful attention to prerequisites when selecting courses.

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 19-20

**Required Courses**

- CS 112 Introduction to Computer Programming (Mason Core) (p. 135) 4
- CS 211 Object-Oriented Programming 3
- CS 310 Data Structures 3

**Total Credits** 10

**Additional Computer Science Courses**

Select three from the following: 9-10

- CS 222 Computer Programming for Engineers
- CS 262 Introduction to Low-Level Programming
- CS 306 Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135)
- CS 321 Software Engineering
- CS 325 Introduction to Game Design
- CS 330 Formal Methods and Models
- CS 332 Object-Oriented Software Design and Implementation
- CS 367 Computer Systems and Programming
- CS 450 Database Concepts
- CS 451 Computer Graphics
- CS 455 Computer Communications and Networking
- CS 463 Comparative Programming Languages
Computer Science Undergraduate Certificate

Banner Code: VS-CERB-CS

Academic Advising

Phone: 703-993-1530
Email: csinfo@gmu.edu
Website: http://cs.gmu.edu/prospective-students/undergraduate-programs/undergraduate-certificate/

This certificate targets students who are working on or possess an undergraduate degree in a technical (science or engineering) field but lack a formal credential in the computer science field. The certificate also targets students who have shown an aptitude for graduate study but do not have the academic prerequisites required for admittance into a graduate MS computer science program.

The undergraduate certificate in computer science may be pursued on a full-time basis except when limited by prerequisite constraints.

Admissions & Policies

Admissions

Students must have programming experience at the level of CS 112 Introduction to Computer Programming (Mason Core) (p. 135) and CS 211 Object-Oriented Programming, and either a BS in a technical field with a 3.00 GPA or higher or current enrollment in a technical undergraduate major.

Requirements

Certificate Requirements

Total credits: 28

Basic Computer Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 262</td>
<td>Introduction to Low-Level Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
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<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
<tr>
<td>CS 471</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 16

Mathematics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

Completion of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 483</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
</tbody>
</table>

AND two of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 321</td>
<td>Software Engineering</td>
<td></td>
</tr>
<tr>
<td>CS 440</td>
<td>Language Processors and Programming Environments</td>
<td></td>
</tr>
<tr>
<td>CS 450</td>
<td>Database Concepts</td>
<td></td>
</tr>
<tr>
<td>CS 451</td>
<td>Computer Graphics</td>
<td></td>
</tr>
<tr>
<td>CS 455</td>
<td>Computer Communications and Networking</td>
<td></td>
</tr>
<tr>
<td>CS 465</td>
<td>Computer Systems Architecture</td>
<td></td>
</tr>
<tr>
<td>CS 468</td>
<td>Secure Programming and Systems</td>
<td></td>
</tr>
<tr>
<td>CS 480</td>
<td>Introduction to Artificial Intelligence</td>
<td></td>
</tr>
<tr>
<td>CS 484</td>
<td>Data Mining</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 9

Computer Science, BS

Banner Code: VS-BS-CS

Academic Advising

Phone: 703-993-1530
Email: csug@gmu.edu
Website: http://cs.gmu.edu/prospective-students/undergraduate-programs/bs-in-computer-science/

The objectives of the BS in Computer Science Program relate to the abilities of the graduates several years after graduation. The objectives include:

- Foundation for successful careers in industry: Graduates of the program will have a broad understanding of the fundamental concepts, methodologies, tools, and applications of computer science. They will have the educational foundation that leads to successful careers in the computing industry.
- Foundation for graduate study: Graduates of the program will have the academic preparation for successful completion of rigorous graduate programs.
- Professional preparation: Graduates will have effective written and oral communication skills, and be able to work collaboratively in a professional and ethical manner.

This bachelor's degree program is accredited by the Computing Accreditation Commission of ABET (http://www.abet.org).

Admissions & Policies

Policies

Advanced Placement, Credit by Exam

A score of 4 on the Advanced Placement (AP) computer science exam qualifies the student for credit in CS 112 Introduction to Computer Programming.
Programming (Mason Core) (p. 135). A score of 4 on the International Baccalaureate (IB) computer science exam qualifies students for credit in CS 112 Introduction to Computer Programming (Mason Core) (p. 135), and a score of 5 or more qualifies students for credit in CS 211 Object-Oriented Programming.

**Change of Major**

Students who are considering computer science as their major must meet with the Volgenau School of Engineering Coordinator of Undergraduate Advising, 2500 Nguyen Engineering Building. Students considering a change of major to computer science must have a GPA of at least 2.75 in all computer science and math courses, and successfully completed one of CS 112 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=302778) or CS 211 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=302780), and one of MATH 113 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=305052), MATH 114 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=305053) or MATH 125 (http://catalog.gmu.edu/preview_course_nopop.php?catoid=29&coid=305056), with a grade of B or better. See Change of Major (p. 955) for more information.

**Computer Science, Computer Engineering Double Major**

Computer Science majors can earn a double major in Computer Science and Computer Engineering if they complete additional credits beyond the 120 credits required for the Computer Science degree. The additional credits must be part of an approved plan of study. For more information, visit the department website.

**Cooperative Education**

Students may participate in the Mason cooperative education program or a work-study program in the Washington, D.C. area.

**Grades**

Students must earn a C or better in any course intended to satisfy a prerequisite for a computer science course. Computer science majors may not use more than one course with grade of C- or lower toward department requirements.

**Repeating Courses**

Students may attempt an undergraduate course taught by the Volgenau School of Engineering twice. A third attempt requires approval of the department offering the course. This policy does not apply to STAT 250 Introductory Statistics I (Mason Core) (p. 135), which follows the normal university policy for repeating undergraduate courses.

The CS Department may not allow students to retake certain high-demand CS courses in which they have already earned a grade of C or better simply to improve their GPA.

**Termination from the Major**

No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

**Writing-Intensive Requirement**

Computer science majors complete the writing-intensive requirement through a sequence of projects and reports in CS 306 Synthesis of Ethics and Law for the Computing Professional (Mason Core) (p. 135) and CS 321 Software Engineering. Faculty members provide feedback on students’ expository writing.

### Requirements

#### Degree Requirements

Total credits: 120

<table>
<thead>
<tr>
<th>Computer Science Core</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 110 Essentials of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 112 Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CS 211 Object-Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 262 Introduction to Low-Level Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 306 Synthesis of Ethics and Law for the Computing Professional (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CS 310 Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 321 Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CS 330 Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367 Computer Systems and Programming</td>
<td>4</td>
</tr>
<tr>
<td>CS 471 Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 483 Analysis of Algorithms</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 35

1 Must be taken within the first year as an Applied Computer Science or Computer Science major.

#### Senior Computer Science

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 455</td>
<td>Computer Communications and Networking</td>
</tr>
<tr>
<td>CS 468</td>
<td>Secure Programming and Systems</td>
</tr>
<tr>
<td>CS 475</td>
<td>Concurrent and Distributed Systems</td>
</tr>
</tbody>
</table>
Select four additional courses from the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 425</td>
<td>Game Programming I</td>
<td>3</td>
</tr>
<tr>
<td>CS 440</td>
<td>Language Processors and Programming Environments</td>
<td>3</td>
</tr>
<tr>
<td>CS 450</td>
<td>Database Concepts</td>
<td>3</td>
</tr>
<tr>
<td>CS 451</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CS 455</td>
<td>Computer Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 463</td>
<td>Comparative Programming Languages</td>
<td>3</td>
</tr>
<tr>
<td>CS 465</td>
<td>Computer Systems Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CS 468</td>
<td>Secure Programming and Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 469</td>
<td>Security Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CS 475</td>
<td>Concurrent and Distributed Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 477</td>
<td>Mobile Application Development</td>
<td>3</td>
</tr>
<tr>
<td>CS 480</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 482</td>
<td>Computer Vision</td>
<td>3</td>
</tr>
<tr>
<td>CS 484</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CS 485</td>
<td>Autonomous Robotics</td>
<td>3</td>
</tr>
<tr>
<td>CS 490</td>
<td>Design Exhibition</td>
<td>3</td>
</tr>
<tr>
<td>CS 491</td>
<td>Industry-Sponsored Senior Design Project</td>
<td>3</td>
</tr>
<tr>
<td>CS 499</td>
<td>Special Topics in Computer Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Mathematics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
</tbody>
</table>

Statistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15

1 Only three credits of CS 491 and only three credits of CS 499 Special Topics in Computer Science can be used toward the senior computer science requirement.

Computer Science-Related Courses

Students may need to choose electives to satisfy prerequisites for the following courses:

Select two courses from the following:  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 354</td>
<td>Probability and Statistics for Engineers and Scientists II</td>
<td>3</td>
</tr>
<tr>
<td>OR 335</td>
<td>Discrete Systems Modeling and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>OR 441</td>
<td>Deterministic Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>OR 442</td>
<td>Stochastic Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>ECE 301</td>
<td>Digital Electronics</td>
<td>3</td>
</tr>
<tr>
<td>ECE 431</td>
<td>Digital Circuit Design</td>
<td>3</td>
</tr>
<tr>
<td>ECE 447</td>
<td>Single-Chip Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>ECE 450</td>
<td>Introduction to Robotics</td>
<td>3</td>
</tr>
<tr>
<td>ECE 511</td>
<td>Microprocessors</td>
<td>3</td>
</tr>
<tr>
<td>SWE 432</td>
<td>Design and Implementation of Software for the Web</td>
<td>3</td>
</tr>
<tr>
<td>SWE 437</td>
<td>Software Testing and Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>SWE 443</td>
<td>Software Architectures</td>
<td>3</td>
</tr>
<tr>
<td>SYST 371</td>
<td>Systems Engineering Management</td>
<td>3</td>
</tr>
<tr>
<td>SYST 470</td>
<td>Human Factors Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 371</td>
<td>Philosophy of Natural Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 376</td>
<td>Symbolic Logic</td>
<td>3</td>
</tr>
<tr>
<td>ENGH 388</td>
<td>Professional and Technical Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

1 Those planning to take MATH 352 Statistics may replace STAT 344 Probability and Statistics for Engineers and Scientists I with MATH 351 Probability.

Natural Science

Select 12 credits of natural science

Total Credits: 12

The courses should be intended for science and engineering students and must include a two course sequence with laboratories. Some approved combinations have a total of more than 12 hours.

Approved Two-Course Sequences with Laboratories

Biology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 103</td>
<td>Introductory Biology I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>&amp; BIOL 104</td>
<td>Introductory Biology II (Mason Core)</td>
<td>4</td>
</tr>
</tbody>
</table>

Chemistry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>General Chemistry I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>&amp; CHEM 213</td>
<td>General Chemistry Laboratory I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>&amp; CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Geology

Note:

MATH 104 Trigonometry and Transcendental Functions, MATH 105 Precalculus Mathematics, MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135), and courses with an IT designation (and any associated cross-listed courses) cannot be counted toward this degree.

Statistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

1 Those planning to take MATH 352 Statistics may replace STAT 344 Probability and Statistics for Engineers and Scientists I with MATH 351 Probability.
GEOL 101 & GEOL 102
Introductory Geology I (Mason Core) (p. 135)
and Introductory Geology II (Mason Core) (p. 135)

Physics
PHYS 160 & PHYS 161
University Physics I (Mason Core) (p. 135)
and University Physics I Laboratory (Mason Core) (p. 135)
PHYS 260 & PHYS 261
University Physics II (Mason Core) (p. 135)
and University Physics II Laboratory (Mason Core) (p. 135)

Communication
COMM 100
Public Speaking (Mason Core) (p. 135) ¹

Total Credits 3

¹ Computer Science students must make a technical presentation.

Additional Mason Core
Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements.

Written Communication (p. 135) ¹
Literature (p. 140)
Arts (p. 137)
Western Civilization/World History (p. 143)
Social and Behavioral Sciences (p. 142)
Global Understanding (p. 139)

Total Credits 21

¹ CS majors must take the Natural Sciences section of ENGH 302 Advanced Composition (Mason Core) (p. 135).

Electives
Students must complete 8 elective credits

Total Credits 8

Honors

Honors in the Major
The Department of Computer Science offers a CS Honors Program for students with strong computational foundations and the drive to delve deeper into computing. The program is based on the bachelor of science in computer science and applied computer science curriculum and is distinct from the University Honors College curriculum.

Entry Requirements
Students must be seeking a Bachelor of Science in Computer Science or a Bachelor of Science in Applied Computer Science and must apply for entry into the CS Honors Program after completing 12 credits of CS courses. Applicants must meet the GPA requirements outlined below to enter into the CS Honors Program.

Honors Requirements
CS Honors Program students must fulfill all standard courses required by the Bachelor of Science in Computer Science or Applied Computer Science degree as well as the following additional requirements:

• GPA Requirement: Students must maintain an overall GPA of at least 3.50 and a GPA of at least 3.50 for courses which count towards the BS/CS or BS/ACS major including math, natural sciences, and all CS/SWE courses.
• Research Project Requirement: Students must complete a significant research project prior to graduation. Students should seek out a CS faculty member willing to serve as their research advisor for the project. The project should comprise original work by the student and be demonstrated via two channels:
  a. a written project report that is approved by the student's research advisor and submitted to the department;
  b. a presentation of the project to an audience of students and/or faculty.
• Advanced Course Requirement: At least two Advanced Courses must be completed. A complete list of acceptable advanced courses is maintained by the CS department and is available on the department web site.

Accelerated Master's

Computer Science, BS/Computer Science, Accelerated MS

Overview
Highly-qualified students in the Computer Science, BS (p. 991) have the option of obtaining an accelerated Computer Science, MS (p. 996). For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Computer Science, BS (p. 991) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 310 Data Structures, CS 330 Formal Methods and Models and CS 367 Computer Systems and Programming.

Accelerated Option Requirements
Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for two of the following courses in place of the corresponding 400-level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
</tbody>
</table>
Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.

Computer Science, BS/Information Security and Assurance, Accelerated MS

Overview
Highly-qualified students in the Computer Science, BS (p. 991) have the option of obtaining an accelerated Information Security and Assurance, MS (p. 1002).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Computer Science, BS (p. 991) program may apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 310 Data Structures, CS 330 Formal Methods and Models and CS 367 Computer Systems and Programming.

Accelerated Option Requirements
Students must complete all requirements for the BS and MS programs, with 6 credits overlap. Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Students complete all MS in Information Security and Assurance (p. 1002) core courses and apply the two courses from the above list toward the requirements.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.
Admissions Office. At the completion of MS requirements, a master's degree is conferred.

**Computer Science, BS/Information Systems, Accelerated MS**

Overview

Highly-qualified students in the Computer Science, BS (p. 991) have the option of obtaining an accelerated Information Systems, MS (p. 1006).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Computer Science, BS (p. 991) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 310 Data Structures, CS 330 Formal Methods and Models and CS 367 Computer Systems and Programming.

Accelerated Option Requirements

Students must complete all requirements for the BS and MS programs, with 6 credits overlap. Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for two of the following courses in place of the corresponding 400-level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
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<td>3</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:

Students complete all MS in Information Systems (p. 1006) core courses and apply the two courses from above toward the elective requirements.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.

**Computer Science, BS/Software Engineering, Accelerated MS**

Overview

Highly-qualified students in the Computer Science, BS (p. 991) have the option of obtaining an accelerated Software Engineering, MS (p. 1012).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Computer Science, BS (p. 991) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 310 Data Structures, CS 330 Formal Methods and Models and CS 367 Computer Systems and Programming.

Accelerated Option Requirements

Students must complete all requirements for the BS and MS programs, with 6 credits overlap. Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for two of the following courses in place of the corresponding 400-level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:

Students complete all MS in Software Engineering (p. 1012) core courses and apply the two courses from the above list toward the elective requirements.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.

**Computer Science, MS**

Banner Code: VS-MS-CS

Academic Advising

Phone: 703-993-1530
Email: csgrad@gmu.edu
The Computer Science graduate program prepares students for research and professional practice in computer science and related technologies. The program includes both fundamentals and advanced work in the areas of artificial intelligence and databases, programming languages and software engineering, systems and networks, theoretical computer science, and visual computing. Graduate classes are divided into basic classes, which have no graduate course prerequisite, and advanced classes, which have a graduate class as a prerequisite. Graduate classes are generally offered in the late afternoon and evening. Financial aid in the form of graduate assistantships may be available for full-time degree-seeking students.

**Admissions & Policies**

**Admissions**
In addition to fulfilling Mason’s admission requirements for graduate study, applicants must meet the following requirements:

- Hold a baccalaureate degree that includes Data Structures and Algorithms (CS 310 Data Structures) Automata Theory and Formal Languages (CS 330 Formal Methods and Models), and Computer Architecture including Assembly Language (CS 367 Computer Systems and Programming and CS 465 Computer Systems Architecture). Students also must have completed Calculus I and II and a substantial course in discrete mathematics (such as MATH 125 Discrete Mathematics I (Mason Core) (p. 135)). Students with some deficiencies in preparation may be admitted provisionally pending completion of foundation courses in mathematics or computer science. Undergraduate credit earned for this purpose may not be applied toward the graduate degree.
- Earned a cumulative GPA of 3.00 for the last two years of undergraduate work, preferably with a major in a technical field such as computer science, mathematics, physical sciences, engineering, or information systems.
- Submit transcripts of all post secondary education, complete the self-evaluation section of the online application, (This information is used by the admissions committee to assess an applicant’s academic preparation for the MS program. Students with some deficiencies in preparation may be admitted provisionally pending completion of foundation courses required for the program), a goals statement, resume, two letters of recommendation, and an official GRE score (only required for those who have not earned a Bachelor’s degree from a US institution).
- International students must submit their English Proficiency scores.

**Requirements**

**Degree Requirements**
Total credits: 30

**Required Courses and Plan of Study**
In addition to general university requirements, completion of the MS in CS requires 30 credits of graduate courses. Courses are grouped in the following five broad areas: Artificial Intelligence and Databases, Programming Languages and Software Engineering, Systems and Networks, Theoretical Computer Science, and Visual Computing. The list of preapproved courses with their areas follows.

All the following requirements should be satisfied for the MS in CS degree:

- CS 583 Analysis of Algorithms (from the Theoretical Computer Science area) and two additional core courses from two other areas must be successfully completed with a grade of B- or better.
- At least four courses (12 credits) must be chosen from the advanced courses in the list of preapproved courses from at least three different areas.
- At least six courses, including two advanced courses, must be designated CS.
- At least eight courses must be taken from the list of preapproved courses. Up to two computer science-related courses that are not on the list of preapproved courses may be taken with the approval of the Computer Science Department.

**Plan of Study**
Before the end of the second semester, students must have a plan of study approved by their academic advisor. This plan should be kept up to date by regular consultation with the academic advisor. A final signed version of the plan must be included when the student submits a graduation application.

**Core Courses by Area**

**Artificial Intelligence and Databases**
- CS 550 Database Systems
- CS 580 Introduction to Artificial Intelligence
- CS 584 Theory and Applications of Data Mining

**Programming Languages and Software Engineering**
- CS 540 Language Processors
- SWE 619 Object-Oriented Software Specification and Construction
- SWE 621 Software Modeling and Architectural Design

**Systems and Networks**
- CS 555 Computer Communications and Networking
- CS 571 Operating Systems
- ISA 562 Information Security Theory and Practice

**Theoretical Computer Science**
- CS 583 Analysis of Algorithms

**Visual Computing**
- CS 551 Computer Graphics

**Preapproved Basic and Advanced MS CS Courses by Area**

**Artificial Intelligence and Databases**

<table>
<thead>
<tr>
<th>Basic Courses:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
</tr>
<tr>
<td>INFS 623</td>
<td>Web Search Engines and Recommender Systems</td>
</tr>
</tbody>
</table>

1 Must be successfully completed with a grade of B- or better
### Advanced Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 650</td>
<td>Advanced Database Management</td>
</tr>
<tr>
<td>CS 657</td>
<td>Mining Massive Datasets with MapReduce</td>
</tr>
<tr>
<td>CS 667</td>
<td>Biometrics and Identity Management</td>
</tr>
<tr>
<td>CS 674</td>
<td>Data Mining on Multimedia Data</td>
</tr>
<tr>
<td>CS 681</td>
<td>Knowledge Engineering</td>
</tr>
<tr>
<td>CS 685</td>
<td>Autonomous Robotics</td>
</tr>
<tr>
<td>CS 687</td>
<td>Advanced Artificial Intelligence</td>
</tr>
<tr>
<td>CS 688</td>
<td>Pattern Recognition</td>
</tr>
<tr>
<td>CS 689</td>
<td>Planning Motions of Robots and Molecules</td>
</tr>
<tr>
<td>CS 775</td>
<td>Advanced Pattern Recognition</td>
</tr>
<tr>
<td>CS 782</td>
<td>Machine Learning</td>
</tr>
<tr>
<td>CS 787</td>
<td>Decision Guidance Systems</td>
</tr>
<tr>
<td>CS 811</td>
<td>Research Topics in Machine Learning and Inference</td>
</tr>
<tr>
<td>CS 880</td>
<td>Research Topics in Artificial Intelligence</td>
</tr>
<tr>
<td>CS 884</td>
<td>Advanced Topics in Computer Vision and Robotics</td>
</tr>
<tr>
<td>INFS 740</td>
<td>Database Programming for the World Wide Web</td>
</tr>
<tr>
<td>INFS 760</td>
<td>Advanced Database Management</td>
</tr>
<tr>
<td>INFS 772</td>
<td>Intelligent Agents and the Semantic Web</td>
</tr>
<tr>
<td>INFS 774</td>
<td>Enterprise Architecture</td>
</tr>
</tbody>
</table>

### Programming Languages and Software Engineering

#### Basic Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
</tr>
<tr>
<td>SWE 619</td>
<td>Object-Oriented Software Specification and Construction</td>
</tr>
<tr>
<td>SWE 620</td>
<td>Software Requirements Analysis and Specification</td>
</tr>
<tr>
<td>SWE 621</td>
<td>Software Modeling and Architectural Design</td>
</tr>
<tr>
<td>SWE 622</td>
<td>Distributed Software Engineering</td>
</tr>
</tbody>
</table>

#### Advanced Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 640</td>
<td>Advanced Compilers</td>
</tr>
<tr>
<td>ISA 681</td>
<td>Secure Software Design</td>
</tr>
<tr>
<td>SWE 631</td>
<td>Software Design Patterns</td>
</tr>
<tr>
<td>SWE 632</td>
<td>User Interface Design and Development</td>
</tr>
<tr>
<td>SWE 637</td>
<td>Software Testing</td>
</tr>
<tr>
<td>SWE 642</td>
<td>Software Engineering for the World Wide Web</td>
</tr>
<tr>
<td>SWE 645</td>
<td>Component-Based Software Development</td>
</tr>
<tr>
<td>SWE 721</td>
<td>Reusable Software Architectures</td>
</tr>
<tr>
<td>SWE 727</td>
<td>Quality of Service for Software Architectures</td>
</tr>
<tr>
<td>SWE 737</td>
<td>Advanced Software Testing</td>
</tr>
<tr>
<td>SWE 760</td>
<td>Software Analysis and Design of Real-Time Systems</td>
</tr>
</tbody>
</table>

### Systems and Networks

#### Basic Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 531</td>
<td>Fundamentals of Systems Programming</td>
</tr>
</tbody>
</table>

### Theoretical Computer Science

#### Basic Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
</tr>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
</tr>
</tbody>
</table>

#### Advanced Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 600</td>
<td>Theory of Computation</td>
</tr>
<tr>
<td>CS 611</td>
<td>Computational Methods for Genomics</td>
</tr>
<tr>
<td>CS 630</td>
<td>Advanced Algorithms</td>
</tr>
<tr>
<td>CS 633</td>
<td>Computational Geometry</td>
</tr>
<tr>
<td>CS 683</td>
<td>Parallel Algorithms</td>
</tr>
<tr>
<td>CS 684</td>
<td>Graph Algorithms</td>
</tr>
</tbody>
</table>

### Visual Computing

#### Basic Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
</tr>
</tbody>
</table>

#### Advanced Courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 662</td>
<td>Computer Graphics Game Technologies</td>
</tr>
<tr>
<td>CS 667</td>
<td>Biometrics and Identity Management</td>
</tr>
<tr>
<td>CS 682</td>
<td>Computer Vision</td>
</tr>
<tr>
<td>CS 686</td>
<td>Image Processing and Applications</td>
</tr>
<tr>
<td>CS 752</td>
<td>Interactive Graphics Software</td>
</tr>
<tr>
<td>CS 774</td>
<td>Computational Vision</td>
</tr>
<tr>
<td>CS 777</td>
<td>Human-Computer Intelligent Interaction</td>
</tr>
</tbody>
</table>
Project/Thesis (optional)
Three to six credit hours of the advanced classes may be replaced by a project or thesis. The project or thesis must be guided and approved by a committee of three appropriate faculty members and presented at an appropriate forum. The thesis must meet relevant university requirements.

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 798</td>
<td>Project Seminar (3 credits)</td>
<td></td>
</tr>
<tr>
<td>CS 799</td>
<td>Thesis (6 credits)</td>
<td></td>
</tr>
</tbody>
</table>

Additional Pre-approved CS Courses
These courses are not classified by area. Note that CS 695 Topics in Computer Science/CS 795 Advanced Topics in CS can be used to satisfy the breadth requirement if the area is listed in the syllabus for the course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 695</td>
<td>Topics in Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 697</td>
<td>Independent Reading and Research</td>
<td>1-3</td>
</tr>
<tr>
<td>CS 795</td>
<td>Advanced Topics in CS</td>
<td>3</td>
</tr>
<tr>
<td>CS 798</td>
<td>Project Seminar</td>
<td>3</td>
</tr>
<tr>
<td>CS 799</td>
<td>Thesis</td>
<td>1-6</td>
</tr>
<tr>
<td>CS 895</td>
<td>Research Topics in CS</td>
<td>3</td>
</tr>
</tbody>
</table>

Accelerated Master’s

Applied Computer Science, BS/Computer Science, Accelerated MS

Overview
Highly-qualified students in the Applied Computer Science, BS (p. 983) have the option of obtaining an accelerated Computer Science, MS (p. 996).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Applied Computer Science, BS (p. 983) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 10

Accelerated Option Requirements
Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for CS 583 Analysis of Algorithms and one of the following courses in place of the corresponding 400-level course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Students are permitted to take additional graduate basic courses in their undergraduate programs. In such cases, those classes cannot be counted toward requirements for the MS.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Computer Science, BS/Computer Science, Accelerated MS

Overview
Highly-qualified students in the Computer Science, BS (p. 991) have the option of obtaining an accelerated Computer Science, MS (p. 996).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Computer Science, BS (p. 991) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 310 Data Structures, CS 330 Formal Methods and Models and CS 367 Computer Systems and Programming.

Accelerated Option Requirements
Students must complete all requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically, students must register for two of the following courses in place of the corresponding 400-level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
</tbody>
</table>
Additional credits in consultation with their advisor. The reduction of credit and waiver of course requirements requires the approval of the program director and the dean of the school.

**Policies**

**Reduction of Credit**

Students with a previous MS in CS or a related field may receive a reduction of credit of at most 30 credit hours. In addition, the courses taken as part of the previous MS degree can be used to satisfy the course requirements of the PhD degree. Reduction of credit and waiver of course requirements requires the approval of the program director and the dean of the school. Students who do not receive a full credit reduction should choose additional credits in consultation with their advisor.

**Admissions & Policies**

**Admissions**

All applicants must have an undergraduate degree, and their prior academic work must show a strong academic background in computer science. In addition, the GRE General Test is required from every applicant. Finally, each applicant must provide a resume, brief statement of career goals and personal aspirations, as well as three letters of reference. Each application receives careful consideration from the PhD Admission Committee.

**Program Requirements**

The 72 hours of required doctoral-level credits typically consist of 48 credits of regular coursework and 24 credits of dissertation research.

**Degree Requirements**

**Total credits: 72**

**Doctoral Coursework**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 600</td>
<td>Theory of Computation</td>
<td>3</td>
</tr>
<tr>
<td>CS 700</td>
<td>Quantitative Methods and Experimental Design in Computer Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Two semesters of

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 800</td>
<td>Computer Science Colloquium</td>
<td></td>
</tr>
<tr>
<td>CS 990</td>
<td>Dissertation Topic Presentation</td>
<td>0</td>
</tr>
<tr>
<td>CS 998</td>
<td>Doctoral Dissertation Proposal</td>
<td>24</td>
</tr>
<tr>
<td>&amp; CS 999</td>
<td>Doctoral Dissertation (minimum of 12 credits of CS 999 required)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits** 72

1. Must be completed with a B+ or better.
2. Must be selected in consultation with the student’s advisor from a list maintained by the CS department. The 12 credit hours may include at most 3 credits of CS 896 Directed Reading and Research. Students may register in CS 896 Directed Reading and Research only after passing the PhD qualifying exams.
3. Must be selected in consultation with the student’s advisor.

**Note:**

With careful selection of courses, students may earn an MS degree as part of their PhD studies. CS 600 Theory of Computation, CS 700 Quantitative Methods and Experimental Design in Computer Science and 12 credits of advanced graduate courses taken as part of the coursework for the PhD degree can be applied towards the MS degree, if the selected courses also satisfy the requirements of the MS degree.

**Qualifying Exam**

Students must demonstrate breadth of knowledge in computer science by passing written qualifying exams. The exams are offered once every semester (usually in the week before the semester begins). To qualify, each student must pass exams in four areas, one of which is foundations of computer science. The other three areas are chosen from these eight areas: operating systems, networks, compilers and languages, object-oriented software specification and construction, software modeling and architectural design, artificial intelligence, database systems, and information systems security. The four exams must be attempted in the same semester, and a failed exam may be retaken once only in the next semester. A student who fails to pass the four exams in two consecutive semesters is subject to termination from the program. Students entering the program who receive a reduction of credit of 15 or more credit hours for a previous Master’s degree must take the exams no later than the first opportunity following the completion of 18 credits at Mason.
Dissertation Research

A minimum of 24 credits of CS 998 Doctoral Dissertation Proposal and CS 999 Doctoral Dissertation must be completed, of which at least 12 must be in CS 999 Doctoral Dissertation. Only 24 credits of CS 998 Doctoral Dissertation Proposal and CS 999 Doctoral Dissertation may be applied toward the degree. Students may enroll in CS 998 Doctoral Dissertation Proposal only after passing the qualifying exams, and they may enroll in CS 999 Doctoral Dissertation only after advancing to candidacy.

Select 24 credits from the following:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>CS 998</td>
</tr>
<tr>
<td></td>
<td>CS 999</td>
</tr>
</tbody>
</table>

Dissertation Committee Selection

Each student must form a dissertation committee, comprising four or five individuals. Three members of the committee must be tenured or tenure-track faculty in the Computer Science Department. The fourth member should be a member of the George Mason University graduate faculty who is outside the department. The fifth member may be from outside the university. The chair of the dissertation committee, who must also be the dissertation director, must be tenured or tenure-track faculty in the Volgenau School. The committee must be approved by the chair of the Computer Science Department.

Comprehensive Exam

Students must pass an oral comprehensive exam in which they demonstrate depth of knowledge in their intended area of research and ability to perform original research in that area. The scope of the oral exam is defined by a reading list prepared by the student and the dissertation director. The list should include research papers and textbooks that adequately cover the basic tools used in the research area, the fundamentals of the research area, and state-of-the-art knowledge in the specific focus of research. The reading list must be accompanied by a one-page description of the intended research. This document must be approved by the dissertation committee at least one month prior to the exam and becomes part of the student’s record. The duration of the oral exam is typically two hours. Students who fail the exam are allowed to retake it once. Failure in the second attempt results in dismissal from the program.

Dissertation Proposal

Each student must prepare a written dissertation proposal. While preparing this proposal, the student enrolls in CS 998 Doctoral Dissertation Proposal. The proposal must be made available to the committee at least two weeks in advance of the presentation. The proposal must be presented to and approved by the dissertation committee. The committee determines whether the proposal has merit and can lead to significant contributions to the area and whether the student has the knowledge and skills to complete the proposed work successfully and in a timely manner. Students may present their dissertation proposal only after passing the comprehensive exam, and the presentation may not be on the same day as the comprehensive exam. If the student fails to defend the proposal, the student may present a dissertation proposal a second time at a later date. Failure in the second attempt results in dismissal from the program. On completing this requirement successfully, the student is advanced to candidacy for the PhD degree.

Dissertation Preparation and Defense

While preparing the dissertation, the candidate enrolls in CS 999 Doctoral Dissertation. When the work is deemed complete, the dissertation is defended. The public defense is preceded by a predefense meeting in which only the candidate, the dissertation committee members, and the director of the PhD in Computer Science Program (or his or her representative) are present. If the committee approves, the candidate may then schedule the final public defense. There should be at least one month between the predefense meeting and the defense, and the defense must be announced at least two weeks in advance. The dissertation must be made available to the committee at least two weeks in advance of the defense. The entire dissertation committee must be present at the defense, unless an exception is approved by the director of the PhD in Computer Science Program in advance of the defense. The dissertation must make significant contributions to its area and be publishable in refereed journals or conferences. If the candidate defends the dissertation successfully, the dissertation committee recommends that the final form of the dissertation be completed under the supervision of the dissertation director and the graduate faculty of Mason accept the candidate for the PhD degree. If the candidate fails to defend the dissertation, the candidate may request a second defense, following the same procedures as for the initial defense. There is no time limit for this request other than general time limits for the doctoral degree and an additional predefense is not required. A candidate who fails a second attempt to defend the dissertation is dismissed from the program.

Foundations of Information Systems Graduate Certificate

Banner Code: VS-CERG-FIS

Academic Advising

Phone: 703-993-1530
Email: csgrad@gmu.edu

This graduate certificate is designed primarily for students who earned an undergraduate degree in an area other than information systems and are interested in acquiring solid foundations to pursue further education and a career in information systems, software engineering, information security and assurance, or a related discipline.

The graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

The admission requirement for the certificate in foundations of information systems is a four-year bachelor's degree with a GPA of 3.00 or higher. Also, the admission to the Information Systems, MS (p. 1006) allows automatic admission to the certificate program.

Requirements

Certificate Requirements

Total credits: 12
Students must complete four courses with an average grade of B or higher for a total of 12 credits of graduate study.

Required Courses
Take each one of the following foundation courses (no substitutions are allowed):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFS 501</td>
<td>Discrete and Logical Structures for Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 515</td>
<td>Computer Organization Course and Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 519</td>
<td>Program Design and Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>SWE 510</td>
<td>Object-Oriented Programming in Java</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Information Security and Assurance Graduate Certificate
Banner Code: VS-CERG-ISA

Academic Advising
Phone: 703-993-1530
Email: csgrad@gmu.edu
Website: cs.gmu.edu/prospective-students/ms-programs/graduate-certificates/

This graduate certificate program is for students interested in science and methods for ensuring secrecy, integrity, availability, and legitimate use of information systems. The certificate may be pursued concurrently with any of the graduate programs in the Volgenau School.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions
Applicants must hold a baccalaureate degree from an accredited institution and have earned a GPA of 3.00 or higher in the last 60 credits. In addition, applicants must complete a self-assessment form, which can be obtained from the Computer Science Department. This form provides summary information concerning background and preparation for the program.

Applicants must possess knowledge equivalent to that provided by the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFS 501</td>
<td>Discrete and Logical Structures for Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>SWE 510</td>
<td>Object-Oriented Programming in Java</td>
<td>3</td>
</tr>
<tr>
<td>INFS 515</td>
<td>Computer Organization Course and Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 519</td>
<td>Program Design and Data Structures</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Admissions. Students already enrolled in a Mason graduate degree program should apply to the department for admission into the certificate program. Admission into the certificate program does not guarantee acceptance into any MS program.

Requirements

Certificate Requirements
Total credits: 12
Students must complete four courses with an average grade of B or better for a total of 12 credits of graduate study.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISA 562</td>
<td>Information Security Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>ISA 656</td>
<td>Network Security</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Additional Courses
Select two courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISA 564</td>
<td>Security Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>ISA courses at the 600 and 700 level (p. 1649)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ISA 564</td>
<td>Security Laboratory</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

Excluding ISA 697 Topics in Information Security, ISA 796 Directed Readings in Information Security, ISA 797 Advanced Topics in Information Security, and ISA 798 Research Project.

Information Security and Assurance, MS
Banner Code: VS-MS-ISA

Academic Advising
Phone: 703-993-1530
Email: csgrad@gmu.edu
Website: cs.gmu.edu/prospective-students/ms-programs/ms-in-information-security-and-assurance/

The Department of Computer Science’s MS degree in Information Security and Assurance prepares graduates to fill the current and future need for information security and assurance professionals. Graduates work in a wide variety of capacities, protecting the information systems of different types of organizations and supporting the nation’s information infrastructure. The master of science in information security and assurance provides students with the general and technical knowledge and skills to understand the relationship between information security and advancing information systems technology. The program gives graduates a theoretical understanding of the science and methodologies for ensuring the secrecy and integrity of data, as well as the availability and legitimate use of data and information systems.

Students focus on the technical and management aspects of information security and examine ways to provide secure information processing systems by investigating operating systems security, distributed secure system architectures, database security, software applications security, security policies, secure e-commerce, network and distributed systems security, cryptography, and security protocols. Graduates of the program
are actively recruited by federal, state, and local governments, as well as the private sector. Typical employers include Internet-based companies, software companies, banks and insurance companies, and in general any organization that depends heavily on the use of IT. All classes are scheduled in the late afternoon and early evening to accommodate employed students.

The department also provides an advising function to students, as outlined in the student advising form available from the department. Each student is assigned a faculty advisor with whom to confer on matters related to degree requirements. A plan of study form for the MS degree should be completed and submitted by the student soon after admission to the program. This serves as a planning guide for the student.

Admissions & Policies

Admissions

Eligibility and Application Requirements
Applicants must hold a four-year (120-credit) baccalaureate degree from an accredited institution and have earned a GPA of 3.00 or better in the last 60 credits. Other requirements are as follows:

• Submit the appropriate application with two letters of recommendation from people directly knowledgeable of the applicant’s professional and academic competence, a one-page goals statement, and a work résumé.
• Complete the self-evaluation section of the online application. This information is used by the admissions committee to assess an applicant’s academic preparation for the MS program. Students with some deficiencies in preparation may be admitted provisionally pending completion of foundation courses required for the program.
• The GRE is only required for those who have not earned a Bachelor’s degree from a US Institution.
• International students must submit their English Proficiency scores.

Policies

Foundation Requirements
To ensure that students have an adequate background in mathematical methods and computer science, the program requires the following four foundation courses, or their equivalents: INFS 501 Discrete and Logical Structures for Information Systems, INFS 515 Computer Organization Course and Operating Systems, INFS 519 Program Design and Data Structures, and SWE 510 Object-Oriented Programming in Java.

Prospective students are asked to complete a department self evaluation form, indicating whether previously taken courses may satisfy these foundation requirements. On acceptance, students are advised of the necessary foundation courses to be satisfactorily completed to meet this requirement. Foundation courses do not earn credit toward the MS degree; however, they must be successfully completed with a grade of B or better before enrolling in the core curriculum.

Students may test out to indicate that they have the requisite knowledge for those foundations courses. The exams are given before classes begin in January and August, and can only be taken once. Registration is not required; students need only be present at the date, time, and location specified with some form of photographic identification. Detailed information is available on the department web site. Students failing any one of the exams must take the equivalent course before enrolling in the core curriculum courses.

Advising
The department holds orientation meetings each January and August to advise newly admitted and continuing students. Members of the faculty are present to answer questions and offer advice concerning programs of study. Detailed information is available on the department web site.

Requirements

Degree Requirements
Total credits: 30

Completion of the degree program requires a minimum of 30 approved graduate credits (10 courses). Students must choose a concentration.

Required Core Courses
These courses provide the necessary background and fundamentals of information systems security and assurance. To continue in the program, students are required to obtain a B- or better grade in the core courses.

ISA 562  Information Security Theory and Practice  3
ISA 555  Network Security  3
One of the following:  3
INFS 612  Principles and Practices of Communication Networks
CS 555  Computer Communications and Networking

Total Credits  9

Concentration in Applied Cyber Security (ACBS)
Students must take any five courses from the list below. At least three of the five courses must be designated ISA or CS.

Select five courses from the following:  15
CS 667  Biometrics and Identity Management
ISA 650  Security Policy
ISA 652  Security Audit and Compliance Testing
ISA 681  Secure Software Design
ISA 763  Security Protocol Analysis
ISA 785  Research in Digital Forensics
CFRS 663  Operations of Intrusion Detection for Forensics
CFRS 761  Malware Reverse Engineering
CFRS 780  Advanced Topics in Computer Forensics
ECE 646  Cryptography and Computer Network Security
ECE 746  Advanced Applied Cryptography

Total Credits  15

Concentration in Network and System Security (NSS)
ISA 564  Security Laboratory  3
Select four courses from the following:  12
CS 530  Mathematical Foundations of Computer Science
CS 531  Fundamentals of Systems Programming
CS 571  Operating Systems 1
CS 779  Topics in Resilient and Secure Computer Systems
ISA 673  Operating Systems Security
ISA 674  Intrusion Detection
ISA 681  Secure Software Design
ISA 763  Security Protocol Analysis
ISA 764  Security Experimentation
ECE 646  Cryptography and Computer Network Security
ECE 746  Advanced Applied Cryptography

Total Credits 15

1 Students who elect to take CS 571 Operating Systems but who have not taken CS 367 Computer Systems and Programming or its equivalent are advised to take CS 531 Fundamentals of Systems Programming first.

Additional Courses
All students select two remaining courses from any combination of the following: 1
ISA 500, 600, and 700 level courses (p. 1649)
CS 500, 600, and 700 level courses (p. 1328)
Courses from the pre-approved electives list (follows)
ISA 799  Thesis (must take 6 credits)

Total Credits 6

1 Students may choose other graduate electives with the consent of their faculty advisor and the graduate coordinator.

Information Systems (INFS)
INFS 614  Database Management 3
INFS 623  Web Search Engines and Recommender Systems 3
INFS 740  Database Programming for the World Wide Web 3
INFS 760  Advanced Database Management 3
INFS 772  Intelligent Agents and the Semantic Web 3
INFS 774  Enterprise Architecture 3

Software Engineering (SWE)
SWE 619  Object-Oriented Software Specification and Construction 3
SWE 620  Software Requirements Analysis and Specification 3
SWE 621  Software Modeling and Architectural Design 3
SWE 622  Distributed Software Engineering 3
SWE 632  User Interface Design and Development 3
SWE 637  Software Testing 3
SWE 642  Software Engineering for the World Wide Web 3
SWE 645  Component-Based Software Development 3
SWE 721  Reusable Software Architectures 3
SWE 727  Quality of Service for Software Architectures 3

Computer Forensics (CFRS)
CFRS 761  Malware Reverse Engineering 3
CFRS 780  Advanced Topics in Computer Forensics 3

Electrical and Computer Engineering (ECE)
ECE 646  Cryptography and Computer Network Security 3
ECE 746  Advanced Applied Cryptography 3

Accelerated Master's

Applied Computer Science, BS/Information Security and Assurance, Accelerated MS

Overview
Highly-qualified students in the Applied Computer Science, BS (p. 983) program have the option of obtaining an accelerated Information Security and Assurance, MS (p. 1002) program.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Applied Computer Science, BS (p. 983) program can apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>10</td>
</tr>
</tbody>
</table>

Accelerated Option Requirements
Students must complete all requirements for the BS and MS programs, with 6 credits overlapping.

Students register for two 500-level computer science core courses (6 credits) in place of the corresponding 400-level computer science courses, as part of the undergraduate degree requirements. Specifically, students must take

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Select one of the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS 540  Language Processors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS 550  Database Systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS 551  Computer Graphics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS 555  Computer Communications and Networking</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS 571  Operating Systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CS 580  Introduction to Artificial Intelligence</td>
<td></td>
</tr>
</tbody>
</table>
CS 584  Theory and Applications of Data Mining  3

Total Credits  6

Note:

Students complete all MS in Information Security and Assurance (p. 1002) core courses and apply the two courses from the above list toward the degree requirements.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Information Security and Assurance, Accelerated MS Overview

Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Information Security and Assurance, MS (p. 1002).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Information Technology, BS (p. 1051) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed MATH 125 Discrete Mathematics I (Mason Core) (p. 135) as their discrete math requirement and IT 306 Program Design and Data Structures as part of their concentration requirements in the BS program.

Accelerated Option Requirements

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with the two following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INF612</td>
<td>Principles and Practices of Communication Networks (satisfies IT 441 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>ISA562</td>
<td>Information Security Theory and Practice (satisfies IT 462 requirement in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:

Students must complete all MS in Information Security and Assurance (p. 1002) core courses and apply the two courses from the above list toward the requirements.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.
Information Systems, MS

Banner Code: VS-MS-ISYS

Academic Advising

Phone: 703-993-1530
Email: csgrad@gmu.edu
Website: cs.gmu.edu/prospective-students/ms-programs/ms-in-information-systems/

Modern information systems manage data, information and knowledge to support enterprise functions and decision making as well as human social activity over the Internet. Increasingly, these systems are distributed, collaborative, involve big data and hosted in the cloud.

The mission of the MSIS program is to allow students of diverse baccalaureate and professional backgrounds obtain a high-quality MS degree that:

• provides students with the theoretical knowledge and hands-on project experience needed to analyze, design, build, deploy, maintain, manage and promote effective organizational use of modern information systems;
• allows students to further specialize in related areas of big data, data and knowledge engineering, decision support systems, web-based software engineering and information security assurance; and,
• prepares students for careers in information systems in large and small organizations in both industry and government.

Career paths open to graduates include systems analyst, data administrator, database administrator, information architect, systems architect, decision analyst, data warehouse administrator, database application developer, web-based information systems designer and developer, information engineer, knowledge engineer, chief information officer, chief knowledge officer, chief privacy officer and project manager.

Admissions & Policies

Admissions

Eligibility and Application Requirements

Applicants must hold a four-year (120-credit) baccalaureate degree from an accredited institution and have earned a GPA of 3.00 or better in the last 60 credits. They also must meet the following requirements:

• Submit the appropriate application with two letters of recommendation from people directly knowledgeable of the applicant’s professional and academic competence, a one-page goals statement, and a work résumé.
• Complete the self-evaluation section of the online application. This information is used by the admissions committee to assess an applicant’s academic preparation for the MS program. Students with some deficiencies in preparation may be admitted provisionally with some deficiencies in preparation may be admitted provisionally pending completion of foundation courses required for the program.
• The GRE is only required for those who have not earned a Bachelor’s degree from a US Institution.
• International students must submit their English proficiency scores.

Policies

Foundation Requirements

To ensure students have an adequate background in mathematical methods, computer technology, and programming knowledge, the program requires the following foundation courses or their equivalents:

• INFS 501 Discrete and Logical Structures for Information Systems
• INFS 515 Computer Organization Course and Operating Systems
• INFS 519 Program Design and Data Structures
• SWE 510 Object-Oriented Programming in Java

Prospective students are asked to complete a department self-evaluation form indicating whether previously taken courses may satisfy these foundation requirements. On acceptance, students are advised of the necessary foundation courses to be satisfactorily completed to meet this requirement. Foundation courses do not earn credit toward the MS degree; however, they must be successfully completed with a grade of B or better before enrolling in the core curriculum.

Students may test out to indicate they have the requisite knowledge for the foundations courses. The exams are given before classes begin in January and August, and can only be taken once. Registration is not required; students need only be present at the date, time, and location specified, and bring some form of photographic identification. Detailed information is available on the department web site. Students failing any of the exams must take the equivalent course before enrolling in the core curriculum courses.

Advising

The department holds orientation meetings in January and August to advise newly admitted and continuing students. Members of the faculty are present to answer questions and offer advice concerning programs of study. Detailed information is available on the department web site.

The department also provides an advising function to students, as outlined in the student advising form available from the department. Each student is assigned a faculty advisor with whom to confer on matters related to degree requirements. A plan of study form for the MS degree should be completed and submitted by the student soon after admission to the program. This plan serves as a guide for the student.

Requirements

Degree Requirements

Total credits: 30

Core Courses

To provide a common background in the fundamentals of information systems, the following core courses, which constitute the technical body of knowledge for the program, are required of all students:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 612</td>
<td>Principles and Practices of Communication Networks</td>
<td>3</td>
</tr>
<tr>
<td>INFS 622</td>
<td>Information Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>ISA 562</td>
<td>Information Security Theory and Practice</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12
Electives

Six courses selected from the lists which follow.  

Total Credits 18

Electives are organized into the following emphasis areas: database management, data mining, electronic commerce, software engineering, knowledge management, and information security and assurance.

In addition to the core courses taken as part of the MS-ISYS curriculum, students may choose an emphasis within the program by taking six courses from one of the emphasis areas listed below. Students may also choose electives spanning several emphasis areas; they may also plan their electives so as to obtain certificates offered by the department. A list of approved electives is given within emphasis areas and by graduate program. A full list follows. Special courses may be used as electives with prior approval of the student's academic advisor and the graduate coordinator.

Students, with the consent of a faculty sponsor and faculty advisor, may also elect courses in individualized study, special topics, or a 6-credit thesis (INFS 799 Thesis), which is primarily intended for students planning to pursue a PhD in information technology with a concentration in information systems.

Database Management

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 787</td>
<td>Decision Guidance Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 623</td>
<td>Web Search Engines and Recommender Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 740</td>
<td>Database Programming for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 760</td>
<td>Advanced Database Management</td>
<td>3</td>
</tr>
<tr>
<td>INFS 772</td>
<td>Intelligent Agents and the Semantic Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 796</td>
<td>Directed Readings in Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Data Mining

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining</td>
<td>3</td>
</tr>
<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 657</td>
<td>Mining Massive Datasets with MapReduce</td>
<td>3</td>
</tr>
<tr>
<td>CS 674</td>
<td>Data Mining on Multimedia Data</td>
<td>3</td>
</tr>
<tr>
<td>CS 782</td>
<td>Machine Learning</td>
<td>3</td>
</tr>
<tr>
<td>INFS 623</td>
<td>Web Search Engines and Recommender Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 796</td>
<td>Directed Readings in Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Electronic Commerce

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>INFS 640</td>
<td>Introduction to Electronic Commerce</td>
<td>3</td>
</tr>
<tr>
<td>INFS 770</td>
<td>Knowledge Management for E-Business</td>
<td>3</td>
</tr>
<tr>
<td>INFS 772</td>
<td>Intelligent Agents and the Semantic Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 774</td>
<td>Enterprise Architecture</td>
<td>3</td>
</tr>
</tbody>
</table>

Software Engineering

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>SWE 619</td>
<td>Object-Oriented Software Specification and Construction</td>
<td>3</td>
</tr>
<tr>
<td>SWE 621</td>
<td>Software Modeling and Architectural Design</td>
<td>3</td>
</tr>
<tr>
<td>SWE 622</td>
<td>Distributed Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SWE 625</td>
<td>Software Project Management</td>
<td>3</td>
</tr>
<tr>
<td>SWE 631</td>
<td>Software Design Patterns</td>
<td>3</td>
</tr>
<tr>
<td>SWE 632</td>
<td>User Interface Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>SWE 637</td>
<td>Software Testing</td>
<td>3</td>
</tr>
<tr>
<td>SWE 642</td>
<td>Software Engineering for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>SWE 721</td>
<td>Reusable Software Architectures</td>
<td>3</td>
</tr>
<tr>
<td>SWE 727</td>
<td>Quality of Service for Software Architectures</td>
<td>3</td>
</tr>
<tr>
<td>SWE 795</td>
<td>Advanced Topics in Software Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Knowledge Management

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 681</td>
<td>Knowledge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>INFS 623</td>
<td>Web Search Engines and Recommender Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 740</td>
<td>Database Programming for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 770</td>
<td>Knowledge Management for E-Business</td>
<td>3</td>
</tr>
<tr>
<td>INFS 772</td>
<td>Intelligent Agents and the Semantic Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 774</td>
<td>Enterprise Architecture</td>
<td>3</td>
</tr>
<tr>
<td>INFS 796</td>
<td>Directed Readings in Information Systems</td>
<td>3</td>
</tr>
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</table>

Information Security and Assurance

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 531</td>
<td>Fundamentals of Systems Programming</td>
<td>3</td>
</tr>
<tr>
<td>ISA 652</td>
<td>Security Audit and Compliance Testing</td>
<td>3</td>
</tr>
<tr>
<td>ISA 656</td>
<td>Network Security</td>
<td>3</td>
</tr>
<tr>
<td>ISA 673</td>
<td>Operating Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>ISA 674</td>
<td>Intrusion Detection</td>
<td>3</td>
</tr>
<tr>
<td>ISA 681</td>
<td>Secure Software Design</td>
<td>3</td>
</tr>
<tr>
<td>ISA 763</td>
<td>Security Protocol Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ISA 764</td>
<td>Security Experimentation</td>
<td>3</td>
</tr>
<tr>
<td>ISA 785</td>
<td>Research in Digital Forensics</td>
<td>3</td>
</tr>
<tr>
<td>ISA 796</td>
<td>Directed Readings in Information Security</td>
<td>3</td>
</tr>
</tbody>
</table>

Certificates

Certificates may also be obtained in the following areas: Information Security and Assurance Graduate Certificate, Software Engineering.

### Approved Electives

#### Information Systems (INFS)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFS 623</td>
<td>Web Search Engines and Recommender Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 640</td>
<td>Introduction to Electronic Commerce</td>
<td>3</td>
</tr>
<tr>
<td>INFS 697</td>
<td>Topics in Information Systems</td>
<td>1-6</td>
</tr>
<tr>
<td>INFS 740</td>
<td>Database Programming for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 760</td>
<td>Advanced Database Management</td>
<td>3</td>
</tr>
<tr>
<td>INFS 770</td>
<td>Knowledge Management for E-Business</td>
<td>3</td>
</tr>
<tr>
<td>INFS 772</td>
<td>Intelligent Agents and the Semantic Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 774</td>
<td>Enterprise Architecture</td>
<td>3</td>
</tr>
<tr>
<td>INFS 796</td>
<td>Directed Readings in Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 797</td>
<td>Advanced Topics in Information Systems</td>
<td>1-6</td>
</tr>
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#### Information Security and Assurance (ISA)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ISA 564</td>
<td>Security Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>ISA 650</td>
<td>Security Policy</td>
<td>3</td>
</tr>
<tr>
<td>ISA 652</td>
<td>Security Audit and Compliance Testing</td>
<td>3</td>
</tr>
<tr>
<td>ISA 655</td>
<td>Network Security</td>
<td>3</td>
</tr>
<tr>
<td>ISA 673</td>
<td>Operating Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>ISA 674</td>
<td>Intrusion Detection</td>
<td>3</td>
</tr>
<tr>
<td>ISA 681</td>
<td>Secure Software Design</td>
<td>3</td>
</tr>
<tr>
<td>ISA 697</td>
<td>Topics in Information Security</td>
<td>1-6</td>
</tr>
<tr>
<td>ISA 763</td>
<td>Security Protocol Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ISA 764</td>
<td>Security Experimentation</td>
<td>3</td>
</tr>
<tr>
<td>ISA 785</td>
<td>Research in Digital Forensics</td>
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</tr>
<tr>
<td>ISA 797</td>
<td>Advanced Topics in Information Security</td>
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</table>

#### Software Engineering (SWE)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SWE 620</td>
<td>Software Requirements Analysis and Specification</td>
<td>3</td>
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<tr>
<td>SWE 625</td>
<td>Software Project Management</td>
<td>3</td>
</tr>
<tr>
<td>SWE 626</td>
<td>Software Project Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>SWE 631</td>
<td>Software Design Patterns</td>
<td>3</td>
</tr>
<tr>
<td>SWE 632</td>
<td>User Interface Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>SWE 642</td>
<td>Software Engineering for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>SWE 645</td>
<td>Component-Based Software Development</td>
<td>3</td>
</tr>
<tr>
<td>SWE 699</td>
<td>Special Topics in Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SWE 721</td>
<td>Reusable Software Architectures</td>
<td>3</td>
</tr>
<tr>
<td>SWE 727</td>
<td>Quality of Service for Software Architectures</td>
<td>3</td>
</tr>
<tr>
<td>SWE 763</td>
<td>Software Engineering Experimentation</td>
<td>3</td>
</tr>
<tr>
<td>SWE 795</td>
<td>Advanced Topics in Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SWE 796</td>
<td>Directed Readings in Software Engineering</td>
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</tr>
<tr>
<td>SWE 798</td>
<td>Research Project</td>
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#### Computer Science (CS)

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining</td>
<td>3</td>
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<tr>
<td>CS 530</td>
<td>Mathematical Foundations of Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 531</td>
<td>Fundamentals of Systems Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CS 635</td>
<td>Foundations of Parallel Computation</td>
<td>3</td>
</tr>
<tr>
<td>CS 640</td>
<td>Advanced Compilers</td>
<td>3</td>
</tr>
<tr>
<td>CS 650</td>
<td>Advanced Database Management</td>
<td>3</td>
</tr>
<tr>
<td>CS 657</td>
<td>Mining Massive Datasets with MapReduce</td>
<td>3</td>
</tr>
<tr>
<td>CS 662</td>
<td>Computer Graphics Game Technologies</td>
<td>3</td>
</tr>
<tr>
<td>CS 672</td>
<td>Computer System Performance Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>CS 673</td>
<td>Multimedia Computing and Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 674</td>
<td>Data Mining on Multimedia Data</td>
<td>3</td>
</tr>
<tr>
<td>CS 681</td>
<td>Knowledge Engineering</td>
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<tr>
<td>CS 682</td>
<td>Computer Vision</td>
<td>3</td>
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<tr>
<td>CS 683</td>
<td>Parallel Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 684</td>
<td>Graph Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 685</td>
<td>Autonomous Robotics</td>
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</tr>
<tr>
<td>CS 686</td>
<td>Image Processing and Applications</td>
<td>3</td>
</tr>
<tr>
<td>CS 687</td>
<td>Advanced Artificial Intelligence</td>
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<tr>
<td>CS 688</td>
<td>Pattern Recognition</td>
<td>3</td>
</tr>
<tr>
<td>CS 700</td>
<td>Quantitative Methods and Experimental Design in Computer Science</td>
<td>3</td>
</tr>
<tr>
<td>CS 706</td>
<td>Concurrent Software Systems</td>
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</tr>
<tr>
<td>CS 752</td>
<td>Interactive Graphics Software</td>
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<tr>
<td>CS 755</td>
<td>Advanced Computer Networks</td>
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<tr>
<td>CS 756</td>
<td>Performance Analysis of Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CS 773</td>
<td>Real-Time Systems Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>CS 777</td>
<td>Human-Computer Intelligent Interaction</td>
<td>3</td>
</tr>
<tr>
<td>CS 779</td>
<td>Topics in Resilient and Secure Computer Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 782</td>
<td>Machine Learning</td>
<td>3</td>
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<tr>
<td>CS 795</td>
<td>Advanced Topics in CS</td>
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#### Electrical and Computer Engineering (ECE)

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>ECE 511</td>
<td>Microprocessors</td>
<td>3</td>
</tr>
<tr>
<td>ECE 521</td>
<td>Modern Systems Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 535</td>
<td>Digital Signal Processing</td>
<td>3</td>
</tr>
<tr>
<td>ECE 545</td>
<td>Digital System Design with VHDL</td>
<td>3</td>
</tr>
<tr>
<td>ECE 548</td>
<td>Sequential Machine Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 584</td>
<td>Semiconductor Device Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ECE 586</td>
<td>Digital Integrated Circuits</td>
<td>3</td>
</tr>
<tr>
<td>ECE 611</td>
<td>Advanced Microprocessors</td>
<td>3</td>
</tr>
<tr>
<td>ECE 612</td>
<td>Real-Time Embedded Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 620</td>
<td>Optimal Control Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 621</td>
<td>Systems Identification</td>
<td>3</td>
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</table>
Accelerated Master's

Applied Computer Science, BS/Information Systems, Accelerated MS Overview

Highly-qualified students in the Applied Computer Science, BS (p. 983) program have the option of obtaining an accelerated Information Systems, MS (p. 1006). See AP. 6.7 Bachelor's/Accelerated Master's Degrees (p. 89).

Students in an accelerated degree program must fulfill all university requirements for the master's degree. For policies governing all graduate degrees, see AP. 6 Graduate Policies (p. 87).

Admission Requirements

Students in the Applied Computer Science, BS (p. 983) program can apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
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<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
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</tr>
<tr>
<td></td>
<td>Total Credits</td>
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</tbody>
</table>

Accelerated Option Requirements

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap.

Students register for two 500-level computer science core courses (6 credits) in place of the corresponding 400-level computer science courses, as part of the undergraduate degree requirements. Specifically, students must take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- CS 540 Language Processors
- CS 550 Database Systems
- CS 551 Computer Graphics
- CS 555 Computer Communications and Networking
- CS 571 Operating Systems
Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Information Systems, Accelerated MS
Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Information Systems, MS (p. 1006).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Criteria for admission are identical to the criteria for admission to the Information Systems, MS (p. 1006) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with the following two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>INFS 614</td>
<td>Database Management (satisfies IT 414 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>INFS 622</td>
<td>Information Systems Analysis and Design (satisfies as one DTP concentration course in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Students must complete MATH 125 Discrete Mathematics I (Mason Core) (p. 135) as their discrete math requirement and IT 306 Program Design and Data Structures as part of their concentration requirements in the BS program.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Software Engineering Graduate Certificate
Banner Code: VS-CERG-SWE

Academic Advising
This graduate certificate program provides knowledge, tools, and techniques to those who are working in or planning to work in software engineering but do not want to complete requirements for a master's degree in the field. The certificate may be pursued concurrently with any of the graduate degree programs in the Volgenau School.

The graduate certificate may be pursued on a part-time or full-time basis.

### Admissions & Policies

### Admissions

Applicants must hold a baccalaureate degree from an accredited institution and have earned a GPA of 3.00 or higher in the last 60 credits. In addition, applicants must complete a self-assessment form, which can be obtained from the Computer Science Department. This form provides summary information concerning background and preparation for the program.

Applicants must possess knowledge equivalent to the following undergraduate courses: structured programming in a modern programming language, data structures, discrete mathematics, and machine organization. The level of knowledge may also be achieved by taking the following foundation courses at Mason:

- **INFS 501** Discrete and Logical Structures for Information Systems
- **SWE 510** Object-Oriented Programming in Java
- **INFS 515** Computer Organization Course and Operating Systems
- **INFS 519** Program Design and Data Structures

In addition, it is desirable, but not necessary, for applicants to have at least one year of appropriate work experience in building or modifying software systems.

Applicants must submit a one- to two-page statement of educational and work experience in the computing field that includes a statement of career goals in software engineering. Students not enrolled in a graduate degree program at Mason should apply for the certificate program through the Office of Graduate Admission. Students already enrolled in a Mason graduate degree program should apply to the department for admission into the certificate program. Admission into the certificate program does not guarantee acceptance into any MS program.

### Policies

Students must complete four courses with an average grade of B or better for a total of 12 credits of graduate study.

### Requirements

#### Certificate Requirements

Total credits: 12

#### Three Courses

Select three courses from the following:

- **SWE 619** Object-Oriented Software Specification and Construction
- **SWE 621** Software Modeling and Architectural Design
- **SWE 622** Distributed Software Engineering
- **SWE 637** Software Testing

Total Credits: 9

#### Additional Course

Select one course from the following:

- **CS 675** Distributed Systems
- **CS 706** Concurrent Software Systems
- **SWE 620** Software Requirements Analysis and Specification
- **SWE 622** Distributed Software Engineering
- **SWE 625** Software Project Management
- **SWE 626** Software Project Laboratory
- **SWE 631** Software Design Patterns
- **SWE 632** User Interface Design and Development
- **SWE 637** Software Testing
- **SYST 621** Systems Architecture Design
- **SWE 642** Software Engineering for the World Wide Web
- **SWE 645** Component-Based Software Development
- **SWE 681** Secure Software Design and Programming
- **SWE 699** Special Topics in Software Engineering
- **SWE 721** Reusable Software Architectures
- **SWE 727** Quality of Service for Software Architectures
- **SWE 760** Software Analysis and Design of Real-Time Systems
- **SWE 763** Software Engineering Experimentation
- **SWE 795** Advanced Topics in Software Engineering
- **SWE 798** Research Project

Total Credits: 3

1 subject to satisfying the prerequisites

### Notes

Students enrolled in the MS in Information Systems Program must substitute SWE 620 Software Requirements Analysis and Specification for INFS 622 Information Systems Analysis and Design to obtain this certificate. Credit is not given for taking both INFS 622 Information Systems Analysis and Design and SWE 620 Software Requirements Analysis and Specification; only 3 credits will be awarded.

Students enrolled in the MS in Computer Science Program may obtain a certificate in software engineering by taking any four SWE courses. If CS 706 Concurrent Software Systems is included, it is possible to complete the MS in Computer Science and the certificate in software engineering in 30 hours.
Software Engineering Minor

Banner Code: SWE

Academic Advising

Phone: 703-993-1530
Email: csinfo@gmu.edu
Website: http://cs.gmu.edu/prospective-students/undergraduate-programs/minors-and-undergraduate-certificate/

Admissions & Policies

Admissions
Declaring a Software Engineering Minor
Students requesting a software engineering minor must have completed CS 112 Introduction to Computer Programming (Mason Core) (p. 135) or CS 211 Object-Oriented Programming with a B or better.

Policies
General
Candidates for the minor in software engineering must complete 19 credits in software engineering with a minimum GPA of 2.00, 8 credits of which must be unique to the minor and not used for the major. For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Grades
No more than 3 credits of D grades may be used to satisfy minor requirements.

Requirements

Minor Requirements
Total credits: 19

Required Courses
CS 112 Introduction to Computer Programming (Mason Core) (p. 135) 4
CS 211 Object-Oriented Programming 3
CS 310 Data Structures 3
Select three from the following: 9
SWE 205 Software Usability Analysis and Design
CS 321 Software Engineering
CS 332 Object-Oriented Software Design and Implementation
SWE 432 Design and Implementation of Software for the Web
SWE 437 Software Testing and Maintenance
SWE 443 Software Architectures

Total Credits 19

Software Engineering, MS

Banner Code: VS-MS-SWE

Academic Advising

Phone: 703-993-1530
Email: csgrad@gmu.edu
Website: cs.gmu.edu/prospective-students/ms-programs/ms-in-software-engineering/

The MS provides specialized knowledge and experience in developing and modifying large, complex software systems. It emphasizes technical and management aspects of software engineering development. Software engineering is an established discipline based on requirements analysis, design, construction, testing, maintenance, economics, and management issues. A pragmatic approach to problem solving is the hallmark of a software engineer. Software engineers are concerned with the theoretical and practical aspects of technology, cost, and social impact of software systems that are effective and efficient.

Software engineers are in demand in every segment of society affected by computing technology. Potential employers include all software vendors and Internet-based companies, electronic business organizations, businesses that build and sell computers, research and development laboratories, aerospace companies, government contractors, banks, insurance companies, and manufacturing organizations. The master’s program is concerned with technical and managerial issues, but primary emphasis is placed on the technical aspects of building and modifying high-quality software systems.

Successful applicants have a broad variety of undergraduate backgrounds, including computer science, science and mathematics, engineering, liberal arts, and business. Many students are working or have worked in the software industry.

The program is revised on a regular basis to stay abreast of the latest developments in information technology (IT). The program introduced a major revision for fall 2005; recent additions include software construction with the object-oriented Java programming language, requirements analysis with use cases and the Unified Modeling Language (UML), object-oriented software design with the UML, graphical user interface design, software engineering for the web, software project management using the spiral life cycle model and the Capability Maturity Model, software architecture, design patterns, system testing and testing of object-oriented components, and formal methods using the Object Constraint Language. All classes are scheduled in the late afternoon and early evening to accommodate employed students.

Requirements

Admissions

Students entering the MS program must have coursework or equivalent knowledge in the following areas: introductory programming in any language; knowledge of an object-oriented programming language such as Java, C++, or C#; data structures and algorithms; machine organization (such as those given in computer system architecture or assembly language courses); and topics in discrete mathematics, including sets, relations, functions, trees, graphs, and inductive proofs.

The level of knowledge required in these areas is equivalent to that taught in undergraduate courses and may be achieved by taking the following foundation courses from Mason:
In addition, it is desirable, though not required, that entering students have at least one year of work experience in building or modifying software systems.

Prospective students are asked to complete a department self-evaluation form, indicating whether previously taken courses may satisfy these foundation requirements. On acceptance, students are advised of the necessary foundation courses to be satisfactorily completed to meet this requirement. Foundation courses do not earn credit toward the MS degree; however, they must be successfully completed with a grade of B or better before enrolling in the core curriculum.

Students may test out to indicate they have the requisite knowledge for those foundation courses. The exams are given before classes begin in January and August, and can only be taken once. Registration is not required; students need only be present at the date, time, and location specified and bring some form of photographic identification. Detailed information is available on the department web site. Students failing any one of the exams must take the equivalent course before enrolling in the core curriculum courses.

**Application Requirements**

In addition to general admission requirements of the university, each applicant to the MS program must hold a four-year (120-credit) baccalaureate degree in an appropriate discipline from an accredited institution and have earned a GPA of 3.00 or better in the last 60 credits of undergraduate study. Other requirements are as follows:

- Provide a resume and a one- to two-page statement of educational and work experience in the computing field that includes a statement of career goals in software engineering.
- Complete the self-evaluation section of the online application. This information is used by the admissions committee to assess an applicant's academic preparation for the MS program. Students with some deficiencies in preparation may be admitted provisionally pending completion of foundation courses required for the program.
- Submit the appropriate application with two letters of recommendation from people directly knowledgeable of the applicant's professional and academic competence.
- The GRE is only required for those who have not earned a Bachelor's degree from a US Institution.
- International students must submit their English Proficiency scores.

Acceptance into the MS program is based on an overall assessment of the applicant’s ability to complete the program of study satisfactorily. Well-qualified students with minor deficiencies may be admitted to the program in provisional status, with specified course work to be completed within a specified time.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>SWE 727</td>
<td>Quality of Service for Software Architectures</td>
<td>3</td>
</tr>
<tr>
<td>SWE 760</td>
<td>Software Analysis and Design of Real-Time Systems</td>
<td>3</td>
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**Secure Software Engineering**

<table>
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<th>Course Title</th>
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<td>ISA 562</td>
<td>Information Security Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>SWE 642</td>
<td>Software Engineering for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>SWE 681</td>
<td>Secure Software Design and Programming</td>
<td>3</td>
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<tr>
<td>SWE 737</td>
<td>Advanced Software Testing</td>
<td>3</td>
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<tr>
<td>ISA 673</td>
<td>Operating Systems Security</td>
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**Software Management**

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<tr>
<td>OR 540</td>
<td>Management Science</td>
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</tr>
<tr>
<td>SWE 620</td>
<td>Software Requirements Analysis and Specification</td>
<td>3</td>
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<tr>
<td>SWE 625</td>
<td>Software Project Management</td>
<td>3</td>
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<tr>
<td>SWE 626</td>
<td>Software Project Laboratory</td>
<td>3</td>
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<tr>
<td>ISA 650</td>
<td>Security Policy</td>
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**Web Applications Design and Development**

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<tr>
<td>INFS 614</td>
<td>Database Management</td>
<td>3</td>
</tr>
<tr>
<td>or CS 550</td>
<td>Database Systems</td>
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</tr>
<tr>
<td>SWE 632</td>
<td>User Interface Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>SWE 642</td>
<td>Software Engineering for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>SWE 645</td>
<td>Component-Based Software Development</td>
<td>3</td>
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<tr>
<td>SWE 722</td>
<td>Service Oriented Architecture</td>
<td>3</td>
</tr>
<tr>
<td>SWE 737</td>
<td>Advanced Software Testing</td>
<td>3</td>
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</table>

**Electives**

Students may select the remaining courses from the list of approved elective courses, including other emphasis areas and courses from other MS programs in the department and the Volgenau School. Students may choose other graduate electives with the consent of their faculty advisor and the graduate coordinator. Students, with the consent of a faculty sponsor and faculty advisor, may also elect courses in individualized study, special topics, or a 6-credit thesis, which is primarily intended for students planning to pursue a PhD in Information Technology with a concentration in Software Engineering.

Select 9 credits from the list of approved elective courses or from the following:

- SWE 699: Special Topics in Software Engineering
- SWE 795: Advanced Topics in Software Engineering
- SWE 796: Directed Readings in Software Engineering
- SWE 798: Research Project
- SWE 799: Thesis

**Approved Electives**

Below is the list of approved electives organized by academic program. Students should note that a maximum of two 500-level courses are allowed as electives. Courses not on this list may only be taken with explicit signed permission from the MS-SWE advisor.

**Information Systems (INFS)**

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>INFS 612</td>
<td>Principles and Practices of Communication Networks</td>
<td>3</td>
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<tr>
<td>INFS 614</td>
<td>Database Management</td>
<td>3</td>
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<tr>
<td>INFS 623</td>
<td>Web Search Engines and Recommender Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 640</td>
<td>Introduction to Electronic Commerce</td>
<td>3</td>
</tr>
<tr>
<td>INFS 697</td>
<td>Topics in Information Systems</td>
<td>1-6</td>
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<tr>
<td>INFS 740</td>
<td>Database Programming for the World Wide Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 760</td>
<td>Advanced Database Management</td>
<td>3</td>
</tr>
<tr>
<td>INFS 770</td>
<td>Knowledge Management for E-Business</td>
<td>3</td>
</tr>
<tr>
<td>INFS 772</td>
<td>Intelligent Agents and the Semantic Web</td>
<td>3</td>
</tr>
<tr>
<td>INFS 774</td>
<td>Enterprise Architecture</td>
<td>3</td>
</tr>
<tr>
<td>INFS 797</td>
<td>Advanced Topics in Information Systems</td>
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**Information Security and Assurance (ISA)**

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<td>ISA 562</td>
<td>Information Security Theory and Practice</td>
<td>3</td>
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<tr>
<td>ISA 564</td>
<td>Security Laboratory</td>
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<tr>
<td>ISA 650</td>
<td>Security Policy</td>
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<tr>
<td>ISA 652</td>
<td>Security Audit and Compliance Testing</td>
<td>3</td>
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<tr>
<td>ISA 656</td>
<td>Network Security</td>
<td>3</td>
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<tr>
<td>ISA 673</td>
<td>Operating Systems Security</td>
<td>3</td>
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<tr>
<td>ISA 681</td>
<td>Secure Software Design</td>
<td>3</td>
</tr>
<tr>
<td>ISA 697</td>
<td>Topics in Information Security</td>
<td>1-6</td>
</tr>
<tr>
<td>ISA 763</td>
<td>Security Protocol Analysis</td>
<td>3</td>
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<tr>
<td>ISA 764</td>
<td>Security Experimentation</td>
<td>3</td>
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<tr>
<td>ISA 785</td>
<td>Research in Digital Forensics</td>
<td>3</td>
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<tr>
<td>ISA 797</td>
<td>Advanced Topics in Information Security</td>
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**Software Engineering (SWE)**

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<tr>
<td>SWE 620</td>
<td>Software Requirements Analysis and Specification</td>
<td>3</td>
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<tr>
<td>SWE 625</td>
<td>Software Project Management</td>
<td>3</td>
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<td>SWE 626</td>
<td>Software Project Laboratory</td>
<td>3</td>
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<tr>
<td>SWE 631</td>
<td>Software Design Patterns</td>
<td>3</td>
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<tr>
<td>SWE 632</td>
<td>User Interface Design and Development</td>
<td>3</td>
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<tr>
<td>SWE 642</td>
<td>Software Engineering for the World Wide Web</td>
<td>3</td>
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<td>SWE 645</td>
<td>Component-Based Software Development</td>
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<tr>
<td>SWE 681</td>
<td>Secure Software Design and Programming</td>
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<tr>
<td>SWE 699</td>
<td>Special Topics in Software Engineering</td>
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<tr>
<td>SWE 721</td>
<td>Reusable Software Architectures</td>
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<td>SWE 727</td>
<td>Quality of Service for Software Architectures</td>
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<tr>
<td>SWE 737</td>
<td>Advanced Software Testing</td>
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<tr>
<td>SWE 760</td>
<td>Software Analysis and Design of Real-Time Systems</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>SWE 763</td>
<td>Software Engineering Experimentation</td>
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<tr>
<td>SWE 795</td>
<td>Advanced Topics in Software Engineering</td>
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<tr>
<td>SWE 796</td>
<td>Directed Readings in Software Engineering</td>
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<tr>
<td>SWE 798</td>
<td>Research Project</td>
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<tr>
<td>SWE 799</td>
<td>Thesis</td>
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**Computer Science (CS)**

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<tr>
<td>CS 531</td>
<td>Fundamentals of Systems Programming</td>
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<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
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<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
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<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
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<tr>
<td>CS 571</td>
<td>Operating Systems</td>
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<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
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<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
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<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
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<tr>
<td>CS 611</td>
<td>Computational Methods for Genomics</td>
<td>3</td>
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<tr>
<td>CS 630</td>
<td>Advanced Algorithms</td>
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<tr>
<td>CS 635</td>
<td>Foundations of Parallel Computation</td>
<td>3</td>
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<tr>
<td>CS 640</td>
<td>Advanced Compilers</td>
<td>3</td>
</tr>
<tr>
<td>CS 650</td>
<td>Advanced Database Management</td>
<td>3</td>
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<tr>
<td>CS 657</td>
<td>Mining Massive Datasets with MapReduce</td>
<td>3</td>
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<tr>
<td>CS 662</td>
<td>Computer Graphics Game Technologies</td>
<td>3</td>
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<tr>
<td>CS 672</td>
<td>Computer System Performance Evaluation</td>
<td>3</td>
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<td>CS 673</td>
<td>Multimedia Computing and Systems</td>
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<td>CS 674</td>
<td>Data Mining on Multimedia Data</td>
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<td>CS 681</td>
<td>Knowledge Engineering</td>
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<td>CS 682</td>
<td>Computer Vision</td>
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<tr>
<td>CS 683</td>
<td>Parallel Algorithms</td>
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<td>CS 684</td>
<td>Graph Algorithms</td>
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<td>CS 685</td>
<td>Autonomous Robotics</td>
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<td>CS 686</td>
<td>Image Processing and Applications</td>
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<td>CS 687</td>
<td>Advanced Artificial Intelligence</td>
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<td>CS 688</td>
<td>Pattern Recognition</td>
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<td>CS 689</td>
<td>Planning Motions of Robots and Molecules</td>
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<td>CS 700</td>
<td>Quantitative Methods and Experimental Design in Computer Science</td>
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<td>CS 706</td>
<td>Concurrent Software Systems</td>
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<td>CS 752</td>
<td>Interactive Graphics Software</td>
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<td>CS 755</td>
<td>Advanced Computer Networks</td>
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<td>CS 756</td>
<td>Performance Analysis of Computer Networks</td>
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<td>CS 773</td>
<td>Real-Time Systems Design and Development</td>
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<td>CS 777</td>
<td>Human-Computer Intelligent Interaction</td>
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<td>CS 779</td>
<td>Topics in Resilient and Secure Computer Systems</td>
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<td>CS 782</td>
<td>Machine Learning</td>
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<td>CS 787</td>
<td>Decision Guidance Systems</td>
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<td>Advanced Topics in CS</td>
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**Electrical and Computer Engineering (ECE)**

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<td>ECE 511</td>
<td>Microprocessors</td>
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<tr>
<td>ECE 521</td>
<td>Modern Systems Theory</td>
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<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
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<td>ECE 535</td>
<td>Digital Signal Processing</td>
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<td>ECE 537</td>
<td>Introduction to Digital Image Processing (DIP)</td>
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<tr>
<td>ECE 542</td>
<td>Computer Network Architectures and Protocols</td>
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<td>ECE 545</td>
<td>Digital System Design with VHDL</td>
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<td>ECE 548</td>
<td>Sequential Machine Theory</td>
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<td>ECE 584</td>
<td>Semiconductor Device Fundamentals</td>
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<td>ECE 586</td>
<td>Digital Integrated Circuits</td>
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<td>ECE 611</td>
<td>Advanced Microprocessors</td>
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<td>ECE 612</td>
<td>Real-Time Embedded Systems</td>
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<td>ECE 620</td>
<td>Optimal Control Theory</td>
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<td>ECE 621</td>
<td>Systems Identification</td>
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<td>ECE 624</td>
<td>Control Systems</td>
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<td>Statistical Communication Theory</td>
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<td>Coding Theory</td>
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<td>ECE 635</td>
<td>Adaptive Signal Processing</td>
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<td>ECE 641</td>
<td>Computer System Architecture</td>
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<td>ECE 642</td>
<td>Design and Analysis of Computer Communication Networks</td>
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<td>ECE 643</td>
<td>Network Switching and Routing</td>
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<td>Computer Arithmetic</td>
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<td>Cryptography and Computer Network Security</td>
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<td>ECE 650</td>
<td>Robotics</td>
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<td>Physical VLSI Design</td>
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<td>VLSI Design for ASICs</td>
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<td>Mobile Communication Systems</td>
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<td>Wireless Networks</td>
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<td>ECE 746</td>
<td>Advanced Applied Cryptography</td>
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**Operations Research (OR)**

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<tr>
<td>OR 540</td>
<td>Management Science</td>
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<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
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<tr>
<td>OR 542</td>
<td>Operations Research: Stochastic Models</td>
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<tr>
<td>OR 635</td>
<td>Discrete System Simulation</td>
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<td>OR 640</td>
<td>Global Optimization and Computational Intelligence</td>
<td>3</td>
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<tr>
<td>OR 641</td>
<td>Linear Programming</td>
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</tr>
<tr>
<td>OR 642</td>
<td>Integer Programming</td>
<td>3</td>
</tr>
<tr>
<td>OR 643</td>
<td>Network Modeling</td>
<td>3</td>
</tr>
<tr>
<td>OR 644</td>
<td>Nonlinear Programming</td>
<td>3</td>
</tr>
<tr>
<td>OR 645</td>
<td>Stochastic Processes</td>
<td>3</td>
</tr>
<tr>
<td>OR 647</td>
<td>Queueing Theory</td>
<td>3</td>
</tr>
<tr>
<td>OR 681</td>
<td>Decision and Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>OR 690</td>
<td>Optimization of Supply Chains</td>
<td>3</td>
</tr>
</tbody>
</table>
### Psychology (PSYC)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 734</td>
<td>Seminar in Human Factors and Applied Cognition</td>
<td>3</td>
</tr>
</tbody>
</table>

### Statistics (STAT)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 652</td>
<td>Statistical Inference</td>
<td>3</td>
</tr>
<tr>
<td>STAT 655</td>
<td>Analysis of Variance</td>
<td>3</td>
</tr>
<tr>
<td>STAT 656</td>
<td>Regression Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 662</td>
<td>Multivariate Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>STAT 663</td>
<td>Statistical Graphics and Data Exploration</td>
<td>3</td>
</tr>
<tr>
<td>STAT 674</td>
<td>Survey Sampling II</td>
<td>3</td>
</tr>
</tbody>
</table>

### Systems Engineering (SYST)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 542</td>
<td>Decision Support Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 560</td>
<td>Introduction to Air Traffic Control</td>
<td>3</td>
</tr>
<tr>
<td>SYST 573</td>
<td>Decision and Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>SYST 611</td>
<td>System Methodology and Modeling</td>
<td>3</td>
</tr>
<tr>
<td>SYST 620</td>
<td>Discrete Event Systems</td>
<td>3</td>
</tr>
<tr>
<td>SYST 659</td>
<td>Topics in Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 660</td>
<td>Air Transportation Systems Modeling</td>
<td>3</td>
</tr>
<tr>
<td>SYST 671</td>
<td>Judgment and Choice Processing and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>SYST 680</td>
<td>Principles of Command, Control, Communications, Computing, and Intelligence (C4I)</td>
<td>3</td>
</tr>
<tr>
<td>SYST 683</td>
<td>Modeling, Simulation, and Gaming</td>
<td>3</td>
</tr>
</tbody>
</table>

### Accelerated Option Requirements

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap.

Students register for two 500-level computer science core courses (6 credits) in place of the corresponding 400-level computer science courses, as part of the undergraduate degree requirements. Specifically, students must take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td></td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td></td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td></td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td></td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td></td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td></td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

Note:
Students complete all Software Engineering, MS (p. 1012) core courses and apply the two courses from the above list toward the elective requirements.

### Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

### Computer Science, BS/Software Engineering, Accelerated MS

#### Overview

Highly-qualified students in the Computer Science, BS (p. 991) have the option of obtaining an accelerated Software Engineering, MS (p. 1012). See AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Students in the Computer Science, BS (p. 991) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>CS 330</td>
<td>Formal Methods and Models</td>
<td>3</td>
</tr>
<tr>
<td>CS 367</td>
<td>Computer Systems and Programming</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 10

#### Admission Requirements

Students in the Computer Science, BS (p. 991) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Students must have successfully completed CS 310 Data Structures, CS 330 Formal Methods and Models and CS 367 Computer Systems and Programming.

#### Accelerated Option Requirements

Students must complete all requirements for the BS and MS programs, with 6 credits overlap. Students register for 6 credits of CS 500-level basic courses in place of the corresponding CS 400-level courses required for the undergraduate degree requirements. Specifically,
students must register for two of the following courses in place of the corresponding 400-level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 540</td>
<td>Language Processors</td>
<td>3</td>
</tr>
<tr>
<td>CS 550</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 551</td>
<td>Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CS 555</td>
<td>Computer Communications and Networking</td>
<td>3</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CS 580</td>
<td>Introduction to Artificial Intelligence</td>
<td>3</td>
</tr>
<tr>
<td>CS 583</td>
<td>Analysis of Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CS 584</td>
<td>Theory and Applications of Data Mining</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:

Students complete all MS in Software Engineering (p. 1012) core courses and apply the two courses from the above list toward the elective requirements.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.

Web-Based Software Engineering Graduate Certificate

Banner Code: VS-CERG-WBSE

Academic Advising

Phone: 703-993-1530
Email: csgrad@gmu.edu
Website: http://cs.gmu.edu/prospective-students/ms-programs/graduate-certificates/

This graduate certificate program provides knowledge, tools, and techniques to those who are working in or planning to work in software engineering but do not want to complete requirements for a master's degree in the field. The certificate may be pursued concurrently with any of the graduate degree programs in the Volgenau School.

The graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

Applicants must hold a baccalaureate degree from an accredited institution and have earned a GPA of 3.00 or better in the last 60 credits. Applicants must complete a self-assessment form, which can be obtained from the department or the department web site. The form provides information concerning background and preparation for the program.

Applicants must possess knowledge equivalent to that provided by the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFS 501</td>
<td>Discrete and Logical Structures for Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>SWE 510</td>
<td>Object-Oriented Programming in Java</td>
<td>3</td>
</tr>
<tr>
<td>INFS 515</td>
<td>Computer Organization Course and Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>INFS 519</td>
<td>Program Design and Data Structures</td>
<td>3</td>
</tr>
</tbody>
</table>

Students not enrolled in a graduate degree program at Mason should apply for the certificate program through the Office of Graduate Admission. Students already enrolled in a Mason graduate degree program should apply to the department for admission into the certificate.
Program. Admission to the certificate program does not guarantee admission to any MS program.

**Policies**

**Program Requirements**

Students must complete four courses with an average grade of B or higher for a total of 12 credits of graduate study.

**Requirements**

**Certificate Requirements**

Total credits: 12

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWE 622</td>
<td>Distributed Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SWE 632</td>
<td>User Interface Design and Development</td>
<td>3</td>
</tr>
<tr>
<td>SWE 642</td>
<td>Software Engineering for the World Wide Web</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

**Additional Course**

Select one course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 675</td>
<td>Distributed Systems</td>
</tr>
<tr>
<td>INFS 614</td>
<td>Database Management</td>
</tr>
<tr>
<td>ISA 656</td>
<td>Network Security</td>
</tr>
<tr>
<td>SWE 619</td>
<td>Object-Oriented Software Specification and Construction</td>
</tr>
<tr>
<td>SWE 621</td>
<td>Software Modeling and Architectural Design</td>
</tr>
<tr>
<td>SWE 637</td>
<td>Software Testing</td>
</tr>
<tr>
<td>SWE 645</td>
<td>Component-Based Software Development</td>
</tr>
<tr>
<td>SWE 681</td>
<td>Secure Software Design and Programming</td>
</tr>
</tbody>
</table>

Total Credits 3

**Graduate Programs**

Graduate programs leading to MS and PhD degrees prepare students for careers in industry, government, and academia. Graduate certificate programs provide well-defined targets for students who want to advance or update their knowledge in selected areas. The ECE Department offers the PhD in Electrical and Computer Engineering and master’s degrees in computer engineering, electrical engineering, telecommunications, and computer forensics, and certificates in communications, forensics, networking, and signal processing.

The ECE Department is committed to high standards of teaching and research excellence in communications, digital systems design, computer networks, microprocessor and embedded systems, distributed computing, signal and image processing, control systems, robotics, intelligent systems, systems integration and microelectronics. Graduate students are offered a progressive environment with ample opportunities for the type of advanced research needed to confront the complex realities of the 21st century.

Courses in the department’s graduate programs are offered during the evening or late afternoon hours to accommodate students who are employed full time. For those who enter the programs on a full-time basis, some financial aid may be available in various forms, such as teaching assistantships, research assistantships, and work-study and co-op agreements with local industry.

**Faculty**

**Professors**

Ephraim, Griffiths, Hayes (Chair), Ioannou, Jabbari, Levis, Li, Manitius, Mark, Mulpuri, Tian

**Associate professors**

Berry, Gaj, Hintz, Jones, Kaps, Kurtay (Associate Chair), Lorie, Nelson, Osgood, Pachowicz, Paris, Peixoto, Sasan, Wage, Zeng

**Assistant professors**

Chen, Homayoun, Lofaro, Nowzari, Pandula, Zhang

**Research professors**

Elder, Katona

**Adjunct professors**


**Department of Electrical and Computer Engineering**

Phone: 703-993-1569
Email: ece@gmu.edu
Website: ece.gmu.edu

**Undergraduate Programs**

The undergraduate education mission of the ECE Department is to provide a quality education for electrical engineering and computer engineering students to support the needs of Virginia and the nation.

**Program Educational Objectives for the BS ELEN and BS CPE**

Graduates of the Electrical Engineering and the Computer Engineering programs are expected within three to five years of graduation to have:

- Established themselves as successful and productive engineering professionals or engaged in advanced study such as a graduate degree program.
- Worked effectively in team environments and individually.
- Fulfilled their responsibilities in the areas of ethics, continuing professional development and effective communications.
Emeritus faculty
Allnutt, Baraniecki, Beale, Black, Ceperley, Chang, Cook, Gertler, Schaefer, Sutton, Tabak, Van Trees

Programs

- Advanced Networking Protocols for Telecommunications Graduate Certificate
- Communications and Networking Graduate Certificate
- Computer Engineering, BS
- Computer Engineering, MS
- Digital Forensics and Cyber Analysis, MS (title pending SCHEV approval)
- Electrical Engineering, BS
- Electrical Engineering, MS
- Electrical and Computer Engineering, PhD
- Network Technologies and Applications Graduate Certificate
- Networks, System Integration and Testing Graduate Certificate
- Signal Processing Graduate Certificate
- Tactical Computer Operations Graduate Certificate
- Telecommunications Forensics and Security Graduate Certificate
- Telecommunications, MS
- Wireless Communications Graduate Certificate

Advanced Networking Protocols for Telecommunications Graduate Certificate
Banner Code: VS-CERG-ANPT

Academic Advising
MSN 2B5
4400 University Drive
Fairfax, VA 22030
Phone: 703-993-3810
Email: tcom@gmu.edu
Website: ece.gmu.edu/graduate-certificates/certificate-program-advanced-networking-protocols-telecommunications

This graduate certificate provides an in-depth understanding of advanced protocols used in a variety of telecommunications networks.

The graduate certificate may be pursued on a part-time or full-time basis.

Requirements

Certificate Requirements
Total credits: 15

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 609</td>
<td>Interior Gateway Protocol (IGP) Routing</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 610</td>
<td>Border Gateway Protocol (BGP) Routing</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 515</td>
<td>Internet Protocol Routing: Lecture and Laboratory Course</td>
<td>3</td>
</tr>
<tr>
<td>or TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 611</td>
<td>Multi-Protocol Label Switching (MPLS)</td>
<td>1</td>
</tr>
<tr>
<td>TCOM 631</td>
<td>Voice Over IP</td>
<td>1</td>
</tr>
<tr>
<td>TCOM 662</td>
<td>Advanced Secure Networking</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 9

1 May not be taken twice for credit. If a student takes TCOM 515 Internet Protocol Routing: Lecture and Laboratory Course and TCOM 535 The TCP/IP Suite of Internet Protocols in the core element, the course(s) may not be taken again in the elective element.

Communications and Networking Graduate Certificate
Banner Code: VS-CERG-CONE

Academic Advising
MSN 1G5
4400 University Drive
Fairfax, VA 22030
Phone: 703-993-1569
Email: ece@gmu.edu
Website: ece.gmu.edu/graduate-certificates/certificate-program-communications-and-networking

This graduate certificate provides graduate students with the opportunity to reach a demonstrated level of competence in communications and networking. Coursework toward the graduate certificate may be used for credit toward the MS in electrical engineering or computer engineering; however, the certificate's primary purpose is to provide a well-defined body of knowledge for students who want to advance their understanding of modern communications but do not necessarily want to complete requirements for the MS degree. The certificate may be pursued concurrently with any of the graduate degree programs in the Volgenau School.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions

The certificate program in communications and networking is open to all students who hold BS degrees in scientific and engineering disciplines from accredited universities.
Policies
The certificate is awarded on completion of five graduate courses (15 credits) in communications and networking. A cumulative GPA of 3.00 is required and one course with a grade of C at most may be applied toward the certificate. The certificate courses comprise two required foundation courses and three electives.

Requirements
Certificate Requirements
Total credits: 15

Foundation Courses
ECE 528 Introduction to Random Processes in Electrical and Computer Engineering 3
ECE 542 Computer Network Architectures and Protocols 3
Total Credits 6

Electives
After completing the foundation courses, students choose electives by taking three courses from the following:

Select three courses from the following: 9
ECE 535 Digital Signal Processing
ECE 565 Introduction to Optical Electronics
ECE 567 Optical Fiber Communications
ECE 630 Statistical Communication Theory
ECE 633 Coding Theory
ECE 635 Adaptive Signal Processing
ECE 642 Design and Analysis of Computer Communication Networks
ECE 643 Network Switching and Routing
ECE 646 Cryptography and Computer Network Security
ECE 731 Digital Communications
ECE 732 Mobile Communication Systems
ECE 734 Detection and Estimation Theory
ECE 738 Advanced Digital Signal Processing
ECE 741 Wireless Networks
ECE 742 High-Speed Networks
OR 635 Discrete System Simulation
OR 643 Network Modeling
OR 647 Queueing Theory

Total Credits 9

Computer Engineering, BS
Banner Code: VS-BS-CPE

Academic Advising
MSN 1G5
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1569
Email: ece@gmu.edu
Website: https://ece.gmu.edu/undergraduate-studies/bachelors-programs/bs-computer-engineering

The field of computer engineering can be described as a blend of electrical engineering and computer science. It is an amalgam of the computer hardware orientation of an electrical engineering program and the operating systems and languages of a computer science program. Computer engineers are involved in research, development, design, production, and operation of a wide variety of digital systems, from integrated circuits to computer systems and large-scale computer networks. Reflecting the industry trend to integrate hardware and software development, the computer engineering program is built around software running on advanced hardware that can simulate and assist in the design of new digital systems. Advanced software, such as VHDL, and software tools, such as logic and system design tools by Mentor Graphics and Cadence Design Systems, can be used to model hardware and hardware functionality from the system and architecture level down to the gate level and include relations to integrated circuit fabrication technology. Design and testing methodology involving these tools is taught in the program.

The computer engineering program is staffed by 33 full-time professors, including fellows of IEEE or other professional societies, and several part-time professors.

The bachelor’s program in computer engineering is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

Career Opportunities
Career opportunities exist in engineering research and development, product design, digital system design and integration, engineering management, engineering consultancy, technical sales, and patent law, among others. The program provides a strong preparation for graduate study.

Specializations
The curriculum provides a strong background in the fundamentals of computer engineering. A number of technical elective specializations are offered, ranging from strongly hardware-oriented to strongly software-oriented ones. These include robotics and embedded systems, computer networks, signal processing, and integrated circuits. The curriculum includes 9 credits of senior technical electives, and 3 credits of senior advanced design project, which may be used for specialization in one of these technical areas.

Additional Information
The requirements for the degree may be satisfied on a full-time or part-time basis. Cooperative education provides students the opportunity to integrate paid career-related work experience with classroom learning. Academic credit towards the completion of major requirements cannot be given for co-op experience. In addition to the usual financial aid available to all students through the Office of Student Financial Aid, computer engineering majors are eligible to apply through the ECE Department for scholarships provided by professional societies and industrial organizations, including the Armed Forces Communications and Electronics Association and the Institute of Electrical and Electronics Engineers.
Admissions & Policies

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Writing-Intensive Requirement
Mason’s writing-intensive requirement is satisfied by the following group of three courses: ECE 333 Linear Electronics I, ECE 445 Computer Organization, and ECE 491 Engineering Seminar in which faculty provide feedback on student writing assignments. Drafts and revisions are required.

Change of Major
See Change of Major (p. 955) for more information.

Termination from the Major
No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

Double Major and Minor Programs for Computer Engineering and Electrical Engineering
Computer Engineering majors and Electrical Engineering majors can earn degrees with double majors in a number of disciplines. Computer Engineering and Computer Science are frequently combined. Electrical Engineering has been combined with Computer Engineering, Computer Science, Physics, or Math. Details are available in the department brochures or at the Volgenau School website (http://volgenau.gmu.edu). There are several minors available for students in the ECE Department including the Mechanical Engineering minor (p. 1057).

Grade Requirements
All computer engineering students are strongly encouraged to see their major faculty advisor each semester before course registration.

Students must complete each ECE, ENGR, BENG, CS, MATH, PHYS and STAT course presented as part of the required 126 credits for the degree with a grade of C or better.

Students must also complete any course required by the program that is a prerequisite to another course applicable to the degree with a grade of C or better.

Requirements
Degree Requirements
Total credits: 126

Electrical and Computer Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 101</td>
<td>Introduction to Electrical and Computer Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 201</td>
<td>Introduction to Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 220</td>
<td>Continuous-Time Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 285</td>
<td>Electric Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 286</td>
<td>Electric Circuit Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>ECE 331</td>
<td>Digital System Design</td>
<td>3</td>
</tr>
<tr>
<td>ECE 332</td>
<td>Digital Electronics and Logic Design Lab</td>
<td>1</td>
</tr>
<tr>
<td>ECE 333</td>
<td>Linear Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 334</td>
<td>Linear Electronics Lab I</td>
<td>1</td>
</tr>
<tr>
<td>ECE 445</td>
<td>Computer Organization</td>
<td>3</td>
</tr>
<tr>
<td>ECE 447</td>
<td>Single-Chip Microcomputers</td>
<td>4</td>
</tr>
<tr>
<td>ECE 448</td>
<td>FPGA and ASIC Design with VHDL</td>
<td>4</td>
</tr>
<tr>
<td>ECE 465</td>
<td>Computer Networking Protocols</td>
<td>3</td>
</tr>
<tr>
<td>ECE 491</td>
<td>Engineering Seminar</td>
<td>1</td>
</tr>
<tr>
<td>ECE 492</td>
<td>Senior Advanced Design Project I (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>ECE 493</td>
<td>RS: Senior Advanced Design Project II (Mason Core) (p. 135)</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 41

Note that ECE 285 Electric Circuit Analysis I/ECE 286 Electric Circuit Analysis II courses taken at Mason prior to fall 2013 or transferred to Mason prior to fall 2014 do NOT meet the circuits analysis requirement. Students who fit in either category need to contact the department as soon as possible to discuss their options.

Students who would like to complete a more challenging senior design project have the option of enrolling in ECE 392 Engineering Design Studio to gain a semester head start in the design process.

Computer Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CS 211</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>CS 222</td>
<td>Computer Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>CS 310</td>
<td>Data Structures</td>
<td>3</td>
</tr>
</tbody>
</table>
### Mathematics and Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 125</td>
<td>Discrete Mathematics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>23</td>
</tr>
</tbody>
</table>

### Physics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 262</td>
<td>University Physics III (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>11</td>
</tr>
</tbody>
</table>

### Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core) (p. 135)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>2</td>
</tr>
</tbody>
</table>

### Technical Electives

Students must choose one of the four technical specialization areas listed below. All three of the technical electives totaling 9 credit hours must be selected from within the chosen specialization area. With the prior approval of the ECE department, students may also create a custom specialization area and select a set of technical electives, including non-ECE courses, to apply to the custom specialization area. Graduate courses listed within the specialization areas can only be taken with prior approval of the department. The decision to approve taking graduate courses listed within the specialization areas is based on a review of the student's academic record.

#### Specialization Areas

**Robotics and Embedded Systems**

Select three from the following:

- ECE 350 Embedded Systems and Hardware Interfaces
- ECE 370 Robot Design
- ECE 421 Classical Systems and Control Theory
- ECE 446 Device Driver Development
- ECE 450 Introduction to Robotics
- ECE 470 Introduction to Humanoid Robotics
- ECE 510 Real-Time Concepts

**Computer Networks**

Select three from the following:

- ECE 460 Communication and Information Theory
- ECE 462 Data and Computer Communications
- ECE 463 Digital Communications Systems
- IT 466 Network Security II

**Total Credits**

9

**Signal Processing**

Select three from the following:

- ECE 320 Signals and Systems II
- ECE 410 Applications of Discrete-Time Signal Processing
- ECE 460 Communication and Information Theory
- ECE 535 Digital Signal Processing

**Total Credits**

9

**Integrated Circuits**

Select three from the following:

- ECE 430 Principles of Semiconductor Devices
- ECE 431 Digital Circuit Design
- ECE 433 Linear Electronics II
- ECE 565 Introduction to Optical Electronics

**Total Credits**

9

**English, Communication, and Economics**

Select three from:

- ENGH 302 Advanced Composition (Mason Core) (p. 135) (Natural Sciences and Technology section)
- COMM 100 Public Speaking (Mason Core) (p. 135)
  or COMM 101 Interpersonal and Group Interaction (Mason Core) (p. 135)
- ECON 103 Contemporary Microeconomic Principles (Mason Core) (p. 135)

**Total Credits**

9

**Additional Mason Core**

Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements. Mason Core courses should be selected from the department’s list of approved courses. The Synthesis Mason Core requirement is satisfied by ECE 492 Senior Advanced Design Project I (Mason Core) (p. 135) plus ECE 493 RS: Senior Advanced Design Project II (Mason Core) (p. 135). All students must submit at least 24 credits of social science and humanities coursework, which is normally satisfied by the 24 credits of Mason Core social science and humanities courses listed here and in previous sections.

- Written Communication (p. 135)
- Literature (p. 140)
- Arts (p. 137)
- Western Civilization/World History (p. 143)
- Global Understanding (p. 139)

**Total Credits**

15
Accelerated Master’s

Computer Engineering, BS/Computer Engineering, Accelerated MS

Overview
The university offers highly-qualified students in the Computer Engineering, BS (p. 1020) the option of obtaining an accelerated Computer Engineering, MS (p. 1023).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Computer Engineering, BS (p. 1020) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.25. Criteria for admission are identical to criteria for admission to the Computer Engineering, MS (p. 1023) program.

Accelerated Option Requirements
Students must complete all credits that satisfy the requirements for the BS and MS programs, with 6 credits overlap.

Students take 6 credits of 500-level courses as part of their technical electives or substitutes for required courses as part of their 126-credit undergraduate program. The specific courses that may be taken and applied to the accelerated program will be specified by the ECE Department.

Students admitted to the accelerated program must maintain an overall GPA of at least 3.25 during the entire BS/MS program and present a GPA of at least 3.25 for the 24 credits of graduate work submitted for the MS degree.

Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Computer Engineering, MS

Banner Code: VS-MS-CPE

Academic Advising
MSN 1G5
4400 University Drive
Fairfax, VA 22030
Phone: 703-993-1569
Email: ece@gmu.edu

Website: https://ece.gmu.edu/graduate-studies/masters-programs/ms-computer-engineering

Computer Engineering involves knowledge of hardware and software development. The students learn how to design new generations of computers, as well as embedded computing systems, such as those found in smartphones, cars, appliances, computer networks, smart factories, and the internet-of-things. The program covers the entire digital integrated circuit design process targeting Field Programmable Gate Arrays (FPGAs) and Application Specific Integrated Circuits (ASICs), using various optimization criteria, such as speed, cost, power, energy, reliability, and security. It also encompasses the complete software development process targeting microcontrollers, microprocessors, multi-cores, and Graphics Processing Units (GPUs). It teaches students how to efficiently partition the system into software and hardware components, and develop high-performance interfaces between these two parts. Project-oriented courses and labs expose students to modern computer-aided design tools for hardware and software design. The students master the art of writing comprehensive technical reports and giving successful oral presentations. The computer engineering program offers the following specialization areas: digital systems design, microprocessor and embedded systems, digital signal processing, computer networks, and network and system security.

Admission is very competitive. The department’s policy is to admit only those students who have demonstrated a potential for outstanding performance in their graduate work.

Admissions & Policies

Admissions

Categories of Admission
Each student may be admitted into one of the following categories: degree, provisional, or nondegree. Provisional admission is for anyone whose past performance provides reasonable, but not strong, evidence of ability to pursue graduate work. To advance to degree status, a provisional student must achieve a 3.00 GPA after 12 credits, remove all undergraduate deficiencies by completing the corresponding courses with grades of B or better, and receive a B or better in two core courses specific to the student’s selected program and specialization. The nondegree category is used primarily by students who want to take courses but not necessarily pursue a degree. Nondegree students seeking to enter degree programs must formally apply for admission.

Requirements
To be considered for admission to the master’s program, applicants should have a baccalaureate degree in electrical engineering, computer engineering, or a closely-related discipline from an accredited program with a reputation for high academic standards, and have earned a GPA of B or better during the last 60 credits. Other requirements are as follows:

- Two letters of recommendation, preferably from academic references or references in industry or government who hold advanced degrees and are familiar with the applicant’s professional accomplishments
- Resume and detailed statement of career goals and aspirations
- For students who have not earned a bachelor’s degree from a U.S. university, satisfactory performance on the GRE
- For students whose native language is not English, a minimum TOEFL score of 575 for the paper-based exam or 230 for the computer-based
exam. A minimum score of 600 for the paper-based exam or 250 for
the computer-based exam is required for applicants who wish to be
considered for a graduate teaching assistantship.

Non-ECE Students
Students with BS or MS degrees in ECE-related disciplines (for example,
computer science, mathematics, mechanical engineering, physics, or
electrical engineering technology) are encouraged to apply for admission.
They may initially be admitted into the provisional category and advance
to degree status by satisfying requirements described in the Admissions
Categories section. Such students may also be advised to take some
courses from the undergraduate electrical or computer engineering
curriculum, according to their intended specialization and specific
backgrounds.

Policies
Student Advising
Newly-admitted graduate students must consult with the ECE graduate
coordinator before they register for classes. Students should make an
appointment by calling the ECE office. Students are expected to select a
specialization from those available in each MS degree program. Students
then are assigned an academic advisor from that specialization.

GPA Requirements
A maximum of 6 credits of courses with grades of C or B- may be applied
toward the degree. The student must present a GPA of at least 3.00 for all
courses submitted for the degree.

Program Requirements
Students must complete a minimum of 30 graduate credits beyond the
bachelor’s degree. This work must represent a cohesive set of courses
leading to comprehensive knowledge in one specialized area of computer
engineering; it cannot be a set of disjointed courses.

Plan of Study
Before the end of the second semester, each student must submit to
the graduate coordinator’s office a plan of study that has been approved
by the academic advisor. This plan should be kept up to date by regular
consultation with the academic advisor. A final, signed version of the plan
must be turned in when the student submits a graduation application.

Requirements

Degree Requirements
Total credits: 30

Core Courses
Select two courses from the following: ¹

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 511</td>
<td>Microprocessors</td>
<td>3</td>
</tr>
<tr>
<td>ECE 542</td>
<td>Computer Network Architectures and Protocols</td>
<td>3</td>
</tr>
<tr>
<td>ECE 545</td>
<td>Digital System Design with VHDL</td>
<td>3</td>
</tr>
<tr>
<td>ECE 548</td>
<td>Sequential Machine Theory</td>
<td>3</td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

¹ Requires B or better in each course.

ECE or CS Courses
Select a minimum of 3 ECE or CS courses, at the 600 level and
above, including doctoral courses (800 and 900 levels) ¹ ²

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 799</td>
<td>Master’s Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Total Credits 9

¹ Not including ECE 798 Research Project or ECE 799 Master’s Thesis
² Requires a grade of B or better in each.

Electives
Electives should be chosen either from the list of pre-approved electives
strongly suggested for a given specialization area or from the list of
elective courses common for all specialization areas. Elective courses
from the latter list must be approved by the student’s advisor prior to the
registration for a given course.

The plan of study usually has no fewer than 15 credits of courses
designated ECE.

Lists of courses appropriate for specialization areas, such as digital
systems design, microprocessor and embedded systems, digital signal
processing, computer networks, and network and system security,
are available on the ECE website. A self-defined specialization may
be created when appropriate, with the approval of the computer
engineering graduate program coordinator. This specialization must
include components of hardware and software development and the
Corresponding plan of study should comprise courses from ECE and the
Computer Science Departments.

Seminar Requirement
Graduate students are expected to participate actively in the exchange
of knowledge and ideas in their discipline. Towards this objective, all
degree candidates must attend a minimum of 6 graduate seminars
approved for the degree program. Approved seminars are publicized on
the departmental webpage.

To demonstrate completion of the seminar requirement, students must
register for ECE 795 Engineering Seminar in their final semester. The
department office will verify that the seminar requirement has been
met and submit a grade of S (satisfactory) upon completion of the
requirement. Students who have not met the seminar requirement in
their final semester must continue to register for ECE 795 Engineering
Seminar in subsequent semesters until the requirement is met.

Thesis/Scholarly Paper Option
To complete the program, students may select one of the following
options:

Thesis Option
Students who select this option must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 799</td>
<td>Master’s Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>

Coursework
Total Credits

The thesis is particularly recommended for those students who wish to
develop and document their research skills or contemplate subsequent
enrollment in a PhD program. The thesis involves a research effort, which
is conducted under the guidance of a faculty advisor. In some cases,
permission may be granted to complete a portion of the work at the
For the Electrical Engineering program (p. 1032), this committee consists of at least three full-time faculty members, including two from the student’s major specialization, and one from outside the specialization. For the Computer Engineering Program (p. 1023), this committee consists of at least three full-time faculty members, including two affiliated with the MS in Computer Engineering (p. 1023) Program, one of whom must be from the ECE Department. Thesis students may not register for ECE 798 Research Project. Students must register for at least 3 credits of thesis for their first thesis semester. Following their first thesis semester, they must register for at least 1 credit of thesis each fall and spring semester until graduation.

Scholarly Paper Option
Students who select to complete their degree program with a scholarly paper must:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Complete 30 credits of coursework</td>
<td>30</td>
</tr>
<tr>
<td>ECE 797</td>
<td>Scholarly Paper</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Enroll in a 600-level or above course requiring a research project</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Write a Scholarly Paper project report and present findings as part of the course requirements</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 30

An acceptable scholarly paper must be technically sound, adhere to accepted formatting standards for technical reports, and contain a significant literature review evidenced by a comprehensive list of cited references.

A list of courses requiring projects that can be used to satisfy the scholarly paper requirement will be published on the department website. Scholarly papers must be individual written project reports – not group projects. To qualify as a scholarly paper an oral presentation of the project is required. A passing grade for the project, reflecting both the written report and the oral presentation, satisfies the scholarly paper requirement.

A successful scholarly paper will be recorded by awarding a satisfactory (S) grade for ECE 797 Scholarly Paper. Students are eligible to attempt the scholarly paper and register for ECE 797 Scholarly Paper after completion of 18 hours of coursework. Students choosing the scholarly paper option are not eligible for graduation until they have received a final, passing grade for ECE 797 Scholarly Paper.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Computer Engineering, BS (p. 1020) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.25. Criteria for admission are identical to criteria for admission to the Computer Engineering, MS (p. 1023) program.

Accelerated Option Requirements
Students must complete all credits that satisfy the requirements for the BS and MS programs, with 6 credits overlap.

Students take 6 credits of 500-level courses as part of their technical electives or substitutes for required courses as part of their 126-credit undergraduate program. The specific courses that may be taken and applied to the accelerated program will be specified by the ECE Department.

Students admitted to the accelerated program must maintain an overall GPA of at least 3.25 during the entire BS/MS program and present a GPA of at least 3.25 for the 24 credits of graduate work submitted for the MS degree.

Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Digital Forensics and Cyber Analysis, MS (title pending SCHEV approval)

Banner Code: VS-MS-DFCA

Academic Advising

MSN 2B5
4400 University Dr
Fairfax, VA 22030

Phone: 703-993-3810
Email: cfrs@gmu.edu
Website: cfrs.gmu.edu

Note: As of catalog publication in April, the title for this program (formerly known as Computer Forensics, MS) has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia.

Digital Forensics and Cyber Analysis is a key component in criminal, civil, intelligence, and counter-terrorism matters. In the last several years, with a proliferation of digital storage, transmission, and processing of sensitive information there has been an increase in the aberrant use of computers. This aberrant behavior includes but is not limited to:
economic espionage, child exploitation, cybercrime, fraud, terrorism, and identity theft. In response to this, Digital Forensics and Cyber Analysis has become an important profession serving both public and private sectors. The MS in Digital Forensics and Cyber Analysis will prepare graduates for careers in law enforcement, various other branches of government, and in the corporate sector such as banking and finance by combining academic education with real world practical techniques and by offering advanced training in analyzing digital evidence, in intrusion forensics, and in legal and ethical issues.

Admissions & Policies

Admissions

Students who hold a bachelor's degree with a minimum undergraduate GPA of 3.0 from an accredited college or university in engineering, math, science, computer science, business (with a quantitative background), economics, or other analytical disciplines; or students who have equivalent work experience indicating analytical aptitude; may apply to the Digital Forensics and Cyber Analysis MS. Depending on their background, some applicants may be required to complete 3 to 12 credits of preliminary course work before they are allowed to enroll in any of the core courses or specialty courses in the program.

Specific application deadlines and requirements (https://admissions.gmu.edu/grad/application-deadlines-and-requirements/?academicUnit=VS&ga=1.107632321.273102085.1480697294) are available through the Office of Graduate Admissions.

Requirements

Degree Requirements

Total credits: 30

Students must complete a minimum of 30 graduate credits beyond the bachelor's degree with a GPA of 3.00 or higher, with no more than 6 credit hours of C grades. The plan of study includes a 18-credit required Core component which includes a mandatory capstone course, and the choice of either a concentration or a 12-credit elective component as shown below:

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRS 500</td>
<td>Introduction to Forensic Technology and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>or ISA 562</td>
<td>Information Security Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>CFRS 660</td>
<td>Network Forensics</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 661</td>
<td>Digital Media Forensics</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 663</td>
<td>Operations of Intrusion Detection for Forensics</td>
<td>3</td>
</tr>
<tr>
<td>or CFRS 664</td>
<td>Incident Response Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 760</td>
<td>Legal and Ethical Issues in IT</td>
<td>3</td>
</tr>
<tr>
<td>or CFRS 770</td>
<td>Fraud and Forensics in Accounting</td>
<td></td>
</tr>
<tr>
<td>CFRS 790</td>
<td>Advanced Computer Forensics</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 18

1 It is recommended that CFRS 500 Introduction to Forensic Technology and Analysis be taken for those with little to no experience in computer forensics.

2 Both CFRS 760 Legal and Ethical Issues in IT and CFRS 770 Fraud and Forensics in Accounting may be taken but only one may be used in the core component.

MS with Concentration in Penetration Testing/Reverse Engineering (PTRE)

Focused on the practical aspects of penetration testing and reverse engineering. Students are expected to master tools, techniques, and methodologies of penetration testing and reverse engineering.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRS 761</td>
<td>Malware Reverse Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 767</td>
<td>Penetration Testing in Computer Forensics</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 730</td>
<td>Forensic Deep Packet Inspection</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 772</td>
<td>Forensic Artifact Extraction</td>
<td>3</td>
</tr>
<tr>
<td>or CFRS 775</td>
<td>Kernel Forensics and Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

MS without a concentration

Students who do not choose the above concentration should select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRS 510</td>
<td>Digital Forensics Analysis</td>
<td></td>
</tr>
<tr>
<td>CFRS 590</td>
<td>Special Topics in Computer Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 663</td>
<td>Operations of Intrusion Detection for Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 664</td>
<td>Incident Response Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 698</td>
<td>Independent Reading and Research</td>
<td></td>
</tr>
<tr>
<td>CFRS 730</td>
<td>Forensic Deep Packet Inspection</td>
<td></td>
</tr>
<tr>
<td>CFRS 760</td>
<td>Legal and Ethical Issues in IT</td>
<td></td>
</tr>
<tr>
<td>CFRS 761</td>
<td>Malware Reverse Engineering</td>
<td></td>
</tr>
<tr>
<td>CFRS 762</td>
<td>Mobile Device Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 763</td>
<td>Registry Forensics - Windows</td>
<td></td>
</tr>
<tr>
<td>CFRS 764</td>
<td>Mac Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 767</td>
<td>Penetration Testing in Computer Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 768</td>
<td>Digital Warfare</td>
<td></td>
</tr>
<tr>
<td>CFRS 769</td>
<td>Anti-Forensics</td>
<td></td>
</tr>
<tr>
<td>CFRS 770</td>
<td>Fraud and Forensics in Accounting</td>
<td></td>
</tr>
<tr>
<td>CFRS 771</td>
<td>Digital Forensic Profiling</td>
<td></td>
</tr>
<tr>
<td>CFRS 772</td>
<td>Forensic Artifact Extraction</td>
<td></td>
</tr>
<tr>
<td>CFRS 773</td>
<td>Mobile Application Forensics and Analysis</td>
<td></td>
</tr>
<tr>
<td>CFRS 775</td>
<td>Kernel Forensics and Analysis</td>
<td></td>
</tr>
<tr>
<td>CFRS 780</td>
<td>Advanced Topics in Computer Forensics</td>
<td></td>
</tr>
<tr>
<td>ECE 511</td>
<td>Microprocessors</td>
<td></td>
</tr>
<tr>
<td>ECE 611</td>
<td>Advanced Microprocessors</td>
<td></td>
</tr>
<tr>
<td>ECE 612</td>
<td>Real-Time Embedded Systems</td>
<td></td>
</tr>
<tr>
<td>ECE 642</td>
<td>Design and Analysis of Computer Communication Networks</td>
<td></td>
</tr>
<tr>
<td>ECE 646</td>
<td>Cryptography and Computer Network Security</td>
<td></td>
</tr>
<tr>
<td>ECE 746</td>
<td>Advanced Applied Cryptography</td>
<td></td>
</tr>
<tr>
<td>ISA 650</td>
<td>Security Policy</td>
<td></td>
</tr>
<tr>
<td>ISA 652</td>
<td>Security Audit and Compliance Testing</td>
<td></td>
</tr>
<tr>
<td>ISA 655</td>
<td>Network Security</td>
<td></td>
</tr>
</tbody>
</table>
Accomplished Master’s

Cyber Security Engineering, BS/Digital Forensics and Cyber Analysis, Accelerated MS

Overview
Highly-qualified students in the Cyber Security Engineering, BS (p. 957) have the option of obtaining an accelerated Digital Forensics and Cyber Analysis, MS (p. 1025).

Admission Requirements
Students in the Cyber Security Engineering, BS (p. 957) program may apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Digital Forensics and Cyber Analysis, MS (p. 1025) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping.

Students register for two Digital Forensics and Cyber Analysis core courses (6 credits) in place of two of the three required technical electives, as part of the undergraduate degree requirements. Specifically, students must take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRS 500</td>
<td>Introduction to Forensic Technology and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>and one of the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFRS 510</td>
<td>Digital Forensics Analysis (satisfies the IT 357 requirement for the INFS concentration in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 660</td>
<td>Network Forensics (satisfies one NTEL concentration course in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Note: Students complete all Digital Forensics and Cyber Analysis, MS (p. 1025) core courses and apply the two courses from the above list toward the Digital Forensics and Cyber Analysis, MS (p. 1025) requirements.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Digital Forensics and Cyber Analysis (title change pending SCHEV approval), Accelerated MS

Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Digital Forensics and Cyber Analysis, MS (p. 1025).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Digital Forensics and Cyber Analysis, MS (p. 1025) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with two of the following three courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRS 500</td>
<td>Introduction to Forensic Technology and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 510</td>
<td>Digital Forensics Analysis (satisfies the IT 357 requirement for the INFS concentration in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 660</td>
<td>Network Forensics (satisfies as one NTEL concentration course in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Electrical Engineering, BS

Banner Code: VS-BS-ELEN
Academic Advising

MSN 1G5
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1569
Email: ece@gmu.edu
Website: https://ece.gmu.edu/undergraduate-studies/bachelors-programs/bs-electrical-engineering

Electrical engineering is a major field of modern technology. Electrical engineers are involved in research, development, design, production, and operation of a wide variety of devices and systems, including integrated circuits and microwave and laser devices, communication systems, control systems, radar, robots, large telecommunication networks, and power networks. The electrical engineering program is staffed by ECE faculty composed of 33 full-time professors, including fellows of IEEE or other professional societies, and several part-time professors.

The bachelor's program in electrical engineering is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

Career Opportunities

Career opportunities exist in engineering research and development, system design, system integration, engineering management, engineering consultancy, technical sales, and patent law, among others. The program provides a strong preparation for graduate study.

Specializations

The curriculum provides a strong background in the fundamentals of electrical engineering and senior-level courses in the important areas of electronics, networks, communications and signal processing, computer engineering, and controls and robotics. Further, the curriculum includes 9 credits of senior technical electives, 2 credits of advanced engineering labs, and 3 credits of senior advanced design project, which may be used for further specialization in one of these areas.

Additional Information

Degree requirements may be satisfied on a full-time or part-time basis. Cooperative education provides students with the opportunity to integrate paid career-related work experience with classroom learning. Academic credit towards the completion of major requirements is not given for co-op experience. In addition to the usual financial aid available to all students through the Office of Student Financial Aid, electrical engineering majors are eligible to apply at the ECE Department for scholarships provided by professional societies and industrial organizations, including the Armed Forces Communications and Electronics Association and the Institute of Electrical and Electronics Engineers.

Admissions & Policies

Policies

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Writing-Intensive Requirement

Mason’s writing-intensive requirement is satisfied by the following group of three courses: ECE 333 Linear Electronics I, ECE 445 Computer Organization, and ECE 491 Engineering Seminar in which faculty provide feedback on student writing assignments. Drafts and revisions are required.

Change of Major

See Change of Major (p. 955) for more information.

Termination from the Major

No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

Double Major and Minor Programs for Electrical Engineering and Computer Engineering

Electrical Engineering majors and Computer Engineering majors can earn degrees with double majors in a number of disciplines. Computer Engineering and Computer Science are frequently combined. Electrical Engineering has been combined with Computer Engineering, Computer Science, Mechanical Engineering, Physics or Math. Details are available in the department brochures or at the Volgenau School web site volgenau.gmu.edu (http://volgenau.gmu.edu). There are several minors available for students in the ECE Department including the Mechanical Engineering minor.

Grade Requirements

All electrical engineering students are strongly encouraged to see their major faculty advisor before course registration each semester.

Students must complete each ECE, ENGR, BENG, CS, MATH, PHYS, and STAT course presented as part of the required 121 credits for the degree with a grade of C or better.

Students must also complete any course required by the program that is a prerequisite to another course applicable to the degree with a grade of C or better.
# Requirements

## Degree Requirements
Total credits: minimum 121

### Electrical and Computer Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 101</td>
<td>Introduction to Electrical and Computer Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ECE 201</td>
<td>Introduction to Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 220</td>
<td>Continuous-Time Signals and Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 285</td>
<td>Electric Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 286</td>
<td>Electric Circuit Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>ECE 305</td>
<td>Electromagnetic Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 331</td>
<td>Digital System Design</td>
<td>3</td>
</tr>
<tr>
<td>ECE 332</td>
<td>Digital Electronics and Logic Design Lab</td>
<td>1</td>
</tr>
<tr>
<td>ECE 333</td>
<td>Linear Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 334</td>
<td>Linear Electronics Lab I</td>
<td>1</td>
</tr>
<tr>
<td>ECE 421</td>
<td>Classical Systems and Control Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 433</td>
<td>Linear Electronics II</td>
<td>3</td>
</tr>
<tr>
<td>ECE 445</td>
<td>Computer Organization</td>
<td>3</td>
</tr>
<tr>
<td>ECE 460</td>
<td>Communication and Information Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECE 491</td>
<td>Engineering Seminar</td>
<td>1</td>
</tr>
<tr>
<td>ECE 492</td>
<td>Senior Advanced Design Project I (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>ECE 493</td>
<td>RS: Senior Advanced Design Project II (Mason Core)</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits: 42

1. Note that ECE 285 Electric Circuit Analysis I/ECE 286 Electric Circuit Analysis II courses taken at Mason prior to fall 2013 or transferred to Mason prior to fall 2014 do NOT meet the circuits analysis requirement. Students who fit in either category need to contact the department as soon as possible to discuss their options.

2. Students who would like to complete a more challenging senior design project have the option of enrolling in ECE 392 Engineering Design Studio to gain a semester head start in the design process.

### Technical Electives
Four technical elective courses totaling 12 credit hours must be selected from the list below. Up to 3 credits of ECE 499 Special Topics in Electrical Engineering courses may be taken as technical electives. ECE 447 Single-Chip Microcomputers and ECE 448 FPGA and ASIC Design with VHDL, which are 4-credit courses with built-in labs, can be used to fulfill one technical elective and one advanced lab requirement. Some graduate courses and courses outside the ECE department may be taken to fulfill the technical elective requirement with the permission of the department. The decision to approve non-ECE courses as well as graduate courses as technical electives is at the discretion of the department based on a review of the course content and the student's academic record.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 350</td>
<td>Embedded Systems and Hardware Interfaces</td>
<td></td>
</tr>
<tr>
<td>ECE 370</td>
<td>Robot Design</td>
<td></td>
</tr>
<tr>
<td>ECE 410</td>
<td>Applications of Discrete-Time Signal Processing</td>
<td></td>
</tr>
</tbody>
</table>

Select 12 credit hours from the following: 12

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 422</td>
<td>Digital Control Systems</td>
<td></td>
</tr>
<tr>
<td>ECE 430</td>
<td>Principles of Semiconductor Devices</td>
<td></td>
</tr>
<tr>
<td>ECE 431</td>
<td>Digital Circuit Design</td>
<td></td>
</tr>
<tr>
<td>ECE 446</td>
<td>Device Driver Development</td>
<td></td>
</tr>
<tr>
<td>ECE 447</td>
<td>Single-Chip Microcomputers</td>
<td></td>
</tr>
<tr>
<td>ECE 448</td>
<td>FPGA and ASIC Design with VHDL</td>
<td></td>
</tr>
<tr>
<td>ECE 450</td>
<td>Introduction to Robotics</td>
<td></td>
</tr>
<tr>
<td>ECE 462</td>
<td>Data and Computer Communications</td>
<td></td>
</tr>
<tr>
<td>ECE 463</td>
<td>Digital Communications Systems</td>
<td></td>
</tr>
<tr>
<td>ECE 465</td>
<td>Computer Networking Protocols</td>
<td></td>
</tr>
<tr>
<td>ECE 470</td>
<td>Introduction to Humanoid Robotics</td>
<td></td>
</tr>
<tr>
<td>ECE 499</td>
<td>Special Topics in Electrical Engineering</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 12

### Advanced Engineering Labs
Select two advanced labs from the following: 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 429</td>
<td>Control Systems Lab</td>
<td></td>
</tr>
<tr>
<td>ECE 434</td>
<td>Linear Electronics II Laboratory</td>
<td></td>
</tr>
<tr>
<td>ECE 447</td>
<td>Single-Chip Microcomputers</td>
<td></td>
</tr>
<tr>
<td>ECE 448</td>
<td>FPGA and ASIC Design with VHDL</td>
<td></td>
</tr>
<tr>
<td>ECE 461</td>
<td>Communication Engineering Laboratory</td>
<td></td>
</tr>
<tr>
<td>ECE 467</td>
<td>Network Implementation Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 2

1. Fulfills 3 credits of technical electives and 1 credit of advanced lab.

### Computer Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CS 222</td>
<td>Computer Programming for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 7

### Mathematics and Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
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</tbody>
</table>

Total Credits: 20

### Physics

<table>
<thead>
<tr>
<th>Course</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160</td>
<td>University Physics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161</td>
<td>University Physics I Laboratory (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261</td>
<td>University Physics II Laboratory (Mason Core)</td>
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</tr>
<tr>
<td>PHYS 262</td>
<td>University Physics III (Mason Core)</td>
<td>3</td>
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</tbody>
</table>

Total Credits: 20
PHYS 263 University Physics III Laboratory (Mason Core) (p. 135) 1

Total Credits 12

Engineering
ENGR 107 Introduction to Engineering (Mason Core) (p. 135) 2

Total Credits 2

English, Communication, and Economics
ENGH 302 Advanced Composition (Mason Core) (p. 135) (Natural Sciences and Technology section) 3

COMM 100 or COMM 101 Public Speaking (Mason Core) (p. 135) (Interpersonal and Group Interaction (Mason Core) (p. 135)) 3

ECON 103 Contemporary Microeconomic Principles (Mason Core) (p. 135) 3

Total Credits 9

Additional Mason Core

Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements. Mason Core courses should be selected from the department's list of approved courses. The Synthesis Mason Core requirement is satisfied by ECE 492 Senior Advanced Design Project I (Mason Core) (p. 135) and ECE 493 RS: Senior Advanced Design Project II (Mason Core) (p. 135). All students must submit at least 24 credits of social science and humanities coursework, which is normally satisfied by the 24 credits of Mason Core social science and humanities courses listed here and in previous sections.

Written Communication (p. 135) 1
Literature (p. 140) 3
Arts (p. 137) 3
Western Civilization/World History (p. 143) 3
Global Understanding (p. 139) 3

Total Credits 15

1 Lower-level requirement.

Concentrations

Concentrations are available in the electrical engineering baccalaureate program. Completion of specific science courses and senior-level courses leads to one of these designations on the student's transcript on graduation. Concentration requirements may also meet some or all of the Advanced Engineering Lab and Technical Elective requirements.

Concentration in Bioengineering (BIOE)
BENG 301 Bioengineering Measurements 3
BENG 302 Bioengineering Measurements Lab 1
ECE 434 or ECE 429 Linear Electronics II Laboratory 1
ECE 492 Senior Advanced Design Project I (Mason Core) (p. 135) 1
ECE 493 RS: Senior Advanced Design Project II (Mason Core) (p. 135) 1

Select two from the following: 6

BENG 304 Modeling and Control of Physiological Systems
BENG 313 Physiology for Engineers
BENG 406 Introduction to Biomechanics
BENG 420 Bioinformatics for Engineers
BENG 525 Neural Engineering
BENG 499 Special Topics in Bioengineering 2
BENG 538 Medical Imaging
BENG 590 Selected Topics in Bioengineering
ECE 499 Special Topics in Electrical Engineering 1,2,3

Total Credits 14

1 Bioengineering topic only.
2 Must be pre-approved by advisor.
3 For a minimum of 3 credits.

Concentration in Communications and Signal Processing (CSP)
ECE 461 Communication Engineering Laboratory 1
ECE 492 Senior Advanced Design Project I (Mason Core) (p. 135) 1
ECE 493 RS: Senior Advanced Design Project II (Mason Core) (p. 135) 1

Select three from the following: 9

ECE 410 Applications of Discrete-Time Signal Processing
ECE 462 Data and Computer Communications
ECE 463 Digital Communications Systems
ECE 465 Computer Networking Protocols
ECE 499 Special Topics in Electrical Engineering 1,2,3
ECE 528 Introduction to Random Processes in Electrical and Computer Engineering
ECE 535 Digital Signal Processing
ECE 567 Optical Fiber Communications
ECE 590 Selected Topics in Engineering 1,2
PHYS 306 Wave Motion and Electromagnetic Radiation

Total Credits 13

1 Communications and signal processing topic only.
2 Must be pre-approved by advisor.
3 For a minimum of 3 credits.

Concentration in Computer Engineering (CPE)
ECE 447 Single-Chip Microcomputers 4
ECE 492 Senior Advanced Design Project I (Mason Core) (p. 135) 1
ECE 493 RS: Senior Advanced Design Project II (Mason Core) (p. 135) 1

Select two from the following: 6-7

ECE 350 Embedded Systems and Hardware Interfaces
ECE 431 Digital Circuit Design
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 446</td>
<td>Device Driver Development</td>
</tr>
<tr>
<td>ECE 448</td>
<td>FPGA and ASIC Design with VHDL</td>
</tr>
<tr>
<td>ECE 450</td>
<td>Introduction to Robotics</td>
</tr>
<tr>
<td>ECE 499</td>
<td>Special Topics in Electrical Engineering</td>
</tr>
<tr>
<td>ECE 510</td>
<td>Real-Time Concepts</td>
</tr>
<tr>
<td>ECE 548</td>
<td>Sequential Machine Theory</td>
</tr>
<tr>
<td>ECE 590</td>
<td>Selected Topics in Engineering</td>
</tr>
<tr>
<td>CS 471</td>
<td>Operating Systems</td>
</tr>
</tbody>
</table>

**Total Credits: 13-14**

1. Computer engineering topic only.
2. Must be pre-approved by advisor.
3. For a minimum of 3 credits.

### Concentration in Control Systems (CON)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 429</td>
<td>Control Systems Lab</td>
</tr>
<tr>
<td>ECE 492</td>
<td>Senior Advanced Design Project I (Mason Core)</td>
</tr>
<tr>
<td>ECE 493</td>
<td>RS: Senior Advanced Design Project II (Mason Core)</td>
</tr>
</tbody>
</table>

Select three from the following: 9-10 credits

- ECE 370: Robot Design
- ECE 422: Digital Control Systems
- ECE 447: Single-Chip Microcomputers
- ECE 450: Introduction to Robotics
- ECE 470: Introduction to Humanoid Robotics
- ECE 499: Special Topics in Electrical Engineering
- ECE 511: Microprocessors
- ECE 521: Modern Systems Theory
- ECE 528: Introduction to Random Processes in Electrical and Computer Engineering
- ECE 590: Selected Topics in Engineering

**Total Credits: 13-14**

1. Control systems topic only
2. Must be pre-approved by advisor
3. For a minimum of 3 credits.

### Concentration in Electronics (ELE)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 434</td>
<td>Linear Electronics II Laboratory</td>
</tr>
<tr>
<td>or ECE 435</td>
<td>Digital Circuit Design Laboratory</td>
</tr>
<tr>
<td>ECE 492</td>
<td>Senior Advanced Design Project I (Mason Core)</td>
</tr>
<tr>
<td>ECE 493</td>
<td>RS: Senior Advanced Design Project II (Mason Core)</td>
</tr>
</tbody>
</table>

Select three from the following: 9-10 credits

- ECE 430: Principles of Semiconductor Devices
- ECE 431: Digital Circuit Design
- ECE 447: Single-Chip Microcomputers
- ECE 448: FPGA and ASIC Design with VHDL
- ECE 499: Special Topics in Electrical Engineering
- ECE 513: Applied Electromagnetic Theory
- ECE 555: Introduction to Optical Electronics
- ECE 567: Optical Fiber Communications
- ECE 584: Semiconductor Device Fundamentals
- ECE 586: Digital Integrated Circuits
- ECE 587: Design of Analog Integrated Circuits
- ECE 590: Selected Topics in Engineering
- PHYS 306: Wave Motion and Electromagnetic Radiation
- PHYS 308: Modern Physics with Applications

**Total Credits: 13-14**

1. Electronics topic only
2. Must be pre-approved by advisor
3. For a minimum of 3 credits.

### Accelerated Master's

**Electrical Engineering, BS/Electrical Engineering, Accelerated MS**

**Overview**

Highly-qualified students in the Electrical Engineering, BS (p. 1027) have the option of obtaining an accelerated Electrical Engineering, MS (p. 1032).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Electrical Engineering, BS (p. 1027) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.25. Criteria for admission are identical to criteria for admission to the Electrical Engineering, MS (p. 1032) program.

**Accelerated Option Requirements**

Students must complete all credits that satisfy the requirements for the BS and MS programs, with 6 credits overlap.

Students take 6 credits of 500-level courses as part of their technical electives or substitutes for required courses as part of their 121-credit undergraduate program. The specific courses that may be taken and applied to the accelerated program will be specified by the ECE Department.

Students admitted to the accelerated program must maintain an overall GPA of at least 3.25 during the entire BS/MS program and present a GPA of at least 3.25 for the 24 credits of graduate work submitted for the MS degree.

Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is
submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Electrical Engineering, BS/Telecommunications, Accelerated MS**

**Overview**

Highly-qualified students in the Electrical Engineering, BS (p. 1027) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students can apply for the program during the semester in which they expect to complete 90 undergraduate credits applicable toward the BS degree. An overall GPA of at least 3.10 at the time of application is required. Criteria for admission are identical to criteria for admission to the MS in Telecommunications Program. Application is made using the accelerated graduate program application forms, and all usual requirements must be met. The accelerated program application form specifies the overlapping courses and details the 3.10 undergraduate GPA.

**Accelerated Option Requirements**

Students must complete 145 credits that satisfy all the requirements for the BS and MS degrees, with 6 credits overlap. Students take 6 credits of 500-level courses as part of their technical electives or substitutes for required courses as part of their 121-credit undergraduate program. Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree. Students admitted to the accelerated program must maintain an overall GPA of at least 3.00 during the MS program and present a GPA of at least 3.00 for the 24 credits of graduate work submitted for the MS degree.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols</td>
<td>6</td>
</tr>
<tr>
<td>TCOM 551</td>
<td>Digital Communication Systems</td>
<td></td>
</tr>
<tr>
<td>Or approved substitutions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

**Degree Conferral**

Students must apply to have the BS conferred the semester before they expect to complete the BS requirements. At the completion of the MS requirements, the MS degree will be awarded.

**Electrical Engineering, MS**

**Banner Code:** VS-MS-ELEN

**Academic Advising**

MSN 1G5
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1569
Email: ece@gmu.edu
Website: https://ece.gmu.edu/graduate-studies/masters-programs/ms-electrical-engineering

The electrical engineering program offers the following specialization areas: bioengineering, communications and networking, signal processing, control and robotics, microelectronics/nanoelectronics, and system architectures.

**Admissions & Policies**

**Admissions**

**Categories of Admission**

Each student may be admitted into one of the following categories: degree, provisional, or nondegree. Provisional admission is for anyone whose past performance provides reasonable, but not strong, evidence of ability to pursue graduate work. To advance to degree status, a provisional student must achieve a 3.00 GPA after 12 credits, remove all undergraduate deficiencies by completing the corresponding courses with grades of B or better, and receive a B or better in two core courses specific to the student’s selected program and specialization. The nondegree category is used primarily by students who want to take courses but not necessarily pursue a degree. Nondegree students seeking to enter degree programs must formally apply for admission.

**Requirements**

To be considered for admission to the master’s program, applicants should have a baccalaureate degree in electrical engineering, computer engineering, or a closely-related discipline from an accredited program with a reputation for high academic standards, and have earned a GPA of B or better during the last 60 credits. Other requirements are as follows:

- Two letters of recommendation, preferably from academic references or references in industry or government who hold advanced degrees and are familiar with the applicant’s professional accomplishments
- Resume and detailed statement of career goals and aspirations
- For students who have not earned a bachelor’s degree from a U.S. university, satisfactory performance on the GRE
- For students whose native language is not English, a minimum TOEFL score of 575 for the paper-based exam or 230 for the computer-based exam. A minimum score of 600 for the paper-based exam or 250 for the computer-based exam is required for applicants who wish to be considered for a graduate teaching assistantship.

**Non-ECE Students**

Students with BS or MS degrees in ECE-related disciplines (for example, computer science, mathematics, mechanical engineering, physics, or electrical engineering technology) are encouraged to apply for admission. They may initially be admitted into the provisional category and advance to degree status by satisfying requirements described in the Admissions Categories section. Such students may also be advised to take some courses from the undergraduate electrical or computer engineering curriculum, according to their intended specialization and specific backgrounds.
Policies

Student Advising

Newly-admitted graduate students must consult with the ECE graduate coordinator before they register for classes. Students are expected to select a specialization from those available in each MS degree program. Students then are assigned an academic advisor from that specialization.

GPA Requirements

A maximum of 6 credits of courses with grades of C or B- may be applied toward the degree. The student must present a GPA of at least 3.00 for all courses submitted for the degree.

Requirements

Degree Requirements

Total credits: 30

Students must complete a minimum of 30 graduate credits beyond the bachelor's degree. This work must represent a cohesive set of courses leading to comprehensive knowledge in one area; it cannot be a set of disjointed courses. The plan of study for the degree must include the following:

Plan of Study

Before the end of the second semester, each student must submit to the graduate coordinator’s office a plan of study that has been approved by the academic advisor. This plan should be kept up to date by regular consultation with the academic advisor. A final, signed version of the plan must be turned in when the student submits a graduation application.

Core Courses

Select two courses from the following: ¹

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 521</td>
<td>Modern Systems Theory</td>
<td></td>
</tr>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
<td></td>
</tr>
<tr>
<td>ECE 548</td>
<td>Sequential Machine Theory</td>
<td></td>
</tr>
<tr>
<td>or ECE 511</td>
<td>Microprocessors</td>
<td></td>
</tr>
<tr>
<td>ECE 584</td>
<td>Semiconductor Device Fundamentals</td>
<td></td>
</tr>
<tr>
<td>or ECE 565</td>
<td>Introduction to Optical Electronics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 6

¹ Must earn a B or better in each.

Upper Level Courses

Three courses at the 600 level or above: ¹

Total Credits 9

¹ Students must earn a B or better in each course. Must be a coherent set of courses, not including ECE 798 Research Project or ECE 799 Master’s Thesis. For guidance for selecting a coherent set of courses, students are referred to the courses listed for each of the program’s specialization areas listed on the ECE website. A maximum of 6 credits of non-ECE courses may be used, subject to prior department approval.

Seminar Requirement

Graduate students are expected to participate actively in the exchange of knowledge and ideas in their discipline. Towards this objective, all degree candidates must attend a minimum of 6 graduate seminars approved for the degree program. Approved seminars are publicized on the departmental webpage.

To demonstrate completion of the seminar requirement, students must register for ECE 795 Engineering Seminar in their final semester. The department office will verify that the seminar requirement has been met and submit a grade of S (satisfactory) upon completion of the requirement. Students who have not met the seminar requirement in their final semester must continue to register for ECE 795 Engineering Seminar in subsequent semesters until the requirement is met.

Thesis/Scholarly Paper Option

To complete the program, students may select one of the following options:

Thesis Option

Students who select this option must complete:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 799</td>
<td>Master’s Thesis</td>
<td>6</td>
</tr>
<tr>
<td>Coursework</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 30

The thesis is particularly recommended for those students who wish to develop and document their research skills or contemplate subsequent enrollment in a PhD program. The thesis involves a research effort, which is conducted under the guidance of a faculty advisor. In some cases, permission may be granted to complete a portion of the work at the student’s place of employment. The final written thesis and oral defense are approved by the student’s advisory committee.

For the Electrical Engineering program (p. 1032), this committee consists of at least three full-time faculty members, including two from the student’s major specialization, and one from outside the specialization. For the Computer Engineering Program (p. 1023), this committee consists of at least three full-time faculty members, including two affiliated with the MS in Computer Engineering (p. 1023) Program, one of whom must be from the ECE Department. Thesis students may not register for ECE 798 Research Project. Students must register for at least 3 credits of thesis for their first thesis semester. Following their first thesis semester, they must register for at least 1 credit of thesis each fall and spring semester until graduation.

Scholarly Paper Option

Students who select to complete their degree program with a scholarly paper must:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete 30 credits of coursework</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>ECE 797</td>
<td>Scholarly Paper</td>
<td>0</td>
</tr>
<tr>
<td>Enroll in a 600-level or above course requiring a research project</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Write a Scholarly Paper project report and present findings as part of the course requirements</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 30
An acceptable scholarly paper must be technically sound, adhere to accepted formatting standards for technical reports, and contain a significant literature review evidenced by a comprehensive list of cited references.

A list of courses requiring projects that can be used to satisfy the scholarly paper requirement will be published on the department website. Scholarly papers must be individual written project reports – not group projects. To qualify as a scholarly paper an oral presentation of the project is required. A passing grade for the project, reflecting both the written report and the oral presentation, satisfies the scholarly paper requirement.

A successful scholarly paper will be recorded by awarding a satisfactory (S) grade for ECE 797 Scholarly Paper. Students are eligible to attempt the scholarly paper and register for ECE 797 Scholarly Paper after completion of 18 hours of coursework. Students choosing the scholarly paper option are not eligible for graduation until they have received a final, passing grade for ECE 797 Scholarly Paper.

### Accelerated Master's

### Electrical Engineering, BS/Electrical Engineering, Accelerated MS

**Overview**

Highly-qualified students in the Electrical Engineering, BS (p. 1027) have the option of obtaining an accelerated Electrical Engineering, MS (p. 1032).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Electrical Engineering, BS (p. 1027) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.25. Criteria for admission are identical to criteria for admission to the Electrical Engineering, MS (p. 1032) program.

**Accelerated Option Requirements**

Students must complete all credits that satisfy the requirements for the BS and MS programs, with 6 credits overlap.

Students take 6 credits of 500-level courses as part of their technical electives or substitutes for required courses as part of their 121-credit undergraduate program. The specific courses that may be taken and applied to the accelerated program will be specified by the ECE Department.

Students admitted to the accelerated program must maintain an overall GPA of at least 3.25 during the entire BS/MS program and present a GPA of at least 3.25 for the 24 credits of graduate work submitted for the MS degree.

Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

### Electrical and Computer Engineering, PhD

**Banner Code:** VS-PHD-ECE

**Academic Advising**

MSN 1G5
4400 University Drive
Fairfax, VA 22030
Phone: 703-993-1570
Email: ecephd@gmu.edu
Website: ece.gmu.edu/graduate-studies/phd-programs/ece-phd-program

The PhD program in Electrical and Computer Engineering educates students to do original research on ECE topics and to become technical leaders in their fields. It has a strong and growing reputation, as graduates from the department have become professors at other universities and researchers in various industrial and government research centers. Students may choose a research emphasis in areas such as communications, networking, computer engineering, control and robotics, signal processing, micro/nano-electronics, and bioengineering. The ECE PhD program requires coursework, a qualifying exam, a teaching assignment, a dissertation proposal and research competency exam, a research seminar, dissertation research, and a dissertation defense. Mason's general doctoral requirements apply to this program.

### Admissions & Policies

#### Admissions

All general Mason and specific Volgenau School admission requirements apply. Applicants must submit official transcripts, a resume, a goals statement, three letters of recommendation and official GRE General Test results. The GRE requirement is waived for Mason ECE master’s graduates with a 3.0 or greater GPA. Applicants whose native language is not English must demonstrate proficiency by taking the TOEFL or IELTS exam. The minimum score required for admission is 575 on the TOEFL paper-based exam, 230 on the TOEFL computer-based exam, 88 on the TOEFL internet-based exam (with a minimum of 20 in each section), or 6.5 on the IELTS exam. Application materials are reviewed by the ECE PhD committee, which makes a recommendation to the ECE department chair.

#### Policies

##### Reduction of Credit

Students must complete a minimum of 72 graduate credits, which may be reduced by a maximum of 30 credits from a completed master’s degree. Reduction of credit requires the approval of the program director or designee and the dean or designee of the school. They determine whether the credits are eligible for reduction of credit and applicable to the degree program and the number of credits to be reduced.
Program Requirements

The 72 hours of required doctoral-level credits typically consist of 48 credits of regular coursework and 24 credits of dissertation research. More than half of the 72 credits applied to the doctoral degree must be earned at Mason. The degree plan outlined in Degree Requirements is based on a student who receives a full 30 credit reduction. Students who do not receive a full credit reduction should choose additional credits in consultation with their advisor.

Requirements

Degree Requirements

Total credits: 72

Doctoral Coursework

Courses that constitute a student's plan of study will be chosen in consultation with the student's advisor and/or dissertation committee, to include:

Select 18-30 credits

<table>
<thead>
<tr>
<th>Total Credits</th>
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</thead>
<tbody>
<tr>
<td>18-30</td>
</tr>
</tbody>
</table>

- 3 credits at the 600-level outside the department in a subject considered foundational for the area of emphasis. Typical examples are advanced mathematics or statistics courses for those pursuing an emphasis in communications, signal processing or control, physics courses for those desiring an emphasis in micro-/nano-electronics, computer science courses for those pursuing the computer engineering emphasis, and biology courses for those pursuing a bioengineering emphasis. Because such courses are usually not taken for master's degrees, this requirement can rarely be satisfied with a course taken previously.
- 6 credits within the department but outside the area of emphasis. This requirement may be satisfied with courses taken during previous studies, subject to approval.
- A maximum of 6 credits may be at the 500-level.
- A maximum of 6 credits of individualized reading courses at any level. Note that ECE 798 Research Project is primarily a master's level course and is not intended to be part of the PhD coursework.

Qualifying Exams

The ECE PhD Qualifying Exam tests students' knowledge of fundamental concepts and assesses their basic research skills. The exam consists of two parts: a written technical qualifying exam and a research qualifying exam requiring a written report and a presentation.

Technical Qualifying Exam

The Technical Qualifying Exam (TQE) is an in-class written exam that tests knowledge of fundamental concepts in a particular technical area. Students select one of three topics for their TQE:

1. Topic 1: Signals and Systems
2. Topic 2: Digital Design and Computer Organization
3. Topic 3: Circuits, Electronics, and Devices

Students must take the Technical Qualifying Exam within the first year after they have entered the program. The TQE is typically offered in late August, prior to the start of the fall semester. Students who enter the PhD program in the spring semester may request to take the TQE in January; such a request must be filed by the end of the spring semester.

Research Qualifying Exam

The purpose of the Research Qualifying Exam (RQE) is to assess whether students can define a research problem, critically review the literature related to the problem, apply appropriate research methods to study the problem, and interpret and communicate their results. The RQE requires students to complete a short research project and to document their results in a written report and an oral presentation. The RQE topic is defined by a faculty advisor in consultation with the student. A committee of three faculty members (the advisor plus two additional members) evaluates the written report and the oral presentation. During the presentation the student is expected to answer questions about their project and about fundamental concepts related to the research.

Evaluation

After a student has taken both the TQE and the RQE, the ECE PhD Committee reviews the exam results, the student's transcript, and a letter of recommendation from the student's advisor. Based on this information, the PhD Committee determines whether the student is qualified for the PhD program. If the student does not qualify on their first try, they may repeat one or both of the exams in the following year. The TQE and RQE may be repeated once. A student who fails to qualify on their second try is removed from the program.

Dissertation Research

A maximum of 24 credits of ECE 998 Doctoral Dissertation Proposal and ECE 999 Doctoral Dissertation may be applied to the degree. Students who choose to take fewer than 24 credits of ECE 998 Doctoral Dissertation Proposal and ECE 999 Doctoral Dissertation may earn the remaining credits from approved course work. Students cannot enroll in ECE 999 Doctoral Dissertation before they have advanced to candidacy. Students advanced to candidacy after the add period for a given semester must wait until the following semester to register for ECE 999 Doctoral Dissertation. Students cannot advance to candidacy and defend their dissertation during the same semester. Once enrolled in ECE 999 Doctoral Dissertation, students must maintain continuous registration in ECE 999 Doctoral Dissertation each semester until graduation, excluding summers. Students who defend in the summer must be registered for at least 1 credit of ECE 999 Doctoral Dissertation during that summer term.

Select 12-24 credits from the following:

<table>
<thead>
<tr>
<th>Select 12-24 credits from the following:</th>
<th>12-24</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 998 Doctoral Dissertation Proposal (minimum 9 credits required)</td>
<td></td>
</tr>
<tr>
<td>ECE 999 Doctoral Dissertation (minimum 3 credits required)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12-24
Advisor, Dissertation Director, and Dissertation Committee

The process of finding a dissertation topic and dissertation director is governed by the university’s policies, as described in the Requirements for Doctoral Degrees in the Academic Policies section of the catalog. Upon admission to the program, each student is assigned an ECE faculty member as an academic advisor. After the student passes the qualifying exam, the student proposes and the ECE department chair appoints a dissertation director who must be a Mason graduate faculty member with a full-time appointment. The dissertation director becomes the student’s academic advisor. Normally, the dissertation director is a member of ECE department; however, a member of another department may be appointed if warranted by the dissertation research topic. A dissertation committee should be formed within a year after the student has passed the qualifying exam. The dissertation committee consists of the dissertation director who acts as chair plus three or four additional members. All dissertation committees must include at least three members of the Mason graduate faculty, at least two of whom must be from the ECE Department. At least one member of the dissertation committee must be from outside the discipline of electrical and computer engineering. The outside member may be faculty from another Mason department or, if justified by the research topic, a qualified scientist or engineer from outside the university. All committee members must have a doctoral level degree. The dissertation committee must be approved by the ECE department chair. The dissertation director, as academic advisor, and the ECE Department chair must approve all decisions concerning a student’s course requirements and dissertation.

Dissertation Proposal, Research Competency Exam, Advancement to Candidacy

The student prepares a written dissertation proposal outlining the proposed research and submits it to the dissertation committee for approval. After completing coursework requirements and preparing a proposal, the student takes a research competency exam to demonstrate their preparation for dissertation research. The exam consists of a presentation of the dissertation proposal followed by an oral exam. The exam is administered by the student’s dissertation committee. The purpose of the oral exam is to verify that the student is familiar with the relevant material related to their research. The student is advanced to candidacy when he or she passes the oral exam and the dissertation committee approves the proposal.

Dissertation Research and Defense

Students conduct dissertation research under the guidance of their dissertation director, with regular consultation with other members of the dissertation committee. During this period, students must present their research results at least once in the form of a department seminar. The dissertation must represent an achievement in research, must be a significant contribution to its field, and should be deemed publishable in refereed journals or at highly selective conferences. On completion of the dissertation the student may be asked, at the discretion of the dissertation committee, to present a predefense in the presence of the committee members. The dissertation committee and the department chair approve the student’s application for a public defense of the doctoral dissertation. A copy of the dissertation must be placed in the University Libraries four weeks prior to the public defense. After a successful public defense and completion of the final form of the dissertation, the dissertation committee recommends the candidate for the degree of doctor of philosophy.

Teaching Requirement

To acquire teaching experience, each PhD student is required to participate in the department’s teaching activity. The requirement is typically satisfied by working as a recitation instructor for one semester, presenting several lectures within a course, or performing other teaching work approved by the department.

Network Technologies and Applications Graduate Certificate

Banner Code: VS-CERG-NETT

Academic Advising

MSN 2B5
4400 University Drive
Fairfax, VA 22030
Phone: 703-993-3810
Email: tcom@gmu.edu
Website: ece.gmu.edu/graduate-certificates/certificate-program-network-technologies-and-applications

This graduate certificate provides a broad understanding of the technologies used in telecommunications networks and the various applications of telecommunications networks.

The graduate certificate may be pursued on a part-time or full-time basis.

Requirements

Certificate Requirements

Total credits: 15

Requirements

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 505</td>
<td>Networked Multicomputer Systems</td>
</tr>
<tr>
<td>TCOM 510</td>
<td>Client-Server Architectures and Applications</td>
</tr>
<tr>
<td>TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols</td>
</tr>
<tr>
<td>TCOM 555</td>
<td>Network Management Foundations and Applications</td>
</tr>
<tr>
<td>TCOM 631</td>
<td>Voice Over IP</td>
</tr>
</tbody>
</table>

Total Credits 9

Elective Requirements

Select six credits 1

Total Credits 6

1 Students may elect to take any additional 6 credits from the Telecommunications, MS (p. 1040) emphasis areas 1, 2, and 3, including those in the mandatory course list that are not part of the 9 credits of core courses for the certificate.
Networks, System Integration and Testing Graduate Certificate

Banner Code: VS-CERG-NSIT

Academic Advising

MSN 1G5
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1569
Email: ece@gmu.edu
Website: ece.gmu.edu/graduate-certificates/certificate-program-networks-system-integration-and-testing

This graduate certificate provides graduate students with the opportunity to reach a demonstrated level of competence in computer networks, system integration, and software testing. Coursework toward the graduate certificate may be used for credit toward the MS in Electrical Engineering or Computer Engineering degrees; however, the certificate’s primary purpose is to provide a well-defined program for students who want to advance their knowledge of modern networks, systems integration and testing, but do not necessarily want to complete requirements for the MS degree. The certificate may be pursued concurrently with any of the graduate degree programs in the Volgenau School.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions

The networks, system integration, and testing certificate program is open to all students who hold BS degrees in scientific and engineering disciplines from accredited universities, with a GPA minimum established by The Volgenau School for all MS programs.

Policies

Program Requirements

The certificate is awarded on successful completion of five graduate courses (15 credits) from the list of required courses. A cumulative GPA of 3.00 is required, at most one course with a grade of C may be applied toward the certificate, and no more than one, 3-credit graduate course in the appropriate discipline may be transferred into the certificate from an appropriately accredited program at another institute of higher learning.

Requirements

Certificate Requirements

Total credits: 15

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 542</td>
<td>Computer Network Architectures and Protocols</td>
<td>3</td>
</tr>
<tr>
<td>ECE 673</td>
<td>Discrete Event Systems</td>
<td>3</td>
</tr>
<tr>
<td>ECE 674</td>
<td>System Architecture Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Signal Processing Graduate Certificate

Banner Code: VS-CERG-SIGP

Academic Advising

MSN 1G5
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-1569
Email: ece@gmu.edu
Website: ece.gmu.edu/graduate-certificates/certificate-program-signal-processing

The Department of Electrical and Computer Engineering, in conjunction with the Department of Statistics, offers the certificate in signal processing, which provides graduate students with an opportunity to reach a demonstrated level of competence in signal processing. Coursework for the graduate certificate can be used for credit toward the MS in Statistical Science as well as the MS in Electrical or Computer Engineering. However, the certificate’s primary purpose is to provide a well-defined body of information for students who want to advance or update their knowledge in this fast-moving field, but who do not necessarily wish to complete requirements for the MS degree. The certificate may be pursued concurrently with any of the graduate degree programs in the Volgenau School.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions

The graduate certificate is open to all students who hold BS degrees in scientific and engineering disciplines from accredited universities and hold graduate status (either degree or non-degree) in the Volgenau School.

Policies

Program Requirements

The certificate is awarded on completion of five graduate courses (15 credits) in signal processing. A cumulative GPA of 3.00 is required, and one course with a grade of C at most may be applied toward the certificate. The certificate courses comprise two foundation courses taken by all students and three elective courses.

Requirements

Certificate Requirements

Total credits: 15

Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 675</td>
<td>System Integration and Arch. Evaluation</td>
<td>3</td>
</tr>
<tr>
<td>SWE 637</td>
<td>Software Testing</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
Foundation Courses

ECE 528  Introduction to Random Processes in Electrical and Computer Engineering  3
or STAT 544  Applied Probability
ECE 535  Digital Signal Processing  3

Total Credits  6

Electives
Select three courses from the following:

ECE 537  Introduction to Digital Image Processing (DIP)
ECE 621  Systems Identification
ECE 630  Statistical Communication Theory
ECE 635  Adaptive Signal Processing
ECE 722  Kalman Filtering with Applications or ECE 728  Random Processes in Electrical and Computer Engineering
ECE 734  Detection and Estimation Theory or ECE 738  Advanced Digital Signal Processing
CSI 978  Statistical Analysis of Signals
CSI 672  Statistical Inference or STAT 652  Statistical Inference
CSI 678  Times Series Analysis and Forecasting or STAT 658  Time Series Analysis and Forecasting
ECE 751  Information Theory or ECE 754  Optimum Array Processing I or CS 775  Advanced Pattern Recognition

Total Credits  9

Tactical Computer Operations Graduate Certificate

Banner Code: VS-CERG-TCO

Academic Advising

MSN 2B5
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-3810
Email: cfrs@gmu.edu
Website: cfrs.gmu.edu

Tactical Computer Operations (TCO) is a discipline involving the offensive side of computer and forensics operations. Expertise in this field includes the ability to understand and work at the operating system kernel level, understand and work with shared libraries and application program interfaces, manipulation of network traffic at the frame level, network stack redirection, anti-forensic obfuscation, penetration engineering, and reverse engineering. Mobile devices have also opened up a plethora of offensive opportunities that needs to be understood and mastered in order to better protect and serve.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions
Students applying to this certificate must hold a bachelor's degree in either computer science or computer engineering. Prospective students without these specific degrees will need to have a technical bachelor's degree and show academic competence in the areas of: C (C++, C#, Objective C), Assembler, discrete mathematics, and computer networking. An undergraduate grade point average (GPA) of 3.0 or better (4.0 scale) is required. The Graduate Record Exam (GRE) is not required.

Policies
Course Prerequisites
Students must meet prerequisites for courses by either taking the appropriate undergraduate courses or through instructor permission.

Requirements

Certificate Requirements
Total credits: 15

Certificate Courses

CS 571  Operating Systems  3
ECE 511  Microprocessors  3
CFRS 761  Malware Reverse Engineering  3

Total Credits  9

Electives
Select two courses from the following:

CFRS 767  Penetration Testing in Computer Forensics
CFRS 769  Anti-Forensics
CFRS 773  Mobile Application Forensics and Analysis
CFRS 775  Kernel Forensics and Analysis
ECE 646  Cryptography and Computer Network Security
ISA 564  Security Laboratory
ISA 656  Network Security
ISA 681  Secure Software Design
ISA 763  Security Protocol Analysis

Total Credits  6

Telecommunications Forensics and Security Graduate Certificate

Banner Code: VS-CERG-TFAS

Academic Advising

MSN 2B5
4400 University Drive
Fairfax, VA 22030

Phone: 703-993-3810
The innovative, interdisciplinary MS in Telecommunications Program provides a blend of cutting-edge engineering-oriented courses in wireless and fiber communications systems, networks, computers, and Internet protocols, combined with courses on telecommunications policy, legal, business, and international aspects. The interdisciplinary program is designed for students who wish to enter the field of telecommunications or are working in the field and want to advance their knowledge of telecommunications. It concentrates on practical applications of telecommunications rather than on a theoretical approach. It focuses on the engineering and IT aspects of telecommunications, in combination with the interdisciplinary knowledge offered by selected courses in telecommunications business and policy. More than 30 new engineering and IT courses have been designed especially for this program, including four certificate programs that may be incorporated into, and taken concurrently with, the MS in telecommunications.

Program Structure

A novelty of the program is its structure, which consists of four emphasis areas. This structure allows students to identify more clearly the various specialties in telecommunications technology. Students enjoy considerable flexibility because they are able to design their master's programs to fit their technical preferences, including the option of taking courses in other programs at Mason. A majority of the course material comes from the Electrical and Computer Engineering (ECE) Department and the Systems Engineering and Operations Research (SEOR) Department. Courses offered by ECE focus on network technologies, such as fiber optics, and Internet protocols; network applications, such as networked multicomputer systems, client-server architectures, and network management; and wireless communications, such as digital communications, satellite communications, mobile communications, and GPS. Unique courses in the telecommunications program, such as Border Gateway Protocols, Interior Gateway Protocols, MPLS, GPS, and Advanced Link Design, complement courses given in ECE programs. In addition to the many new telecommunications courses developed for this program, ECE already offers a number of other graduate courses in communications as part of the graduate electrical engineering and computer engineering programs. Those courses may also be taken for credit under the MS in Telecommunications Program, provided students have the prerequisite background. Courses related to systems engineering, project management, and business of telecommunications (including the design and optimization of large, complex communication networks) are offered by SEOR. Both SEOR fields, systems engineering and operations research, play significant roles in all aspects of the design, operation, and business of telecommunications, and this knowledge is important for students of telecommunications. The blend of in-depth knowledge of specific elements of telecommunications technology, combined with knowledge of broader issues in telecommunications, is increasingly necessary for people who intend to work in a management or decision-making position within the telecommunications industry, telecommunications-related businesses, or government institutions dealing with telecommunications. The MS in telecommunications provides that blend.

Requirements

Certificate Requirements

Total credits: 15

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 562</td>
<td>Network Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>or ISA 562</td>
<td>Information Security Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>TCOM 515</td>
<td>Internet Protocol Routing: Lecture and Laboratory Course</td>
<td>3</td>
</tr>
<tr>
<td>or TCOM 561</td>
<td>Security, Privacy, and Applied Cryptography for Telecommunications</td>
<td></td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 660</td>
<td>Network Forensics</td>
<td>1</td>
</tr>
<tr>
<td>TCOM 661</td>
<td>Digital Media Forensics</td>
<td>1</td>
</tr>
<tr>
<td>TCOM 663</td>
<td>Operations of Intrusion Detection and Forensics</td>
<td>1</td>
</tr>
<tr>
<td>TCOM 664</td>
<td>Incident Response Forensics</td>
<td>1</td>
</tr>
</tbody>
</table>

Total Credits: 9

1. May not be taken twice for credit. If any of these courses is taken in the core element, it cannot be taken again in the elective element.

Electives

Select 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISA 562</td>
<td>Information Security Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>TCOM 660</td>
<td>Network Forensics</td>
<td></td>
</tr>
<tr>
<td>TCOM 661</td>
<td>Digital Media Forensics</td>
<td></td>
</tr>
<tr>
<td>TCOM 662</td>
<td>Advanced Secure Networking</td>
<td></td>
</tr>
<tr>
<td>TCOM 663</td>
<td>Operations of Intrusion Detection and Forensics</td>
<td></td>
</tr>
<tr>
<td>TCOM 664</td>
<td>Incident Response Forensics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 6

Telecommunications, MS

Banner Code: VS-MS-TCOM

Admissions & Policies

Admissions Requirements

Specific application deadlines and requirements (https://admissions.gmu.edu/grad/application-deadlines-and-requirements/?)
academicUnit=VS&_ga=1.107632321.273102085.1480697294) are available through the Office of Graduate Admissions.

The program is open to students who hold a BS or BA degree from an accredited college or university in engineering, math, science, computer science, business (with a quantitative background), economics, or other analytical disciplines, and students who have equivalent work experience indicating analytical aptitude. Depending on their background, some applicants may be required to complete 3 to 6 credits of preliminary course work before they are allowed to enroll in any of the core courses or emphasis courses in the program. Applicants who have not studied mathematics beyond the equivalent of algebra II/trigonometry at high school or introductory calculus classes (such as those offered in business or database management programs) will be required to take TCOM 530 Data Communications Fundamentals, the foundation course that prepares students for TCOM 521 Systems Engineering for Telecommunications Management, prior to being allowed to take TCOM 500 Modern Telecommunications. A minimum undergraduate GPA of 3.00 is usually required.

Students may be admitted to the MS program as degree seeking students, or they may be admitted for nondegree study within the program, allowing them to take individual courses. Students in the nondegree program may apply to the degree program, provided their GPA within the MS in Telecommunications Program is 3.00 or above. Up to 12 credits earned in nondegree study may be transferred into the degree program, provided each of the courses to be transferred in was passed with a grade of B or above.

**Policies**

**Program Format**

The program consists of 9 credits of mandatory engineering and technology core courses (TCOM 500 Modern Telecommunications, TCOM 530 Data Communications Fundamentals and TCOM 521 Systems Engineering for Telecommunications Management); 6 credits of electives drawn from an interdisciplinary group of core courses (PUBP 726 Telecommunications Policy, TCOM 547 Project Management in Telecommunications, or TCOM 750 Coordinating Seminar), and a basic switching lecture and laboratory course (TCOM 514 Basic Switching: Lecture and Laboratory Course) or an Internet protocol routing lecture and laboratory course (TCOM 515 Internet Protocol Routing: Lecture and Laboratory Course); and four areas of emphasis. Students who enter the program with an undergraduate degree that shows evidence of successfully completing LAN and WAN technologies may substitute TCOM 535 The TCP/IP Suite of Internet Protocols for TCOM 530 Data Communications Fundamentals in their mandatory core program, respectively.

Students must complete 30 credits of coursework through a combination of core and emphasis courses. The core consists of 15 credits, with the remaining 15 credits earned in areas of emphasis. The emphases are sub-areas of telecommunications that provide necessary depth.

Students are usually expected to take courses from at least two emphasis areas. Up to 6 credits from the core program may be carried forward into the emphases, thus permitting up to 6 credits of electives to be taken inside or outside the prime emphasis area chosen by the student. TCOM 530 Data Communications Fundamentals may be carried forward into emphasis area 1, 2, or 3; TCOM 521 Systems Engineering for Telecommunications Management may be carried forward into emphasis area 4. Double counting is not permitted, but the courses carried forward into a given emphasis may permit that area's credit requirement to be satisfied, thus allowing elective courses to be taken outside that area. Usually, a minimum of 6 credits is needed to satisfy one emphasis area.

**Program Requirements**

Students must complete a minimum of 30 graduate credits with a GPA of 3.00 or higher. Students must earn a B (3.00) or above in core courses TCOM 500 Modern Telecommunications, TCOM 521 Systems Engineering for Telecommunications Management and TCOM 530 Data Communications Fundamentals. Up to 6 credits of a combination of C grades may be carried within the program from the remaining core courses or from the emphasis courses, provided the overall GPA is 3.00 or higher.

**Telecommunications Certificates**

Four 15-credit certificates are offered by the MS in TCOM Program. Students may pursue these certificates as stand-alone programs or as part of their degree program. For the former, they are required to submit a graduate program application indicating their desire to enroll in the appropriate graduate certificate program. For the latter, because they are already enrolled in a degree program, they need only add the appropriate graduate certificate to their graduate program status at least one semester prior to the award of the certificate. The courses within the certificates are drawn directly from the MS in TCOM Program. If a student initially signs up for only a certificate program, it is possible to transfer into the degree program later, transferring up to 12 credits into the degree program. Students must therefore ensure they have transferred into the degree program prior to starting course work beyond 12 credits in the certificate program to ensure that all credits from the certificate program may transfer into the degree program. Students who transfer from a certificate program into the degree program may earn the certificate and the degree on satisfactory completion of the respective requirements. Applicable courses may count for the certificate and the degree programs.

Students may transfer in one 3-credit course from another program or institution toward their TCOM certificate, provided the course in question was passed with a B grade or higher. Students are permitted to carry one C grade within their certificate program, provided the overall GPA is 3.00 or above.

- Advanced Networking Protocols for Telecommunications Graduate Certificate (p. 1019)
- Network Technologies and Applications Graduate Certificate (p. 1036)
- Telecommunications Forensics and Security Graduate Certificate (p. 1038)
- Wireless Communications Graduate Certificate (p. 1044)

**Requirements**

**Degree Requirements**

Total credits: 30

**Plan of Study**

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 521</td>
<td>Systems Engineering for Telecommunications Management</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 530</td>
<td>Data Communications Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>
or TCOM 535  The TCP/IP Suite of Internet Protocols

**Elective Core Courses**

Select 6 credits from the following:  

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBP 726</td>
<td>Telecommunications Policy</td>
</tr>
<tr>
<td>TCOM 514</td>
<td>Basic Switching: Lecture and Laboratory Course</td>
</tr>
<tr>
<td>or TCOM 515</td>
<td>Internet Protocol Routing: Lecture and Laboratory Course</td>
</tr>
<tr>
<td>TCOM 547</td>
<td>Project Management in Telecommunications</td>
</tr>
<tr>
<td>TCOM 750</td>
<td>Coordinating Seminar</td>
</tr>
</tbody>
</table>

**Area of Emphasis**

Total Credits: 15

Areas of Emphasis

A minimum of 15 credits is required. Students usually take 15 credits from at least two of the four emphasis areas, or they may elect to take all 15 credits from the systems engineering of telecommunications area (emphasis 4). Students electing to carry forward a core course (TCOM 530 Data Communications Fundamentals or TCOM 521 Systems Engineering for Telecommunications Management) into an appropriate emphasis area have the option of taking an elective course in that area or an alternate area to bring the total number of credits in the emphasis area to 15.

An area of emphasis can be completed by courses listed under the emphasis or considered applicable to that area for a total of at least 6 credits. Some emphasis courses are in more than one area; for example, TCOM 535 The TCP/IP Suite of Internet Protocols is in emphasis 1, network technologies, and emphasis 2, network applications.

Basic courses in each emphasis have been specially designed for the telecommunications program. These courses do not require completion of prerequisites from other MS programs in the Volgenau School. Other courses, which are marked with asterisks, are from other MS programs in the Volgenau School and represent viable options for students who have appropriate prerequisites in some technical areas. Although these courses assume certain prerequisites from their specific MS programs, advanced students who already know the prerequisite material can seek instructor permission to enroll in those courses.

Alternatives to completing each emphasis area by using appropriate combinations of courses not listed under a given module may be admissible subject to prior approval by the program director. In addition, independent study, reading, and research courses may be taken in all five areas. These courses permit students to make use of their work experiences to undertake non-classroom courses for credit within the program.

Mason has negotiated an articulation agreement with the University of Virginia that allows up to 12 credits of the Informational Systems Management Certificate Program from the University of Virginia to be transferred into emphasis area 4 of the TCOM Program. In addition, graduate students from the National Defense University (NDU) may transfer up to 9 credits from NDU’s Information Security Certificate Program.

A capstone project course, TCOM 699 Telecommunications Project Course, is required under the systems engineering of telecommunications area (emphasis 4) should the student elect to take all 15 credits in this area.

Courses listed below from other graduate programs in the Volgenau School listed can be taken for credit in this program if the student has the appropriate prerequisites. Other courses from other programs may be taken for credit, with prior approval.

**Emphasis 1, Network Technologies**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 505</td>
<td>Networked Multicomputer Systems</td>
</tr>
<tr>
<td>TCOM 510</td>
<td>Client-Server Architectures and Applications</td>
</tr>
<tr>
<td>TCOM 515</td>
<td>Internet Protocol Routing: Lecture and Laboratory Course</td>
</tr>
<tr>
<td>TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols</td>
</tr>
<tr>
<td>TCOM 551</td>
<td>Digital Communication Systems</td>
</tr>
<tr>
<td>TCOM 561</td>
<td>Security, Privacy, and Applied Cryptography for Telecommunications</td>
</tr>
<tr>
<td>TCOM 562</td>
<td>Network Security Fundamentals</td>
</tr>
<tr>
<td>TCOM 608</td>
<td>Optical Communications Systems</td>
</tr>
<tr>
<td>TCOM 609</td>
<td>Interior Gateway Protocol (IGP) Routing</td>
</tr>
<tr>
<td>TCOM 610</td>
<td>Border Gateway Protocol (BGP) Routing</td>
</tr>
<tr>
<td>TCOM 631</td>
<td>Voice Over IP</td>
</tr>
<tr>
<td>TCOM 660</td>
<td>Network Forensics</td>
</tr>
<tr>
<td>TCOM 661</td>
<td>Digital Media Forensics</td>
</tr>
<tr>
<td>TCOM 663</td>
<td>Operations of Intrusion Detection and Forensics</td>
</tr>
<tr>
<td>TCOM 664</td>
<td>Incident Response Forensics</td>
</tr>
<tr>
<td>ECE 542</td>
<td>Computer Network Architectures and Protocols</td>
</tr>
<tr>
<td>ECE 565</td>
<td>Introduction to Optical Electronics</td>
</tr>
<tr>
<td>ECE 642</td>
<td>Design and Analysis of Computer Communication Networks</td>
</tr>
<tr>
<td>ECE 643</td>
<td>Network Switching and Routing</td>
</tr>
<tr>
<td>CS 571</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>CS 756</td>
<td>Performance Analysis of Computer Networks</td>
</tr>
</tbody>
</table>

**Emphasis 2, Network Applications**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 505</td>
<td>Networked Multicomputer Systems</td>
</tr>
<tr>
<td>TCOM 510</td>
<td>Client-Server Architectures and Applications</td>
</tr>
<tr>
<td>TCOM 515</td>
<td>Internet Protocol Routing: Lecture and Laboratory Course</td>
</tr>
<tr>
<td>TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols</td>
</tr>
<tr>
<td>TCOM 555</td>
<td>Network Management Foundations and Applications</td>
</tr>
<tr>
<td>TCOM 561</td>
<td>Security, Privacy, and Applied Cryptography for Telecommunications</td>
</tr>
<tr>
<td>TCOM 562</td>
<td>Network Security Fundamentals</td>
</tr>
</tbody>
</table>
### Accelerated Master’s

#### Electrical Engineering, BS/Telecommunications, Accelerated MS

**Overview**

Highly-qualified students in the Electrical Engineering, BS (p. 1027) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

#### Admission Requirements

Students can apply for the program during the semester in which they expect to complete 90 undergraduate credits applicable toward the BS degree. An overall GPA of at least 3.10 at the time of application is required. Criteria for admission are identical to criteria for admission to the MS in Telecommunications Program. Application is made using the accelerated graduate program application forms, and all usual requirements must be met. The accelerated program application form specifies the overlapping courses and details the 3.10 undergraduate GPA.

#### Accelerated Option Requirements

Students must complete 145 credits that satisfy all the requirements for the BS and MS degrees, with 6 credits overlap. Students take 6 credits of 500-level courses as part of their technical electives or substitutes for required courses as part of their 121-credit undergraduate program. Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree. Students admitted to the accelerated program must maintain an overall GPA of at least 3.00 during the MS program and present a GPA of at least 3.00 for the 24 credits of graduate work submitted for the MS degree.

#### Code | Title | Credits
--- | --- | ---
TCOM 535 | The TCP/IP Suite of Internet Protocols | 3
TCOM 551 | Digital Communication Systems | 3
TCOM 552 | Introduction to Mobile Communications Systems | 3
TCOM 562 | Network Security Fundamentals | 3
TCOM 606 | Advanced Mobile Communications Systems | 3
TCOM 607 | Satellite Communications | 3
TCOM 653 | Global Positioning System (GPS) | 3
TCOM 660 | Network Forensics | 3
TCOM 707 | Advanced Link Design | 3
ECE 732 | Mobile Communication Systems | 3
ECE 741 | Wireless Networks | 3

#### Emphasis 3, Wireless Communications

Select 6 credits from the following:

TCOM 535 | The TCP/IP Suite of Internet Protocols | 3
TCOM 551 | Digital Communication Systems | 3
TCOM 552 | Introduction to Mobile Communications Systems | 3
TCOM 562 | Network Security Fundamentals | 3
TCOM 606 | Advanced Mobile Communications Systems | 3
TCOM 607 | Satellite Communications | 3
TCOM 653 | Global Positioning System (GPS) | 3
TCOM 660 | Network Forensics | 3
TCOM 707 | Advanced Link Design | 3
ECE 732 | Mobile Communication Systems | 3
ECE 741 | Wireless Networks | 3

#### Emphasis 4, Systems Engineering of Telecommunications

This area of emphasis can be taken as one of two emphases or as one 15-credit emphasis. No more than two SYST courses can be taken within this area.

TCOM 547 | Project Management in Telecommunications | 3
TCOM 561 | Security, Privacy, and Applied Cryptography for Telecommunications | 3
TCOM 699 | Telecommunications Project Course | 3
SYST 510 | Systems Definition and Cost Modeling | 3
SYST 513 | Total Systems Engineering, Reengineering and Enterprise Integration | 3
SYST 542 | Decision Support Systems Engineering | 3
INFS 612 | Principles and Practices of Communication Networks | 3
INFS 614 | Database Management | 3
INFS 640 | Introduction to Electronic Commerce | 3
ITRN 772 | International Telecommunications | 3

#### Degree Conferral

Students must apply to have the BS conferred the semester before they expect to complete the BS requirements. At the completion of the MS requirements, the MS degree will be awarded.

#### Individualized Study, BIS/Telecommunications, Accelerated MS

**Overview**

Highly-qualified students in the individualized Study, BIS (p. 529) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).
For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Individualized Study, BIS (p. 529) program may apply for this option if they have earned 90 undergraduate credits (including 15 Mason resident credits) with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Telecommunications, MS (p. 1039) program.

Accelerated Option Requirements
Students must complete all requirements for the BIS and MS programs, with 6 credits overlap.

Students select TCOM courses from the list below to meet the requirements of the accelerated program. Six credits of TCOM courses will be applied to meet the requirements of both the BIS and MS TCOM programs. An additional three credits of TCOM courses is required for the BIS Individualized Concentration (IND) with emphasis on telecommunication. Note that accelerated students can only take the courses in the list below if they passed the listed prerequisite course with a B or higher.

BIS Concentration
Total credits: 34-46

Students who are pursuing the Individualized Study, BIS (p. 529), Individualized concentration (IND) with an emphasis on telecommunications must take:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select an additional 500-level TCOM course(s) from the list below</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIS 300</td>
<td>Understanding Interdisciplinary Studies</td>
<td>3</td>
</tr>
<tr>
<td>BIS 390</td>
<td>The Research Process</td>
<td>3</td>
</tr>
<tr>
<td>BIS 490</td>
<td>RS: Senior Project (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>BIS 491</td>
<td>Senior Project Presentation</td>
<td>1</td>
</tr>
<tr>
<td>ECE 301</td>
<td>Digital Electronics</td>
<td>3</td>
</tr>
<tr>
<td>IT 341</td>
<td>Data Communications and Network Principles</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>Select additional courses related to telecommunication</td>
<td>9-21</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>31-43</td>
</tr>
</tbody>
</table>

1. Required to reach the necessary number of credits for the BIS Individualized concentration.

Telecommunications Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 505</td>
<td>Networked Multicomputer Systems</td>
<td>1.5</td>
</tr>
<tr>
<td>TCOM 510</td>
<td>Client-Server Architectures and Applications</td>
<td>1.5</td>
</tr>
<tr>
<td>TCOM 530</td>
<td>Data Communications Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 551</td>
<td>Digital Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 607</td>
<td>Satellite Communications</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 608</td>
<td>Optical Communications Systems</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 631</td>
<td>Voice Over IP</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Accelerated students who have passed IT 341 Data Communications and Network Principles with a grade of B or higher will not be required to take TCOM 530 in the Telecommunications, MS core. Other TCOM courses may be approved on a case-by-case basis.

See each course for individual prerequisite requirements.

Degree Conferral
Students must apply the semester before they expect to complete the BIS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Telecommunications, Accelerated MS

Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Telecommunications, MS (p. 1039) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select six credits from the following (the TCOM courses listed for 1.5 credits must be taken in pairs):</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications (To satisfy the IT 300 BS, AIT requirement)</td>
<td></td>
</tr>
<tr>
<td>TCOM 530</td>
<td>Data Communications Fundamentals (To satisfy the IT 341 BS, AIT requirement)</td>
<td></td>
</tr>
<tr>
<td>TCOM 535</td>
<td>The TCP/IP Suite of Internet Protocols (To satisfy the IT 441 BS, AIT requirement)</td>
<td></td>
</tr>
<tr>
<td>TCOM 631</td>
<td>Voice Over IP (To satisfy the IT 484 BS, AIT requirement)</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

Note:
Students in the accelerated option who have passed IT 341 Data Communications and Network Principles with a grade of B or higher will not be required to take TCOM 530 Data Communications Fundamentals,
which is listed in the MS TCOM core. Alternative sections of TCOM courses to satisfy requirements in the AIT undergraduate program may be made with the approval of the undergraduate academic advisor.

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

**Systems Engineering, BS/Telecommunications, Accelerated MS**

**Overview**

Highly-qualified students in the Systems Engineering, BS (p. 1082) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Students in the Systems Engineering, BS (p. 1082) program who preferably have chosen to take the systems engineering of telecommunications elective sequence may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Other students will be considered on their individual merit. Criteria for admission are identical to criteria for admission to the Telecommunications, MS (p. 1039) program.

**Accelerated Option Requirements**

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap selected from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 530</td>
<td>Data Communications Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>SYST 530</td>
<td>Systems Engineering Management I</td>
<td>3</td>
</tr>
<tr>
<td>SYST 573</td>
<td>Decision and Risk Analysis (if taken, replaces TCOM 521 in the telecommunications core requirements)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Degree Conferral**

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

---

**Wireless Communications Graduate Certificate**

**Banner Code:** VS-CERG-WIRE

**Academic Advising**

MSN 2B5
4400 University Drive
Fairfax, VA 22030
Phone: 703-993-3810
Email: tcom@gmu.edu
Website: ece.gmu.edu/graduate-certificates/certificate-program-wireless-communications

This graduate certificate provides a broad understanding of the technologies, applications, and systems used in all forms of wireless communications.

The graduate certificate may be pursued on a part-time or full-time basis.

**Certificate Requirements**

Total credits: 15

**Core Courses**

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 551</td>
<td>Digital Communication Systems</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 552</td>
<td>Introduction to Mobile Communications</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 606</td>
<td>Advanced Mobile Communications Systems</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 607</td>
<td>Satellite Communications</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 653</td>
<td>Global Positioning System (GPS)</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 707</td>
<td>Advanced Link Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

**Electives**

Select six credits

Total Credits: 6

1 Students may earn the credits from the Telecommunications, MS (p. 1040) emphasis areas 1, 2, and 3, including those in the mandatory course list that are not part of the 9 credits of core courses for the certificate.

**Department of Information Sciences and Technology**

Phone: 703-993-3565
Website: ist.gmu.edu

Information Sciences and Technology offers undergraduate and graduate programs to develop expertise in applying information technology to
support business applications. The programs emphasize problem-solving, communication, and technical and leadership skills.

Undergraduate

The BS in Information Technology program aims to meet the existing and emerging needs of industry by educating students in current principles and practices in the application of information technology. The program focuses on equipping graduates with effective skills for interacting at the management level as well as the technical level. Graduates are hired in positions that focus on the application of IT in an increasing number of emerging sub-disciplines, including network administration and telecommunications, information security, web development and multimedia, database technology and programming, and health information technology.

Graduate

The MS in Applied Information Technology is the very best graduate education in IT for high-potential leaders, especially those working on IT solutions that affect the federal government, industry or non-profit. Its objective is to graduate individuals of competence and character who can lead multidisciplinary teams in the design, justification, development, management, and sustainment of mega-systems from data to decision in the private and federal sectors. The MS in AIT provides a high quality curricula for students seeking to pursue their careers in the leading IT areas including Cyber Security, Big Data Analytics, Knowledge Mining, Data Analytics in Social Media, and Cyber-Human Interaction.

At the doctoral level, the department offers a concentration in the Volgenau School’s PhD in IT program.

Certificates and Minor

The department also offers two certificate programs, IT Entrepreneurship and Information Technology, for students seeking to add an IT certification to their existing credentials. Students currently pursuing undergraduate degrees in other disciplines may choose to add a minor in Information Technology.

Faculty

Professors
Caraballo, Gantz (Retired Emeritus), Jajodia

Associate Professors
Albanese, Boicu, Bruno, Islam (Associate Chair for Undergraduate Studies), Johri, Rytkova (Associate Chair for Graduate Studies), Sanghera, Snow, Wang

Assistant Professors
Ahmadi, Bono, Morikawa, Motti, Purohit, Rafatirad, Winston, Zhao

Instructors
Farrell, Garrison, Lyons

Admissions & Policies

Admissions
A bachelor’s degree is required for admission to the certificate.

Requirements

Certificate Requirements
Total credits: 12

Coursework
Select twelve credits from any of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 670</td>
<td>Cloud Computing Security</td>
</tr>
<tr>
<td>AIT 671</td>
<td>Information System Infrastructure</td>
</tr>
<tr>
<td></td>
<td>Lifecycle Management</td>
</tr>
<tr>
<td>AIT 672</td>
<td>Identity and Access Management</td>
</tr>
<tr>
<td>AIT 673</td>
<td>Cyber Incident Handling and Response</td>
</tr>
</tbody>
</table>
The MS in Applied Information Technology is the very best graduate education in IT for high-potential leaders, especially those working on IT solutions that affect the federal government, industry or non-profit. Its objective is to graduate individuals of competence and character who can lead multidisciplinary teams in the design, justification, development, management, and sustainment of mega-systems from data to decision in the private and federal sectors. The MS in AIT provides a high quality curricula for students seeking to pursue their careers in the leading IT areas including Cyber Security, Big Data Analytics, Knowledge Mining, Data Analytics in Social Media, and Cyber-Human Interaction. Faculty include professors from the Volgenau School, the School of Business, and the College of Humanities and Social Sciences, plus industry leaders with unique reputations in the subject area as adjunct professors and guest lecturers. The faculty expose students to the pragmatic issues of IT, not just the theory.

Admissions & Policies

Admissions
Applicants must have completed a baccalaureate degree from an accredited program with a reputation for high academic standards and an earned GPA of 3.00 or better in their 60 highest-level credits. They must be experienced in the fundamentals of IT and quantitative methods. In addition, applicants must:

- Provide two letters of recommendation, preferably from academic references or references in industry or government who are familiar with the applicant’s professional accomplishments.
- Provide a resume and detailed statement of career goals and professional aspirations.
- If their native language is not English, students must earn a minimum TOEFL score of 575 for the paper-based exam or 230 for the computer-based exam (a minimum score of 600 for the paper-based exam or 250 for the computer-based exam is required for applicants who wish to be considered for a graduate teaching assistantship).

Requirements

Degree Requirements
Total credits: 30-36 credits

Completion of the MS program requires a minimum of 30 approved graduate credits (10 courses). To provide a common background in the fundamentals of information sciences and technology, all students are required to complete four core courses. In addition to the core courses, students must choose a concentration within the program by taking six courses from one of the concentration areas listed below.

Students in all concentrations may take other VSE graduate-level courses not listed below as part of their MS technical electives subject to advisor approval.

Core Courses

For students in all concentrations except the IT Management in Federal Sector concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 512</td>
<td>Algorithms and Data Structures Essentials</td>
<td>3</td>
</tr>
<tr>
<td>AIT 524</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>AIT 542</td>
<td>Fundamentals of Computing Platforms</td>
<td>3</td>
</tr>
<tr>
<td>AIT 664</td>
<td>Information: Representation, Processing and Visualization</td>
<td>3</td>
</tr>
</tbody>
</table>

For students in the IT Management in Federal Sector concentration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 524</td>
<td>Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>AIT 542</td>
<td>Fundamentals of Computing Platforms</td>
<td>3</td>
</tr>
<tr>
<td>AIT 580</td>
<td>Analytics: Big Data to Information</td>
<td>3</td>
</tr>
<tr>
<td>AIT 664</td>
<td>Information: Representation, Processing and Visualization</td>
<td>3</td>
</tr>
</tbody>
</table>

Concentrations

Cyber Security (CYBR)
Complete four required courses and two electives from the following list of courses.

Foundation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 660</td>
<td>Cyber Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>AIT 681</td>
<td>Secure Software Development</td>
<td>3</td>
</tr>
<tr>
<td>AIT 682</td>
<td>Network and Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>AIT 702</td>
<td>Incident Handling and Penetration Testing</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 670</td>
<td>Cloud Computing Security</td>
<td>3</td>
</tr>
<tr>
<td>AIT 672</td>
<td>Identity and Access Management</td>
<td>3</td>
</tr>
<tr>
<td>AIT 699</td>
<td>Research Project</td>
<td>3</td>
</tr>
<tr>
<td>AIT 701</td>
<td>Cyber Security: Emerging Threats and Countermeasures</td>
<td>3</td>
</tr>
<tr>
<td>AIT 799</td>
<td>Master’s Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits

Cyber-Human Systems (CBHS)
Complete four required courses and two electives from the following list of courses.

Foundation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 582</td>
<td>Applications of Metadata in Complex Big Data Problems</td>
<td>3</td>
</tr>
<tr>
<td>Course</td>
<td>Title</td>
<td>Credits</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>AIT 602</td>
<td>Introduction to Research in Applied Information Technology</td>
<td>3</td>
</tr>
<tr>
<td>AIT 716</td>
<td>Human Computer Interaction</td>
<td>3</td>
</tr>
<tr>
<td>AIT 724</td>
<td>Data Analytics in Social Media</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 614</td>
<td>Big Data Essentials</td>
<td></td>
</tr>
<tr>
<td>AIT 624</td>
<td>Knowledge Mining from Big-Data</td>
<td></td>
</tr>
<tr>
<td>AIT 699</td>
<td>Research Project</td>
<td></td>
</tr>
<tr>
<td>AIT 711</td>
<td>Rapid Development of Scalable Applications</td>
<td></td>
</tr>
<tr>
<td>AIT 734</td>
<td>Advanced Web Analytics Using Semantics</td>
<td></td>
</tr>
<tr>
<td>AIT 799</td>
<td>Master's Thesis</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

- **18**

---

**Data Analytics and Intelligence Methods (DAIN)**

Complete four required courses and two electives from the following list of courses.

**Foundation**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 614</td>
<td>Big Data Essentials</td>
<td>3</td>
</tr>
<tr>
<td>AIT 624</td>
<td>Knowledge Mining from Big-Data</td>
<td>3</td>
</tr>
<tr>
<td>AIT 677</td>
<td>Intelligence Analysis Methods</td>
<td>3</td>
</tr>
<tr>
<td>AIT 724</td>
<td>Data Analytics in Social Media</td>
<td>3</td>
</tr>
</tbody>
</table>

**Electives**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 582</td>
<td>Applications of Metadata in Complex Big Data Problems</td>
<td></td>
</tr>
<tr>
<td>AIT 699</td>
<td>Research Project</td>
<td></td>
</tr>
<tr>
<td>AIT 711</td>
<td>Rapid Development of Scalable Applications</td>
<td></td>
</tr>
<tr>
<td>AIT 716</td>
<td>Human Computer Interaction</td>
<td></td>
</tr>
<tr>
<td>AIT 734</td>
<td>Advanced Web Analytics Using Semantics</td>
<td></td>
</tr>
<tr>
<td>AIT 799</td>
<td>Master's Thesis</td>
<td></td>
</tr>
<tr>
<td>CFRS 500</td>
<td>Introduction to Forensic Technology and Analysis</td>
<td></td>
</tr>
<tr>
<td>CFRS 660</td>
<td>Network Forensics</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

- **18**

---

**IT Management in Federal Sector (IMFS)**

Select six courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 582</td>
<td>Applications of Metadata in Complex Big Data Problems</td>
<td></td>
</tr>
<tr>
<td>AIT 614</td>
<td>Big Data Essentials</td>
<td></td>
</tr>
<tr>
<td>AIT 622</td>
<td>Determining Needs for Complex Big Data Systems</td>
<td></td>
</tr>
<tr>
<td>AIT 660</td>
<td>Cyber Security Fundamentals</td>
<td></td>
</tr>
<tr>
<td>AIT 665</td>
<td>Managing Information Technology Programs in the Federal Sector</td>
<td></td>
</tr>
<tr>
<td>AIT 670</td>
<td>Cloud Computing Security</td>
<td></td>
</tr>
<tr>
<td>AIT 672</td>
<td>Identity and Access Management</td>
<td></td>
</tr>
<tr>
<td>AIT 677</td>
<td>Intelligence Analysis Methods</td>
<td></td>
</tr>
<tr>
<td>AIT 678</td>
<td>National Security Challenges</td>
<td></td>
</tr>
<tr>
<td>AIT 679</td>
<td>Law and Ethics of Big Data</td>
<td></td>
</tr>
<tr>
<td>AIT 685</td>
<td>Capstone Seminar</td>
<td></td>
</tr>
<tr>
<td>AIT 697</td>
<td>Leading Organizations Through Change</td>
<td></td>
</tr>
<tr>
<td>AIT 701</td>
<td>Cyber Security: Emerging Threats and Countermeasures</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**

- **18**

---

1 Students in this concentration may also take other IST graduate-level courses not listed below as part of their MS technical electives, subject to approval of the advisor.

---

**Accelerated Master’s**

**Individualized Study, BIS/Applied Information Technology, Accelerated MS**

**Overview**

Highly-qualified students in the individualized Study, BIS (p. 529) have the option of obtaining an accelerated Applied Information Technology, MS (p. 1046).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Application Requirements**

Applicants to all graduate programs at George Mason University must meet the admission standards and application requirements for graduate study as specified in Graduate Admissions (p. 66). Mason undergraduate students in the BIS Program can apply in the semester in which they will have completed 90 or more credits (including 15 Mason resident credits) applicable toward the BIS. Students must have an overall GPA of at least 3.30 to apply to the program. Criteria for admission are identical to criteria for admission into the MS in AIT Program, except that students do not need to have completed an undergraduate degree prior to acceptance into the accelerated program.

**Reserve Graduate Credit**

Students may take up to 6 additional graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree. The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department. Permission to take a graduate course for reserve graduate credit is normally granted only to Mason seniors within 15 hours of graduation. To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition Form (http://registrar.gmu.edu/forms).

**Accelerated Option Requirements**

Students in the accelerated master’s option must maintain a minimum 3.30 GPA in the undergraduate segment until they have satisfied all requirements for the BIS degree. On completion and conferral of the undergraduate degree they submit the Bachelor’s/Accelerated Master’s Transition Form (http://registrar.gmu.edu/forms) and are admitted to graduate status.

As graduate students, accelerated master’s students have an advanced standing. Students must complete all credits that satisfy requirements of the BIS program and those of the MSAIT program, with two courses overlapping from the courses necessary to earn the BiS with a
concentration IND (individualized), applied information technology emphasis as listed below.

Note: All of the prerequisite courses indicated below must be passed with a grade of C or higher.

### Emerging Technologies

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 597</td>
<td>Developing IT Leaders of Integrity</td>
<td>3</td>
</tr>
<tr>
<td>GBUS 540</td>
<td>Analysis of Financial Decisions</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

### Cyber Security

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 673</td>
<td>Cyber Incident Handling and Response</td>
<td>3</td>
</tr>
<tr>
<td>ISA 650</td>
<td>Security Policy</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

### Intelligence Technologies

Select two from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 675</td>
<td>Overview of the National Intelligence Community</td>
<td>3</td>
</tr>
<tr>
<td>AIT 676</td>
<td>Intelligence Technologies, Research and Development in the Intelligence Community</td>
<td>3</td>
</tr>
<tr>
<td>AIT 677</td>
<td>Intelligence Analysis Methods</td>
<td>3</td>
</tr>
<tr>
<td>AIT 678</td>
<td>National Security Challenges</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td></td>
<td><strong>6</strong></td>
</tr>
</tbody>
</table>

### Information Technology, BS/Applied Information Technology, Accelerated MS

#### Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Applied Information Technology, MS (p. 1046).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

#### Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Criteria for admission are identical to criteria for admission to the Applied Information Technology, MS (p. 1046) program.

#### Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of AIT 500-level core courses in place of the corresponding IT 300-level courses required for the undergraduate degree requirements.

Students must register for two of the following courses in place of the corresponding 300-level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 512</td>
<td>Algorithms and Data Structures Essentials (satisfies the IT 306 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>AIT 524</td>
<td>Database Management Systems (satisfies the IT 314 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>AIT 542</td>
<td>Fundamentals of Computing Platforms (satisfies the IT 342 requirement in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

### Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

### Information Technology Entrepreneurship Undergraduate Certificate

**Banner Code: VS-CERB-ITER**

**Phone:** 703-993-3565  
**Email:** bsit@gmu.edu  
**Website:** http://ist.gmu.edu/programs/undergraduate-programs/

This certificate prepares IT and engineering students for successful careers as entrepreneurs in the area of information technology. Specifically, they will acquire a unique body of knowledge related to innovation, both on the information technology/engineering/inventive side and on the entrepreneurial side, which will give them a competitive advantage in the difficult market where only very few new companies are able to survive and grow.

This certificate is designed for students who are working on or possess an undergraduate degree in information technology, computer science, engineering or a related domain and want to focus on IT innovation and entrepreneurship.

Students enrolled in the certificate must be part of an entrepreneurship team (E-Team) with the goal of creating an IT venture. The E-Teams will be mentored by faculty associated with the certificate. Students who will create, or be a core team member of, a start-up company that has cumulated revenues and funding of $10,000 during their enrollment in the certificate will graduate with a Certificate of Excellence in IT Entrepreneurship.

The undergraduate certificate in Information Technology Entrepreneurship may be pursued on a full-time basis except when limited by prerequisite constraints.
Admissions & Policies

Admissions

Students must have information technology experience at the level of IT 106 Introduction to IT Problem Solving Using Computer Programming, IT 206 Object Oriented Techniques for IT Problem Solving, IT 213 Multimedia and Web Design, IT 214 Database Fundamentals, and IT 223 Information Security Fundamentals and either a BS in a technical field (with a 3.00 GPA or higher) or current enrollment in a technical undergraduate major.

Requirements

Certificate Requirements

Total credits: 28

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBUS 300</td>
<td>Accounting in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>MBUS 301</td>
<td>Managing People and Organizations in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>IT 343</td>
<td>IT Project Management</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>9</td>
</tr>
</tbody>
</table>

Electives

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 315</td>
<td>Mobile Development</td>
<td></td>
</tr>
<tr>
<td>IT 390</td>
<td>Rapid Development of Scalable Applications</td>
<td></td>
</tr>
<tr>
<td>IT 436</td>
<td>Agile Web Development with Open Source Frameworks</td>
<td></td>
</tr>
<tr>
<td>IT 490</td>
<td>Application Maintenance and Spiral Development</td>
<td></td>
</tr>
<tr>
<td>IT 495</td>
<td>Turning Ideas into Successful Companies</td>
<td></td>
</tr>
<tr>
<td>IT 496</td>
<td>Decision Making in IT Ventures</td>
<td></td>
</tr>
<tr>
<td>MBUS 304</td>
<td>Entrepreneurship: Starting and Managing a New Enterprise</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Capstone Sequence Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 492</td>
<td>Senior Design Project I (Mason Core) (p. 135) (special section on IT Entrepreneurship)</td>
<td>3</td>
</tr>
<tr>
<td>IT 493</td>
<td>Senior Design Project II (Mason Core) (p. 135) (special section on IT Entrepreneurship)</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>7</td>
</tr>
</tbody>
</table>

Information Technology Minor

Banner Code: INFT

Academic Advising

5400 Nguyen Engineering Building
Fairfax Campus

101 Bull Run Hall
Science and Technology Campus

Phone: 703-993-3565
Email: bsi@gmu.edu
Website: http://ist.gmu.edu/programs/undergraduate-programs/

The minor is designed primarily for students who desire to augment the knowledge gained through their major-related courses with a foundation of information technology (IT) topics and their application within organizations to achieve organizational objectives. Completing this minor provides students with the necessary skills to improve their attractiveness to employers in our technology-driven society. The minor requires a minimum of 18 credits, including 12 credits of core courses. Beyond these requirements, students must select two additional technical focus courses (6 credits). Students pursuing the IT minor should consult with an advisor to select their additional courses.

Requirements

Minor Requirements

Total credits: 18

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 102</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 125</td>
<td>Discrete Mathematics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>IT 105</td>
<td>IT Architecture Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 106</td>
<td>Introduction to IT Problem Solving Using Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Technical Focus Courses

Select 6 credits from Technical Focus Courses (at least 3 upper division credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 206</td>
<td>Object Oriented Techniques for IT Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>IT 207</td>
<td>Applied IT Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 213</td>
<td>Multimedia and Web Design</td>
<td>3</td>
</tr>
<tr>
<td>IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 300</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>IT 304</td>
<td>IT in the Global Economy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>IT 306</td>
<td>Program Design and Data Structures</td>
<td>3</td>
</tr>
<tr>
<td>IT 308</td>
<td>Event-Driven Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 314</td>
<td>Database Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 315</td>
<td>Mobile Development</td>
<td>3</td>
</tr>
</tbody>
</table>

Students must satisfy all prerequisites and other requirements in order to take any of the courses listed below. Courses chosen for the technical focus must be chosen with a coordinator in the Information Sciences and Technology department. Not all courses are offered each semester.
This certificate is designed primarily for those students who have earned a bachelor's degree or current undergraduate students who desire deeper knowledge than what can be accomplished through the IT minor. It allows students to augment the knowledge gained through their major-related courses with a foundation of information technology (IT) topics and their application within organizations to achieve organizational objectives. Completing this undergraduate certificate provides students with the necessary skills to improve their attractiveness to employers in our technology-driven society. The certificate requires a minimum of 24 credits, including 15 credits of core courses. Beyond these requirements, students must select three additional IT courses (9 credits, at least 3 upper division credits). Students pursuing the IT undergraduate certificate should consult with an advisor to select their additional courses.

Students pursuing only the undergraduate certificate in information technology will not maintain full-time status which requires a minimum of 12 credits per semester.

### Requirements

#### Certificate Requirements

Total credits: 24

**Core Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 102</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 125</td>
<td>Discrete Mathematics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>IT 105</td>
<td>IT Architecture Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 106</td>
<td>Introduction to IT Problem Solving Using Computer Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 206</td>
<td>Object Oriented Techniques for IT Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>IT 207</td>
<td>Applied IT Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 213</td>
<td>Multimedia and Web Design</td>
<td>3</td>
</tr>
<tr>
<td>IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

**Technical Focus Courses**

Select 9 credits from the approved list of technical focus courses; at least 3 of those credits must be at the upper division level

**Total Credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 206</td>
<td>Object Oriented Techniques for IT Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>IT 207</td>
<td>Applied IT Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 213</td>
<td>Multimedia and Web Design</td>
<td>3</td>
</tr>
<tr>
<td>IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 206</td>
<td>Object Oriented Techniques for IT Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>IT 207</td>
<td>Applied IT Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 213</td>
<td>Multimedia and Web Design</td>
<td>3</td>
</tr>
<tr>
<td>IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>
The Information Technology, BS prepares students to apply IT to support business processes. The degree produces graduates with strong problem-solving, writing, and communication skills who successfully compete for technical employment and are prepared for advanced study. The objectives of the Information Technology, BS program relate to the abilities of the graduates several years after graduation. Graduates of the program are expected within three to five years of graduation to have:

- Been employed in a position in which they have successfully used their information technology skills (including: problem solving, analytic, presentation and personal skills) as evidenced by achieving improved organizational objectives;
- Progressed through increasing levels of responsibility in the workplace;
- Demonstrated ethical, social and professional responsibility consistent with professional societies;
- Worked effectively in teams, whether as a participant or as a leader;
- Grown through self-study, continuing education and professional development relevant to their profession.

The program can be successfully completed in eight full-time semesters with an average of 15 credits each semester. It is also possible for students to complete the degree on a part-time basis. The 120-credit degree requirement consists of Mason Core requirements, IT foundation and core courses, and courses required for the chosen IT concentration. At least 30 credits toward the BS degree must be earned at Mason, and at least 45 credits must be at or above the 300 level. Upper division courses in the program are taught at the Science and Technology campus, where many Department of Information Sciences and Technology faculty offices are located.

This bachelor’s degree program is accredited by the Computing Accreditation Commission of ABET (http://www.abet.org).

Admissions & Policies

Admissions

Students who meet Mason’s general eligibility requirements may apply for admission to the IT major. Admission is based on the appropriateness of the student’s academic objectives and the likelihood of the student benefiting from the program. Preference in admission is given to students who have four years of high school mathematics, including precalculus.

Policies

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Change of Major

Mason students considering a change of major to Information Technology must have a minimum GPA of 3.00 in all completed 100 and 200 level IT foundation and core courses completed at Mason that are required for the major, and a grade of C or better in IT 106 Introduction to IT Problem Solving Using Computer Programming. Grades in approved foundation and core substitution courses taken at Mason will be included.
Note: IT courses at the 300 and 400 level are restricted to students who have declared an Information Technology major, minor, or undergraduate certificate, and to students in the BAS or BIS program.

Advanced Study

Mason offers students the ability to complete both BS and MS degrees in a shorter time through an Accelerated Masters (MS) program. Choosing to pursue an accelerated MS may affect a student’s choice of courses in the BS program. Students should consult with an advisor for assistance.

Grades

Students must have a C or better in any course that satisfies a prerequisite for an IT course. To graduate with the BS in Information Technology, students must have a GPA of 2.75 or better across the IT foundation, core, capstone, and concentration courses. Additionally, students must have a C or better in their foundation, core, capstone, and concentration courses. Furthermore, students must have a B or better in gateway courses for the respective concentration.

Termination from the Major

No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

Requirements

Degree Requirements

Total credits: 120

Foundation Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 102</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 125</td>
<td>Discrete Mathematics I (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 105</td>
<td>IT Architecture Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 106</td>
<td>Introduction to IT Problem Solving Using Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 206</td>
<td>Object Oriented Techniques for IT Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>IT 216</td>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 21

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 207</td>
<td>Applied IT Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 213</td>
<td>Multimedia and Web Design</td>
<td>3</td>
</tr>
<tr>
<td>IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 300</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>IT 304</td>
<td>IT in the Global Economy (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>IT 341</td>
<td>Data Communications and Network Principles</td>
<td>3</td>
</tr>
<tr>
<td>IT 342</td>
<td>Operating Systems Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 343</td>
<td>IT Project Management</td>
<td>3</td>
</tr>
<tr>
<td>MBUS 300</td>
<td>Accounting in a Global Economy</td>
<td>3</td>
</tr>
<tr>
<td>SYST 469</td>
<td>Human Computer Interaction</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 33

Two-Semester Sequence of Approved Capstone Design Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 492</td>
<td>Senior Design Project I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>IT 493</td>
<td>Senior Design Project II (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits 7

Information Technology Concentrations

Students choose one of six concentrations from the list below. To be eligible to choose a concentration, a student must have a B or better grade in the concentration’s gateway course.

Concentration Gateway Courses

Database Technology and Programming (DTP)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 206</td>
<td>Object Oriented Techniques for IT Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>or IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

Health Information Technology (HIT)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 214</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

Information Security (INFS)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>

Information Technology Entrepreneurship (ITE)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 106</td>
<td>Introduction to IT Problem Solving Using Computer Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Networking and Telecommunications (NTEL)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 341</td>
<td>Data Communications and Network Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

Web Development and Multimedia (WDM)
To fulfill the requirements for a concentration, students need 15 credits made up of four courses from their chosen concentration and a fifth course chosen from any of the six concentrations. Students may choose to have two concentrations. To be eligible, the student must have a B or better in the gateway course for each concentration. If two concentrations are declared, the student must take four courses in each concentration, for a total of eight concentration courses.

Four courses selected from a single concentration 12
One course chosen from a different concentration 3
Total Credits 15

Network and Telecommunications (NTEL)
- ECE 301 Digital Electronics 3
- IT 366 Network Security I 3
- IT 441 Network Servers and Infrastructures 3
- IT 445 Advanced Networking Principles 3
- IT 455 Wireless Communications and Networking 3
- IT 465 Peer-to-Peer Systems and Overlay Networks 3
- IT 484 Voice Communications Technologies 3
- IT 488 Fundamentals of Satellite Communications 3

Web Development and Multimedia (WDM)
- IT 315 Mobile Development 3
- IT 331 Web I: Web Development 3
- IT 332 Web Server Administration 3
- IT 335 Web Development using Content Management Systems 3
- IT 390 Rapid Development of Scalable Applications 3
- IT 415 Information Visualization 3
- IT 431 Web II: Advanced Web Development 3
- IT 436 Agile Web Development with Open Source Frameworks 3

Other Major Requirements
Select 7 credits of natural science, including at least one 4-credit course with lab 1
- COMM 100 Public Speaking (Mason Core) (p. 135) 3
  or COMM 101 Interpersonal and Group Interaction (Mason Core) (p. 135) 3
- IT 293 Applied IT: Junior Transition 1
- MATH 108 Introductory Calculus with Business Applications (Mason Core) (p. 135) 3-4
  or MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) 3-4
Total Credits 14-15

1 Students should choose these from the list of courses approved for Mason Core (these credits can also apply toward Mason Core requirements).

Additional Mason Core
Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements. All students must complete at least 24 credits of social science and humanities coursework, which is normally satisfied by the 24 credits of Mason Core social science and humanities courses listed here, including COMM 100 Public Speaking (Mason Core)
Information Technology, BS

(p. 135) or COMM 101 Interpersonal and Group Interaction (Mason Core) (p. 135).

Written Communication (p. 135) 6
Literature (p. 140) 3
Arts (p. 137) 3
Western Civilization/World History (p. 143) 3
Social and Behavioral Sciences (p. 142) 3
Global Understanding (p. 139) 3
Total Credits 21

Writing-Intensive Requirement
The university writing-intensive requirement is satisfied by IT 343 IT Project Management.

Electives
Select additional coursework to bring the total number of credits to 120 8-9
Total Credits 8-9

Accelerated Master’s

Information Technology, BS/Information Security and Assurance, Accelerated MS

Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Information Security and Assurance, MS (p. 1002).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Criteria for admission are identical to the criteria for admission to the Information Security and Assurance, MS (p. 1002) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with the following two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFS 614</td>
<td>Database Management (satisfies IT 414 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>INFS 622</td>
<td>Information Systems Analysis and Design (satisfies as one DTP concentration course in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Students must complete MATH 125 Discrete Mathematics I (Mason Core) (p. 135) as their discrete math requirement and IT 306 Program Design and Data Structures as part of their concentration requirements in the BS program.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred in addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Information Systems, Accelerated MS

Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Information Systems, MS (p. 1006).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Criteria for admission are identical to the criteria for admission to the Information Systems, MS (p. 1006) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with the following two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFS 614</td>
<td>Database Management (satisfies IT 414 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>INFS 622</td>
<td>Information Systems Analysis and Design (satisfies as one DTP concentration course in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Students must complete MATH 125 Discrete Mathematics I (Mason Core) (p. 135) as their discrete math requirement and IT 306 Program Design and Data Structures as part of their concentration requirements in the BS program.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.
Information Technology, BS/Software Engineering, Accelerated MS

Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Software Engineering, MS (p. 1012).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Criteria for admission are identical to criteria for admission to the Software Engineering, MS (p. 1012) Program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with the following two courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 550</td>
<td>Database Systems (satisfies IT 414 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>SWE 619</td>
<td>Object-Oriented Software Specification and Construction (satisfies as one DTP concentration course in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Note:
Students must complete MATH 125 Discrete Mathematics I (Mason Core) (p. 135) as their discrete math requirement and IT 306 Program Design and Data Structures as part of their concentration requirements in the BS program

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Digital Forensics and Cyber Analysis (title change pending SCHEV approval), Accelerated MS

Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Digital Forensics and Cyber Analysis, MS (p. 1025).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Digital Forensics and Cyber Analysis, MS (p. 1025) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with two of the following three courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFRS 500</td>
<td>Introduction to Forensic Technology and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 510</td>
<td>Digital Forensics Analysis (satisfies the IT 357 requirement for the INFS concentration course in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>CFRS 660</td>
<td>Network Forensics (satisfies as one NTEL concentration course in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Telecommunications, Accelerated MS

Overview
Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Information Technology, BS (p. 1051) program may apply for this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.25. Criteria for admission are identical to criteria for admission to the Telecommunications, MS (p. 1039) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs.

Select six credits from the following (the TCOM courses listed for 1.5 credits must be taken in pairs):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications (To satisfy the IT 300 BS, AIT requirement)</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 530</td>
<td>Data Communications Fundamentals (To satisfy the IT 341 BS, AIT requirement)</td>
<td>3</td>
</tr>
</tbody>
</table>
Intelligence Technologies Graduate Certificate

TCOM 535  The TCP/IP Suite of Internet Protocols (To satisfy the IT 441 BS, AIT requirement)
TCOM 631  Voice Over IP (To satisfy the IT 484 BS, AIT requirement)

Total Credits 6

Note:

Students in the accelerated option who have passed IT 341 Data Communications and Network Principles with a grade of B or higher will not be required to take TCOM 530 Data Communications Fundamentals, which is listed in the MS TCOM core. Alternative sections of TCOM courses to satisfy requirements in the AIT undergraduate program may be made with the approval of the undergraduate academic advisor.

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Information Technology, BS/Applied Information Technology, Accelerated MS

Overview

Highly-qualified students in the Information Technology, BS (p. 1051) have the option of obtaining an accelerated Applied Information Technology, MS (p. 1046).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements

Students in the Information Technology, BS (p. 1051) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. Criteria for admission are identical to criteria for admission to the Applied Information Technology, MS (p. 1046) program.

Accelerated Option Requirements

Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap.

Students register for 6 credits of AIT 500-level core courses in place of the corresponding IT 300-level courses required for the undergraduate degree requirements.

Students must register for two of the following courses in place of the corresponding 300-level courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 512</td>
<td>Algorithms and Data Structures Essentials (satisfies the IT 306 requirement in the BS program)</td>
<td>3</td>
</tr>
<tr>
<td>AIT 524</td>
<td>Database Management Systems (satisfies the IT 314 requirement in the BS program)</td>
<td>3</td>
</tr>
</tbody>
</table>

Students may take additional graduate-level courses as part of their BS technical electives with advisor approval. These additional graduate-level courses will not count toward the MS degree. See AP.1.4.4 Graduate Course Enrollment by Undergraduates (p. 76).

Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Intelligence Technologies Graduate Certificate

Banner Code: VS-CERG-NTLT

Academic Advising

5400 Nguyen Engineering Building
Fairfax Campus
101 Bull Run Hall
Science and Technology Campus

Phone: 703-993-3565
Email: bsit@gmu.edu
Website: ist.gmu.edu/programs/undergraduate-programs/

This graduate certificate offers courses in four key elements of intelligence analysis. Designed for professionals who work for, or in support of, intelligence community agencies, it provides additional academic preparation for post-bachelor’s students who may not wish to complete a full master’s program, as well as for master’s graduates who wish to take the area-specific courses a certificate provides.

The graduate certificate may be pursued on a part-time or full-time basis.

Admissions & Policies

Admissions

A bachelor’s degree is required for admission to the program.

Requirements

Certificate Requirements

Total credits: 12

Coursework

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIT 674</td>
<td>Research, Development and Technology in the Intelligence Community</td>
<td>3</td>
</tr>
<tr>
<td>AIT 675</td>
<td>Overview of the National Intelligence Community</td>
<td>3</td>
</tr>
</tbody>
</table>
Mechanical engineering is the broadest of the engineering disciplines, and traces its origins to antiquity. The discipline of mechanical engineering involves anything that moves or uses energy. There are two major stems in mechanical engineering: mechanical systems and thermal fluid systems. Mechanical engineers design, build, and analyze complex devices, systems, and processes that involve the conversion of energy from one form to another, the production of work, and the transport of energy and mass from one location to another.

Today, the scope of the mechanical engineering discipline is ever-expanding. Mechanical engineers work in industries that include, but are not limited to, the aerospace, bio-pharmaceutical, civil, computer and cyber, biomedical, industrial, materials and manufacturing industries. They provide innovative solutions for contemporary problems and address problems yet identified. For example, 3-D printed components are readily being used in manufactured components, as part of medical implants and devices and even in structural applications. The mechanical performance of the components will likely vary dramatically from the ideal laboratory environment in which they were produced. Mechanical engineers are needed to characterize these aggressive environments in which they may be used, design test matrices to study their performance, and determine environmentally-based mechanical properties needed for design.

The Mechanical Engineering, BS is designed to support the goal of educating leaders for the future – men and women capable of meeting the needs of society. The curriculum is designed to provide its graduates with the technical skills and competencies to analyze and design both mechanical and thermal systems, and to give them an in-depth experience in one of these two areas. With a solid foundation in these discipline-specific areas, graduates of the program will be well-prepared to enter any of the industries identified above. All students will take core courses in both content areas through their junior year. During their senior year, they will have the opportunity to focus their program of study with a design elective and three technical electives. These electives can be arranged to focus on areas such as advanced manufacturing, aerospace, bioengineering, robotics, or sustainable energy.

Admissions & Policies

Admissions
To be admitted to the minor, students must have completed MATH 114 Analytic Geometry and Calculus II and PHYS 160 University Physics I (Mason Core) (p. 135)/PHYS 161 University Physics I Laboratory (Mason Core) (p. 135) with a grade of C or better.

Policies
The minor in mechanical engineering consists of a minimum of 20-21 credit hours of coursework. All students must complete 14 credit hours of core courses. They must also choose one of three 6-7 credit hour elective options. All courses must be completed with a grade of C or better.
Today, the role of mechanical engineer is ever expanding in order to find innovative solutions for contemporary problems, and to address problems yet to be identified. To meet the growing demands of worldwide energy needs spurred by population growth and dwindling supplies of fossil fuels, for instance, mechanical engineers seek innovations in nuclear energy, bio-fuels, wind, and tidal energies to build an energy portfolio that exploits these seemingly limitless resources. From product design, which spans from biomedical devices to turbo-machinery, to manufacturing, which develops machines and systems needed to process raw materials into these products, an awareness of the benefits of advanced materials for sensing and monitoring the health of these systems and an awareness of the stealth threats to manufacturing brought on by an ever present cyber threat are in the minds of the mechanical engineers. Now more mechanical engineers oversee the operations and management of large systems along with the fiscal and human resources needed to run them.

James Michener once said, "Scientists dream about doing great things. Engineers do them." Mechanical engineers use science to advance technologies and to develop products for the benefit of society, in a discipline which dates back to the earliest of times in civilization. The major in mechanical engineering has three program education objectives, namely:

- Graduates have demonstrated success as a mechanical engineer or their chosen career field;
- Graduates have advanced their educational pursuits through graduate education, professional registration, or similar means;
- Graduates have advanced their careers by engaging in professional society participation and community service outreach.

### Admissions & Policies

#### Policies

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

#### Change of Major

See Change of Major (p. 955) for more information.

#### Termination from the Major

No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

### Grade Requirements and Advising

Degree requirements include 121 credits distributed in three main areas: mechanical engineering, mathematics and basic science, and humanities and social sciences. Students must complete all math, science and Volgenau School of Engineering courses presented as part of the required 121 credits for the degree with a grade of C or better.

Students are required to see their faculty advisor at least once each year to plan their curriculum.

### Requirements

#### Degree Requirements

Total credits: 121
# Engineering Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 285</td>
<td>Electric Circuit Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>ECE 286</td>
<td>Electric Circuit Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>ME 151</td>
<td>Practicum in Engineering</td>
<td>2</td>
</tr>
<tr>
<td>ME 211</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>ME 221</td>
<td>Solid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>ME 221</td>
<td>Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 231</td>
<td>Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME 311</td>
<td>Mechanical Experimentation I</td>
<td>1</td>
</tr>
<tr>
<td>ME 313</td>
<td>Material Science</td>
<td>3</td>
</tr>
<tr>
<td>ME 321</td>
<td>Mechanical Experimentation II</td>
<td>1</td>
</tr>
<tr>
<td>ME 322</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>ME 323</td>
<td>Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>ME 341</td>
<td>Design of Mechanical Elements</td>
<td>3</td>
</tr>
<tr>
<td>ME 342</td>
<td>Design of Thermal Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME 352</td>
<td>Entrepreneurship in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME 432</td>
<td>Control Engineering</td>
<td>4</td>
</tr>
<tr>
<td>ME 443</td>
<td>Mechanical Design I</td>
<td>3</td>
</tr>
<tr>
<td>ME 444</td>
<td>Mechanical Design II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ME 453</td>
<td>Developing the Societal Engineer</td>
<td>2</td>
</tr>
</tbody>
</table>

## Technical Electives

Select 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME 431</td>
<td>Systems Dynamics</td>
<td></td>
</tr>
<tr>
<td>ME 498</td>
<td>Independent Study in Mechanical Engineering</td>
<td></td>
</tr>
<tr>
<td>ME 499</td>
<td>Special Topics in Mechanical Engineering</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 61

1 May be repeated for credit.

# Mathematics and Science

## Mathematics and Science Electives

Select 3 credits from the list of pre-approved mathematics/science electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 309</td>
<td>Introduction to Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>General Chemistry II (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 214</td>
<td>General Chemistry Laboratory II (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 300</td>
<td>Chemistry of Semiconductor Processing</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 333</td>
<td>Physical Chemistry for the Life Sciences</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 411</td>
<td>Atmospheric Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 412</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 429</td>
<td>Atmospheric Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 210</td>
<td>Environmental Biology: Molecules and Cells</td>
<td>4</td>
</tr>
<tr>
<td>GEOL 412</td>
<td>Physical Oceanography</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 262</td>
<td>University Physics III (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 263</td>
<td>University Physics III Laboratory (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 331</td>
<td>Fundamentals of Renewable Energy</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 290</td>
<td>Introduction to Advanced Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 301</td>
<td>Number Theory</td>
<td>3</td>
</tr>
<tr>
<td>MATH 302</td>
<td>Foundations of Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 312</td>
<td>Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 313</td>
<td>Introduction to Applied Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 314</td>
<td>Introduction to Applied Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH 351</td>
<td>Probability</td>
<td>3</td>
</tr>
<tr>
<td>MATH 411</td>
<td>Functions of a Complex Variable</td>
<td>3</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
</tbody>
</table>

## Computer Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
</tbody>
</table>

Total Credits: 4

# Communication and Economics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 101</td>
<td>Interpersonal and Group Interaction (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 6

# Additional Mason Core

- Arts (p. 137)
- Global Understanding (p. 139)
- Literature (p. 140)
Western Civilization/World History (p. 143)  3
Written Communication (p. 135) 1  6
Total Credits  18

1  Both lower and upper level requirement.

Writing Intensive Requirement
Mason’s writing-intensive requirement is satisfied by ME 444 Mechanical Design II (Mason Core) (p. 135) (pending approval).

Capstone Experience Requirement
Mason’s synthesis requirement for mechanical engineering majors is satisfied by ME 444 Mechanical Design II (Mason Core) (p. 135).

Department of Statistics
Phone: 703-993-3645
Email: statistics@gmu.edu
Website: statistics.gmu.edu

Statistical methods and methods for data analysis are crucial for researching and exploring the life sciences, natural sciences, social sciences, business, nursing, education, and engineering. The Statistics Department offers a variety of introductory courses and more advanced course work in specialized statistical methodology and applications. The focus of the department’s offerings is applied, computational, and theoretical, with special emphasis on biostatistics, graphics and visualization, federal statistics, and data analytics.

The department offers an undergraduate degree in statistics, as well as a minor in data analysis and a minor in statistics. A variety of advanced undergraduate courses are also available for inclusion in other degree programs.

At the graduate level, the department offers two master’s degrees, and two dual master’s degree programs, as well as a doctoral program.

Courses
Introductory courses are targeted for undergraduates in the College of Humanities and Social Sciences and the College of Health and Human Services, as well as in the Volgenau School of Engineering. The STAT 250 Introductory Statistics I (Mason Core) (p. 135)–STAT 350 Introductory Statistics II sequence is targeted for general audiences, while the STAT 344 Probability and Statistics for Engineers and Scientists I–STAT 354 Probability and Statistics for Engineers and Scientists II sequence is targeted for technical and scientific audiences. STAT 362 Introduction to Computer Statistical Packages deals with computer statistical packages and is appropriate as a second or third course for students from a wide variety of backgrounds. It is strongly recommended for students who elect to minor in data analysis.

Faculty

Department Faculty
Professors
Carr, Davis (associate chair), Rosenberger (chair)

Associate Professors
Diao, Sutton, Tang, Vidyashankar

Assistant Professors
Holmes, Hunter, Izmirli, Johnson, Qiao, Slawski, Strazzeri, Zhao

Emeritus Faculty
Bolstein

Programs

- Applied Statistics Graduate Certificate
- Biostatistics, MS
- Data Analysis Minor
- Federal Statistics Graduate Certificate
- Statistical Science, MS
- Statistical Science, PhD
- Statistics Minor
- Statistics, BS (pending SCHEV approval)

Applied Statistics Graduate Certificate

Banner Code: VS-CERG-ASTA
Phone: 703-993-4835
Email: statistics@gmu.edu
Website: statistics.gmu.edu

This graduate certificate trains students in data analysis and statistical methodology. It is intended to complement PhD and MS programs outside the Department of Statistics. It is also intended to be responsive to the needs of those who teach or work in government/industry and want to increase their knowledge of statistics.

The certificate emphasizes the application of statistical tools, not theory. As such, there are no required prerequisite math courses, although one semester of calculus is strongly recommended.

This certificate provides a clear record of additional instruction in statistics for future graduate programs or employers.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions
Applicants should have an undergraduate degree from an accredited institution, with a minimum overall GPA of at least 3.00 (on a 4.00 scale). No specific undergraduate degree is required. Applicants are expected to have basic computer literacy. Successful completion of an undergraduate course in statistics is required for admission. One semester of calculus is strongly recommended.
Requirements

Certificate Requirements

Total credits: 12

Required Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 535</td>
<td>Analysis of Experimental Data</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

1. With prior written approval of the graduate certificate coordinator, a student with sufficient background in statistics may replace STAT 535 Analysis of Experimental Data with 3 credits chosen from the list of elective courses.
2. STAT 535 Analysis of Experimental Data is a prerequisite for STAT 517 Experimental Design, STAT 525 Nonparametric Statistics and Categorical Data Analysis, STAT 526 Applied Regression Analysis, and STAT 530 Foundations of Statistical Thinking.

Electives

Select 9 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 515</td>
<td>Applied Statistics and Visualization for Analytics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 517</td>
<td>Experimental Design</td>
<td></td>
</tr>
<tr>
<td>STAT 525</td>
<td>Nonparametric Statistics and Categorical Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 526</td>
<td>Applied Regression Analysis</td>
<td></td>
</tr>
<tr>
<td>STAT 530</td>
<td>Foundations of Statistical Thinking</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

Biostatistics, MS

Banner Code: VS-MS-BSTA

Phone: 703-993-3645
Email: statistics@gmu.edu
Website: statistics.gmu.edu

The MS in Biostatistics will allow students to specialize in the design and analysis of health-related and biological studies, while maintaining the rigor and technical training of the Statistical Science master's program.

In this degree, students will take a statistics core and a "bio" core, involving courses in public health, biology, and clinical medicine (including ethics). It also involves a research core which allows students to solve real data problems in the biological or health area and collaborate with other scientists in an interdisciplinary team. Finally, students will choose from electives in bioinformatics, global and community health, or targeted statistics courses.

This graduate degree prepares students for analyzing difficult data specific to biology and health. The program, with its research core, will also be sufficiently rigorous for students who wish to pursue a PhD in Biostatistics.

Admissions & Policies

Admissions

In addition to satisfying general admission requirements for graduate study, all applicants are expected to have basic computer literacy. They also must hold a bachelor's degree from an accredited institution in a field that includes coursework in multivariable calculus, matrix or linear algebra, statistics, and calculus-based probability. Applicants with degrees in such fields as mathematics, statistics, and some engineering programs usually meet these requirements. For applicants with degrees in other fields, these requirements are normally satisfied if students have successfully completed courses equivalent to the listed Mason courses.

Note that coursework taken to correct deficiencies in undergraduate preparation is not counted toward the degree.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 321</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 351</td>
<td>Probability</td>
<td></td>
</tr>
</tbody>
</table>

Specific application deadlines and requirements (https://admissions.gmu.edu/grad/application-deadlines-and-requirements/?academicUnit=VS&_ga=1.107632321.273102085.1480697294) are available through the Office of Graduate Admissions.

Requirements

Degree Requirements

Total credits: 30 (pending SCHEV approval)

In addition to meeting general requirements that apply to master's degrees at Mason, all students must complete the 21-credit core requirements for the degree. A grade of "B" or better is required in all 500-level statistics core courses. Students build on these core requirements by choosing 9 credits of electives.

Core Courses

Statistics Core

The Statistics core provides the basic probability, statistical analysis techniques, and statistical modeling tools that all biostatisticians must know, and provides a basis for higher level elective coursework.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 654</td>
<td>Applied Statistics II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9
**Bio Core**
The Bio core is designed to provide the biological background necessary for biostatisticians. These courses offer preparation in the areas of public health and epidemiology (GCH 712 Introduction to Epidemiology), as well as bioinformatics (BINF 630 Bioinformatics Methods). In addition, this portion of the core curriculum ensures that students are trained in the statistical techniques required for clinical medicine, and includes material on ethics in research (STAT 560 Biostatistical Methods).

GCH 712  Introduction to Epidemiology  3
BINF 630  Bioinformatics Methods  3
STAT 560  Biostatistical Methods  3
Total Credits  9

**Research Core**
The Research core has been designed to assist students in the development of the requisite skills for careers in consulting or research. These courses will allow students to consult directly with biologists and medical and public health scientists on real data problems and provide opportunities to write reports and give oral presentations.

STAT 634  Case Studies in Data Analysis  3
or STAT 798  Master’s Research Project  3
Total Credits  3

**Electives**
The electives labeled STAT are specifically chosen from the department’s master’s-level electives to include techniques that are particularly important for biostatisticians.

Select three electives from the following:  9

GCH 782  International Research Ethics and Methods
GCH 806  Advanced Multivariate Statistics and Data Analysis for Health Care Research
STAT 652  Statistical Inference
STAT 655  Analysis of Variance
STAT 657  Nonparametric Statistics
STAT 662  Multivariate Statistical Methods
STAT 663  Statistical Graphics and Data Exploration I
STAT 665  Categorical Data Analysis
STAT 668  Survival Analysis
STAT 756  Alternative Regression Methods
STAT 760  Advanced Biostatistical Methods
STAT 773  Statistical Methods for Longitudinal Data Analysis

Total Credits  9

**Data Analysis Minor**

Banner Code: DATA

Phone: 703-993-3645
Email: statistics@gmu.edu
Website: statistics.gmu.edu

The minor provides students with a background in data analysis and statistical methodology. It is intended to complement undergraduate degree programs such as computer science, economics, environmental engineering, geography, mathematics, nursing, psychology, public administration, sociology, and systems engineering.

**Admissions & Policies**

**Policies**

**Program Requirements**
The minor requires 15 credits: a core sequence of 6 credits, plus 9 credits of electives. Grades of C or better are required in all courses. At least 9 of the 15 credits must be in STAT courses. At least 8 credits must be in courses not required by the student’s major.

**Requirements**

**Minor Requirements**

Total credits: 15

**Core Sequence Credits**

Select one sequence from the following:  6

Sequence 1:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>or STAT 435</td>
<td>Analysis of Experimental Data</td>
</tr>
<tr>
<td>STAT 350</td>
<td>Introductory Statistics II</td>
</tr>
<tr>
<td>or STAT 435</td>
<td>Analysis of Experimental Data</td>
</tr>
</tbody>
</table>

Sequence 2:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
</tr>
<tr>
<td>STAT 354</td>
<td>Probability and Statistics for Engineers and Scientists II</td>
</tr>
</tbody>
</table>

Sequence 3: 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 351</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH 352</td>
<td>Statistics</td>
</tr>
</tbody>
</table>

Total Credits  6

1 Provided the 9 elective credits are all STAT courses, mathematics majors may substitute these courses.

**Electives**

Select 9 credits from the following:  9

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 362</td>
<td>Introduction to Computer Statistical Packages</td>
</tr>
<tr>
<td>STAT 455</td>
<td>Experimental Design</td>
</tr>
<tr>
<td>STAT 456</td>
<td>Applied Regression Analysis</td>
</tr>
<tr>
<td>STAT 460</td>
<td>Introduction to Biostatistics</td>
</tr>
<tr>
<td>STAT 462</td>
<td>Applied Multivariate Statistics</td>
</tr>
<tr>
<td>STAT 463</td>
<td>Introduction to Exploratory Data Analysis</td>
</tr>
<tr>
<td>STAT 465</td>
<td>Nonparametric Statistics and Categorical Data Analysis</td>
</tr>
<tr>
<td>STAT 472</td>
<td>Introduction to Statistical Learning</td>
</tr>
<tr>
<td>STAT 474</td>
<td>Introduction to Survey Sampling</td>
</tr>
<tr>
<td>STAT 499</td>
<td>Special Topics in Statistics</td>
</tr>
</tbody>
</table>
Federal Statistics Graduate Certificate

Banner Code: VS-CERG-FSS

Phone: 703-993-3645
Email: statistics@gmu.edu
Website: statistics.gmu.edu

This professional program is targeted at upgrading the skills of practitioners. The federal statistical system is a complex data collection and analysis system that requires a wide variety of multidisciplinary skills for its maintenance. The federal statistics certificate is intended to respond to the need for broad training in statistics, survey methods, and data analysis, including graphics and data visualization. The program is extremely flexible and can be tailored to the needs of students within the federal statistical sector. It is also intended to be responsive to the needs of those in state and local governments, and those in the private sector involved in the collection, interpretation, or statistical analysis of federal data.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions

Potential candidates must hold a bachelor’s degree and have taken at least two courses in calculus and one course in calculus-based probability and statistics. These minimal course requirements are normally satisfied by students who have successfully completed courses equivalent to the following Mason courses: MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135), MATH 114 Analytic Geometry and Calculus II, and STAT 344 Probability and Statistics for Engineers and Scientists I. Candidates must also be computer literate. Applicants typically have degrees in such fields as sociology, economics, engineering, mathematics, statistics, and business. Candidates should inquire with the department’s graduate coordinator for information on program planning. Courses are offered in late afternoon and evening and are particularly suitable for part-time students.

Requirements

Certificate Requirements

Total credits: 12

Some courses may have prerequisites beyond minimal admission requirements for which students must qualify or seek a waiver from the appropriate instructor.

Coursework

The certificate courses build the foundations of statistical analysis and survey methods.

Select 9 credits from the following list: ¹

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 535</td>
<td>Analysis of Experimental Data</td>
</tr>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
</tr>
<tr>
<td>STAT 560</td>
<td>Biostatistical Methods</td>
</tr>
<tr>
<td>STAT 574</td>
<td>Survey Sampling I</td>
</tr>
<tr>
<td>STAT 654</td>
<td>Applied Statistics II</td>
</tr>
<tr>
<td>STAT 655</td>
<td>Analysis of Variance</td>
</tr>
<tr>
<td>STAT 656</td>
<td>Regression Analysis</td>
</tr>
<tr>
<td>STAT 657</td>
<td>Nonparametric Statistics</td>
</tr>
<tr>
<td>STAT 662</td>
<td>Multivariate Statistical Methods</td>
</tr>
<tr>
<td>STAT 665</td>
<td>Statistical Graphics and Data Exploration I</td>
</tr>
<tr>
<td>STAT 674</td>
<td>Categorical Data Analysis</td>
</tr>
<tr>
<td>STAT 674</td>
<td>Survey Sampling II</td>
</tr>
</tbody>
</table>

Total Credits: 9

¹ All of these certificate courses, except for STAT 535 Analysis of Experimental Data, may be used for credit toward the Statistical Science, MS (p. 1064).
² Credit is granted for only one of STAT 535 Analysis of Experimental Data and STAT 554 Applied Statistics I.
Electives
Select 3 credits of electives from STAT courses numbered 500-775 (p. 1968)

<table>
<thead>
<tr>
<th>Electives</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 3

Statistical Science, MS
Banner Code: VS-MS-STAT
Phone: 703-993-3645
Email: statistics@gmu.edu
Website: statistics.gmu.edu

Statistical science is regarded as one of the oldest and most successful information technology (IT) subjects. It focuses on the conversion of raw data into information. In this graduate program, students are trained in the theory and practice of statistical methodology, particularly as it relates to high-technology applications.

Admissions & Policies

Admissions
In addition to satisfying general admission requirements for graduate study, all applicants are expected to have basic computer literacy. They also must hold a bachelor’s degree from an accredited institution in a field that includes coursework in multivariable calculus, matrix or linear algebra, statistics, and calculus-based probability. Applicants with degrees in such fields as mathematics, statistics, and some engineering programs usually meet these requirements. For applicants with degrees in other fields, these requirements are normally satisfied if students have successfully completed courses equivalent to the following Mason courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 321</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 344</td>
<td></td>
</tr>
<tr>
<td>STAT 346</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 351</td>
<td></td>
</tr>
</tbody>
</table>

Coursework taken to correct deficiencies in undergraduate preparation is not counted toward the degree.

Specific application deadlines and requirements (https://admissions.gmu.edu/grad/application-deadlines-and-requirements/?academicUnit=VS&ga=1.107632321.273102085.1480697294) are available through the Office of Graduate Admissions.

Requirements

Degree Requirements
Total credits: 30

In addition to meeting general requirements that apply to master’s degrees at Mason, all students must complete the 12-credit core requirements for the degree. Grades of B- or better are required in two of the core courses: STAT 544 Applied Probability and STAT 554 Applied Statistics I. Students build on these core requirements by choosing 12 credits of methodology courses and 6 credits of electives.

Students select either the professional or research option, depending on career ambitions. This choice must be made no later than the end of the semester in which 15 credits have been completed. The professional option provides MS degree qualifications to those seeking an expanded knowledge base in modern statistical theory and practice but do not wish to pursue a research career. The research option is for students planning to continue with a PhD degree, or begin/continue careers in statistical methodology research.

Professional Option
The professional option focuses on completing coursework in modern statistical theory and practice. 30 credits are required for the degree: 12 credits of core courses (taken by all MS students), 12 credits of methodology courses, and 6 credits of electives. Students electing this option are encouraged to pursue a broad background in statistical science, and they may seek to concentrate on applications of statistical methodology to other disciplines.

Students who select the professional option may elect to complete a master’s research project resulting in a technical report. This report is not an original research report but a scholarly essay on a topic of current interest in the statistical science discipline. The technical report is usually about 20 to 25 pages long and demonstrates the student’s ability to read and synthesize current technical literature into a scholarly essay. The report is evaluated by the student’s adviser, taking into account the comprehensiveness of the coverage of the scientific literature, the accuracy of presentation and interpretation, and the literary style. Students are notified of their evaluations, and they may be required to revise their report to further develop their skills in preparing reports on technical subjects. The report is usually written in the context of 3 credits of STAT 798 Master’s Research Project, which count as elective credits. Students opting not to complete a research project must take 30 credits of coursework.

Research Option
The research option requires 30 credits, including 6 credits that must be independent research (thesis). Research is done under the guidance of a faculty member. Research may be carried out at Mason or, if appropriate, at nearby facilities. For example, students may pursue research at their place of employment on topics of interest to their employer, provided the research meets the standards of the university. The thesis is usually written in the context of 6 credits of STAT 799 Master’s Thesis, which count as elective credits. The remaining 24 credits include the 12 core credits and 12 methodology credits.

In addition to satisfying general university requirements for a master’s degree, candidates who select the research option must submit a thesis based on the research to the student’s thesis committee, which must
give preliminary approval. The composition and appointment of this committee follows graduate program policies.

Candidates also must pass a final oral exam that concentrates on, but is not limited to, the area on which the thesis is written. The exam is administered by the student’s thesis committee, and all interested members of the graduate faculty are invited to attend and participate in the questioning. The thesis committee makes the final decision on whether the candidate passes or fails.

Core Courses
The core coursework covers the basic elements of statistics at the graduate level. STAT 544 Applied Probability covers the major mathematical framework for statistical theory and practice. STAT 652 Statistical Inference provides basic statistical theory. After completing this course, students have the theoretical basis from which statistical methods are derived.

STAT 554 Applied Statistics I is a survey of statistical methods that have become the backbone of statistical practice. Focus in this course is on techniques that quantify random behavior. The final core course is STAT 654 Applied Statistics II, which provides an overview of principles of statistical modeling.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 652</td>
<td>Statistical Inference</td>
<td>3</td>
</tr>
<tr>
<td>STAT 654</td>
<td>Applied Statistics II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Methodology Courses
Methodology courses may be chosen from any STAT courses numbered 540-775 (p. 1968)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Electives
Select 6 credits of elective courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 500-519</td>
<td>(p. 1968)</td>
<td></td>
</tr>
<tr>
<td>STAT 540-799</td>
<td>(p. 1968)</td>
<td></td>
</tr>
<tr>
<td>ECE 535</td>
<td>Digital Signal Processing</td>
<td></td>
</tr>
<tr>
<td>ECE 630</td>
<td>Statistical Communication Theory</td>
<td></td>
</tr>
<tr>
<td>ECON 637</td>
<td>Econometrics I</td>
<td></td>
</tr>
<tr>
<td>MATH 555</td>
<td>Actuarial Modeling I</td>
<td></td>
</tr>
<tr>
<td>MATH 556</td>
<td>Actuarial Modeling II</td>
<td></td>
</tr>
<tr>
<td>MATH 653</td>
<td>Construction and Evaluation of Actuarial Models I</td>
<td></td>
</tr>
<tr>
<td>MATH 654</td>
<td>Construction and Evaluation of Actuarial Models II</td>
<td></td>
</tr>
<tr>
<td>OR 531</td>
<td>Analytics and Decision Analysis</td>
<td></td>
</tr>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td></td>
</tr>
<tr>
<td>OR 542</td>
<td>Operations Research: Stochastic Models</td>
<td></td>
</tr>
<tr>
<td>OR 645</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
<tr>
<td>OR 647</td>
<td>Queuing Theory</td>
<td></td>
</tr>
<tr>
<td>OR 675</td>
<td>Reliability Analysis</td>
<td></td>
</tr>
<tr>
<td>or SYST 675</td>
<td>Reliability Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Notes:

- Credit toward the MS in Statistical Science will not be given for both STAT 515 Applied Statistics and Visualization for Analytics and STAT 663 Statistical Graphics and Data Exploration I.
- Credit toward the MS in Statistical Science will not be given for both MATH 654 Construction and Evaluation of Actuarial Models II and STAT 668 Survival Analysis.
- A student concurrently enrolled in the Actuarial Sciences Graduate Certificate (p. 708) and the MS in Statistical Science may count MATH 555 Actuarial Modeling I and MATH 556 Actuarial Modeling II as elective courses and may count MATH 653 Construction and Evaluation of Actuarial Models I and MATH 654 Construction and Evaluation of Actuarial Models II as methodology courses. The Graduate Certificate in Actuarial Sciences (p. 708) must be completed prior to or concurrently with the MS in Statistical Science. Otherwise, at most two of MATH 555 Actuarial Modeling I, MATH 556 Actuarial Modeling II, MATH 653 Construction and Evaluation of Actuarial Models I, and MATH 654 Construction and Evaluation of Actuarial Models II can be counted toward the MS in Statistical Science as elective courses; none can be applied as methodology courses.

Dual Degree Options

Mathematics and Statistical Science Dual-Degree MS
This program allows students to earn an MS in Mathematics (p. 721) and an MS in (p. 1064) Statistical Science (p. 1064) by completing 48 credits of coursework in both areas instead of the 60 that would be required if the degrees were sought independently.

Admission Requirements
Applicants must satisfy admission requirements for both the MS in Mathematics (p. 721) and the MS in Statistical Science (p. 1064) programs. A joint faculty committee from the Department of Mathematical Sciences (p. 707) and the Department of Statistics (p. 1060) make final admission decisions into the dual-degree program.

MS-MATH/STAT Dual-Degree Requirements
Total credits: 48

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 621</td>
<td>Algebra I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 675</td>
<td>Linear Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 677</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 678</td>
<td>Partial Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH 685</td>
<td>Numerical Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td>3</td>
</tr>
</tbody>
</table>
Operations Research and Statistical Science Dual-Degree MS

This program allows students to earn an MS in Operations Research (p. 1076) and an MS in Statistical Science (p. 1064) by completing 48 credits of coursework in both areas instead of the 60 that would be required if the degrees were sought independently.

Admission Requirements

Applicants must satisfy admission requirements for the MS in Operations Research (p. 1076) Program and the MS in Statistical Science (p. 1064) Program. A joint faculty committee from the Statistics and Systems Engineering and Operations Research Departments make final admission decisions into the dual-degree program.

MS-OPRS/STAT Dual Degree Requirements

Total credits: 48

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 542</td>
<td>Operations Research: Stochastic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 635</td>
<td>Discrete System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>OR 699</td>
<td>Masters Project</td>
<td>3</td>
</tr>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td>3</td>
</tr>
</tbody>
</table>

Elective Credits in OR Courses

Select 12 elective credits in OR courses at the 600 level, including at least one deterministic methods course and at least one stochastic methods course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 641</td>
<td>Linear Programming</td>
<td></td>
</tr>
<tr>
<td>OR 642</td>
<td>Integer Programming</td>
<td></td>
</tr>
<tr>
<td>OR 643</td>
<td>Network Modeling</td>
<td></td>
</tr>
<tr>
<td>OR 644</td>
<td>Nonlinear Programming</td>
<td></td>
</tr>
<tr>
<td>OR 645</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
<tr>
<td>OR 647</td>
<td>Queuing Theory</td>
<td></td>
</tr>
<tr>
<td>OR 674</td>
<td>Dynamic Programming</td>
<td></td>
</tr>
<tr>
<td>OR 675</td>
<td>Reliability Analysis</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 12

Elective Credits in STAT Courses

Select 12 elective credits from any STAT courses numbered 540-775

Total Credits 12

Notes

• Students currently enrolled in one of the MS programs must declare pursuit of the dual MS within one year of matriculation into the first MS program.

• A maximum of 6 credits across the two disciplines may be in independent research (thesis). The requirements for independent research are the same as detailed for the associated MS program.

• Students in either the BS (selected)/Operations Research, Accelerated MS program (p. 1079) or the BS (selected)/Statistical Science, Accelerated MS program (p. 1067) cannot get a reduction of 6 credits toward this dual degree. Students who want to proceed to a PhD degree will only be able to waive the number of credits specified in the associated PhD degree requirements, even though they will have 48 credits at the MS level.

• If a student decides not to complete the required 48 credits, a single MS degree will not be granted unless the student fulfills the requirements for either the MS in Operations Research (p. 1076) or the MS in Statistical Science (p. 1064).

• Once a student receives one of the MS degrees from either department, the student will no longer be eligible for the reduction in credit (i.e., will need to complete 30 credits) if the student later decides to earn the other MS degree.
Accelerated Master's

BS (selected)/Statistical Science, Accelerated MS

Overview
Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Statistical Science, MS (p. 1064). Students in an accelerated degree program must fulfill all university requirements for the master's degree.

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students enrolled in a BS degree in any one of the Volgenau School (p. 953) major areas, in the Mathematics, BS (p. 716) program from the College of Science (p. 593), or in the Economics, BS (p. 342) program from the College of Humanities and Social Sciences (p. 295) may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.00. Criteria for admission are identical to criteria for admission to the Statistical Science, MS (p. 1064) program, which include successful completion of the following Mason courses each with a grade of C or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 321</td>
<td>Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 351</td>
<td>Probability</td>
<td></td>
</tr>
</tbody>
</table>

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with grades of B or better in two 500-level STAT courses selected from STAT 544 Applied Probability, STAT 554 Applied Statistics I, and STAT 574 Survey Sampling I.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and Graduate Recruitment and Enrollment Services. At the completion of MS requirements, a master's degree is conferred.

Statistical Science, PhD
Banner Code: VS-PHD-STAT

The PhD in Statistical Science represents the highest academic attainment for a statistician and, as such, requires in-depth knowledge of modern statistical theory and practice. The degree program is a hybrid of mathematical theory, computation, and data analysis; and students are expected to be proficient in all three. Current research areas of key department faculty in the program include biostatistics, statistical genetics, statistical graphics, data confidentiality, networking analysis, and data analytics.

Admissions & Policies

Admissions
Students should have a master's degree in a mathematically-intensive discipline with a minimum 3.50 GPA. Students entering with a master's degree are expected to have completed coursework equivalent to STAT 544 Applied Probability, STAT 554 Applied Statistics I, STAT 652 Statistical Inference, and STAT 654 Applied Statistics II with exceptional performance. The program also requires a course in advanced calculus, MATH 315 Advanced Calculus I or equivalent, with a B or better. In exceptional circumstances, talented students with a mathematically-intensive undergraduate degree may be admitted.

Specific application deadlines and requirements (https://admissions.gmu.edu/grad/application-deadlines-and-requirements/?academicUnit=VS&_ga=1.107632321.273102085.1480697294) are available through the Office of Graduate Admissions.

Policies

Reduction of Credit
Students must complete a minimum of 72 graduate credits, which may be reduced by a maximum of 24 credits with a master’s degree in statistics, mathematics, or similar discipline, or by 30 credits with a Master's degree from the George Mason University Department of Statistics. Reduction of credit requires the approval of the program director or designee and the dean or designee of the school. They determine whether the credits are eligible for reduction of credit and applicable to the degree program and the number of credits to be reduced.

Requirements

Degree Requirements
Total credits: 72

The 72 hours of required doctoral-level credits typically consist of 48 credits of regular coursework and 24 credits of dissertation research. The following degree plan is based on a student who receives a 24 credit reduction. Students who receive more or less than a 24 credit reduction should consult with their advisor.

Doctoral Coursework
Students are required to complete 24 credits of advanced emphasis coursework, including four core courses:
1068  Statistics Minor

| STAT 778 | Algorithms and Simulation for Statistics in C | 3 |
| STAT 971 | Probability Theory | 3 |
| STAT 972 | Mathematical Statistics I | 3 |
| STAT 973 | Mathematical Statistics II | 3 |
| The remaining four courses are selected and approved by the doctoral supervisory committee and the PhD Program Director and should be numbered 600 or above. | 12 |
| Total Credits | 24 |

1  STAT 652 Statistical Inference and STAT 654 Applied Statistics II do not count toward advanced emphasis coursework, if a student has received a 24 credit reduction.

Qualifying Exam
Written qualifying exams will be taken in the following areas:

- Applied Probability
- Applied Statistics
- Statistical Inference

Qualifying exams are offered in August and January. Students are required to take the qualifying exams within one year of admission. Supported students entering with a Master's degree are required to take the qualifying exams within one semester of admission. Students who do not pass all three exams in two consecutive exam periods are terminated from the program.

Dissertation Research
In order to advance to candidacy, students must complete all coursework, pass the qualifying and comprehensive examinations, and defend a dissertation proposal.

Select 24 credits from the following:

| STAT 990 | Dissertation Topic Presentation (required) | 24 |
| STAT 998 | Doctoral Dissertation Proposal |
| STAT 999 | Doctoral Dissertation (must complete a minimum of 12 credits) |
| Total Credits | 24 |

Doctoral Committee Selection
Following successfully passing the qualifying exams, students should select a dissertation director and a doctoral studies committee. The chair of the doctoral studies committee must be a member of the graduate faculty with a regular appointment in the Department of Statistics, and will typically be the dissertation director. The doctoral studies committee consists of a chair, two members of the graduate faculty who hold regular appointments in the Department of Statistics, and an external member. The doctoral studies committee must be approved by the director of the doctoral program in statistical science.

Advancement to Candidacy
Admission to candidacy is acquired on completion of an oral comprehensive exam administered by the doctoral supervisory committee, covering the four core courses and four advanced emphasis courses, and a dissertation proposal. A student who fails the oral comprehensive exam may take it a second time, within six months. If the student fails a second time, the student is terminated from the program. A student must wait at least six weeks after passing the oral comprehensive exam before the dissertation proposal. A student who fails the dissertation proposal may take it a second time, within six months. If the student fails a second time, the student is terminated from the program.

Doctoral Defense
The dissertation defense serves as the student’s final examination and is conducted by the doctoral supervisory committee. Both the comprehensive exam and final exam are scheduled on approval of a written request to the department chair.

Statistics Minor
Banner Code: STIC
Phone: 703-993-3645
Email: statistics@gmu.edu
Website: statistics.gmu.edu

The minor in Statistics provides students with a background in the theory and application of statistical methodology. It is intended to complement undergraduate degree programs in the Volgenau School and the College of Science, especially those programs that require MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135), MATH 114 Analytic Geometry and Calculus II, and STAT 344 Probability and Statistics for Engineers and Scientists I as a part of the major requirements.

Admissions & Policies

Admissions
To be admitted to the minor, students must have completed MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135) and MATH 114 Analytic Geometry and Calculus II with a grade of C or better.

Policies
The minor in Statistics requires 15 credit hours of coursework. Grades of C or better are required in all courses. At least 8 credits must be in courses not required by the student’s major.

Requirements

Minor Requirements
Total credits: 15

Core Requirements

| STAT 344 | Probability and Statistics for Engineers and Scientists I | 3 |
| STAT 354 | Probability and Statistics for Engineers and Scientists II | 3 |
| STAT 362 | Introduction to Computer Statistical Packages | 3 |
| STAT 456 | Applied Regression Analysis | 3 |
| Total Credits | 12 |

1  STAT 346 Probability for Engineers and a course in statistics, such as STAT 250 Introductory Statistics I (Mason Core) (p. 135), can be substituted for the STAT 344 Probability and Statistics for Engineers and Scientists I core requirement.
Students enrolled in the Mathematics, BS (p. 716) may substitute MATH 351 Probability and MATH 352 Statistics for STAT 344 Probability and Statistics for Engineers and Scientists I and STAT 354 Probability and Statistics for Engineers and Scientists II.

Elective Requirement
Select one from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 455</td>
<td>Experimental Design</td>
<td>3</td>
</tr>
<tr>
<td>STAT 460</td>
<td>Introduction to Biostatistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 462</td>
<td>Applied Multivariate Statistics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 463</td>
<td>Introduction to Exploratory Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 465</td>
<td>Nonparametric Statistics and Categorical Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>STAT 472</td>
<td>Introduction to Statistical Learning</td>
<td>3</td>
</tr>
<tr>
<td>STAT 474</td>
<td>Introduction to Survey Sampling</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

Statistics, BS (pending SCHEV approval)

Banner Code: VS-BS-STIC

Phone: 703-993-3645
Email: statistics@gmu.edu
Website: statistics.gmu.edu

Note: As of catalog publication in April, the program described below has been approved by the Board of Visitors and sent to the State Council of Higher Education in Virginia (SCHEV) for consideration as a new degree program. The university cannot accept applications or enroll students in this program until SCHEV approval has been granted. Check the school/department website for current program status.

The Bachelor of Science in Statistics is designed to provide a framework for students to develop connections between statistical concepts and theories and their applications to statistical practice. It will prepare statisticians who can use modern statistical techniques to design studies, collect data, analyze and visualize high dimensional data sets, and draw valid conclusions in an increasingly data-centric world. In this program, students will meld the time-tested concepts and theories of statistics with modern methods of analysis, in order to interpret the data that is collected in nearly every discipline and every sector of industry and government.

The BS in Statistics requires a total of 120 credit hours, including major core requirements, concentration requirements, and Mason Core requirements. The program’s major core curriculum provides students with a firm foundation in statistics, mathematics, and computing. Selection of a concentration allows a student to specialize in applied, theoretical, or computational aspects of statistical practice. Students will select one of three concentrations: Applied Statistics, Mathematical Statistics, or Statistical Analytics. The Applied Statistics concentration focuses on developing proficiency in analytical methods applicable to a specific discipline of the student’s choosing. This is accomplished through the requirement to complete a minor in a field that makes substantial use of data analysis. The Mathematical Statistics concentration is designed for students interested in mastering the theoretical underpinnings of statistics and probability; this concentration is recommended for students who intend to continue graduate studies in statistics or whose main focus is on research. The Statistical Analytics concentration blends the disciplines of computer science and statistics in a very modern way and is designed for students interested in applying concepts from statistics and computer science to the analysis of massive data sets.

Graduates of this program can look forward to careers in local, state, and federal government, and in the many industries that conduct scientific research, collect, and analyze data. They will enter the workforce with the ability to impact science, public policy, technology, and industry in a positive way through their expertise in data collection, analysis, synthesis, and interpretation, each with the highest ethical standards. Graduates will also be well prepared to continue their studies in graduate schools if they so desire.

Admissions & Policies

Advanced Placement, Credit by Exam
A score of 5 on the Advanced Placement (AP) statistics exam qualifies students for credit in STAT 260.

Change of Major
Students considering changing their major to Statistics should consult with the Volgenau School of Engineering Coordinator of Undergraduate Advising, 2500 Nguyen Engineering Building. These students must have a cumulative GPA of at least 2.75 and completed MATH 114 with a grade of C or better. See Change of Major (p. 955) for more information.

Grades
Students must earn a C or better in Major Core Requirement courses as well as in courses required to satisfy prerequisites.

Termination from major
No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for
that major at any time, regardless of what the student’s major was at the
time the courses were taken.

### Requirements

#### Degree Requirements

**Total credits: 120**

<table>
<thead>
<tr>
<th><strong>Major Core</strong></th>
<th><strong>Statistics Core</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 260</td>
<td>Introduction to Statistical Practice 3</td>
</tr>
<tr>
<td>STAT 334</td>
<td>Introduction to Probability Models and Simulation 3</td>
</tr>
<tr>
<td>STAT 354</td>
<td>Probability and Statistics for Engineers and Scientists II 3</td>
</tr>
<tr>
<td>STAT 362</td>
<td>Introduction to Computer Statistical Packages 3</td>
</tr>
<tr>
<td>STAT 456</td>
<td>Applied Regression Analysis 3</td>
</tr>
<tr>
<td>STAT 463</td>
<td>Introduction to Exploratory Data Analysis 3</td>
</tr>
<tr>
<td>STAT 489</td>
<td>Pre-Capstone Professional Development 3</td>
</tr>
<tr>
<td>STAT 490</td>
<td>Capstone in Statistics (Mason Core) (p. 135) 3</td>
</tr>
</tbody>
</table>

**Total Credits** 24

<table>
<thead>
<tr>
<th><strong>Mathematics Core</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
</tr>
<tr>
<td>MATH 114</td>
</tr>
<tr>
<td>MATH 203</td>
</tr>
</tbody>
</table>

**Total Credits** 11

1. Math 123-124 may be taken in place of MATH 113 if student does not have sufficiently high math placement scores to be eligible for MATH 113.
2. MATH 115 may be taken in place of MATH 113 if student qualifies.
3. MATH 116 may be taken in place of MATH 114 if student qualifies.

<table>
<thead>
<tr>
<th><strong>Computational Skills Core</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 105</td>
</tr>
<tr>
<td>or CDS 151</td>
</tr>
<tr>
<td>CS 112</td>
</tr>
</tbody>
</table>

**Total Credits** 5

1. Students in the Statistical Analytics concentration must take CS 105.

<table>
<thead>
<tr>
<th><strong>Restricted Electives</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Statistics</strong></td>
</tr>
<tr>
<td>Select nine credits of STAT electives 9</td>
</tr>
</tbody>
</table>

| STAT courses numbered 440-499 (p. 1968) 1 |

**Total Credits** 9

1. May not be used to fulfill other degree requirements.

### Technical

Select nine credits of technical electives. Specific course selections must be pre-approved by the undergraduate coordinator. Students may need to choose electives to satisfy prerequisites for some of these courses. In some cases, students will need to contact other departments for permission to enroll.

- CDS courses numbered above 200 (p. 1316)
- CS courses numbered above 200 (p. 1328)
- MATH courses numbered above 200 (p. 1717)
- OR courses numbered above 300 (p. 1799)
- BENG 322 Health Data Challenges
- CYSE 325 Discrete Events Systems Modeling
- ENGH 388 Professional and Technical Writing
- IT 214 Database Fundamentals
- SYST 473 Decision and Risk Analysis
- SYST 488 Financial Systems Engineering

**Total Credits** 9

### Concentrations

Select one concentration and complete all requirements.

#### Concentration in Applied Statistics (ASTA)

Focuses on developing proficiency in analytical methods applicable to a specific discipline of the student’s choosing. This is accomplished through the requirement to complete a minor in a field that makes substantial use of data analysis.

Students must complete 15 - 21 credits in a pre-approved minor, selected in consultation with the undergraduate coordinator. Courses taken to fulfill the minor requirements that are not used to fulfill Major Core or Restricted Electives requirements are considered unique to the minor. At least 15 credits of the minor coursework, technical electives, general electives, and additional Mason Core course must be at or above the 300 level.

<table>
<thead>
<tr>
<th><strong>Concentration in Mathematical Statistics (MTHS)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Designed for students interested in mastering the theoretical underpinnings of statistics and probability; this concentration is recommended for students who intend to continue graduate studies in statistics or whose main focus is on research.</td>
</tr>
<tr>
<td>STAT 356 Statistical Theory 3</td>
</tr>
<tr>
<td>CDS 130 Computing for Scientists (Mason Core) (p. 135) 3</td>
</tr>
<tr>
<td>MATH 213 Analytic Geometry and Calculus III 1 3</td>
</tr>
<tr>
<td>MATH 290 Introduction to Advanced Mathematics 3</td>
</tr>
<tr>
<td>MATH 315 Advanced Calculus I 3</td>
</tr>
</tbody>
</table>

**Total Credits** 15

1. MATH 215 may be taken in place of MATH 213 if student qualifies.

At least 9 credits of the technical electives, general electives, and additional Mason Core courses must be at or above the 300 level.
Concentration in Statistical Analytics (STLA)
Blends the disciplines of computer science and statistics in a very modern way and is designed for students interested in applying concepts from statistics and computer science to the analysis of massive data sets.

STAT 472    Introduction to Statistical Learning          3
CS 211      Object-Oriented Programming                   3
CS 310      Data Structures                               3
CS 330      Formal Methods and Models                     3
CS 450 or CDS 302  Database Concepts or Scientific Data and Databases   3
CS 484 or CDS 303  Data Mining or Scientific Data Mining   3
MATH 125    Discrete Mathematics I (Mason Core)          (p. 135) 3
OR 481      Numerical Methods in Engineering              3

Total Credits  24

Additional Mason Core

Foundation Requirements
Written Communication (p. 135) 1          6
Oral Communication (p. 136)                3

Core Requirements
Literature (p. 140)                         3
Arts (p. 137)                              3
Western Civilization/World History (p. 143) 3
Global Understanding (p. 139)              3
Social and Behavioral Sciences (p. 142)     3
Natural Science (p. 141)                    7

Total Credits  31

1 Statistics majors must take the Natural Sciences and Technology section of ENGH 302.

General Electives
The number of general elective credits varies with choice of concentration 7-16

Total Credits  7-16

Department of Systems Engineering and Operations Research

Ariela Sofer, Chair
Phone: 703-993-1670
Website: seor.gmu.edu

The Systems Engineering and Operations Research (SEOR) Department offers a bachelor's degree in systems engineering, a minor in systems engineering and operations research, a minor in aviation flight training and management, a master's degree in systems engineering, a master's degree in operations research, and a doctoral degree in systems engineering and operations research. The department also offers a concentration in predictive analytics within a school-wide Data Analytics Engineering, MS. In addition, the department offers six certificate programs at the master's level: architecture-based systems integration; command, control, communications, computing, and intelligence (C4I); military operations research; computational modeling; financial systems engineering and systems engineering of software-intensive systems. The Department also offers a dual degree MS in Operations Research and Statistical Science jointly with the Statistics Department.

There is much overlap between systems engineering and operations research. The department encourages students of either discipline to elect courses in the other. For more information, go to the department's website (http://seor.gmu.edu).

Systems Engineering
Systems engineers determine the most effective ways to use all of a system's components: people, machines, materials, information, and energy. The engineers plan, design, implement, and manage integrated systems, working to ensure performance, safety, reliability, and maintainability. They also work to ensure that systems are delivered on time at a reasonable cost. Examples of systems are computer networks, the national airspace system, automobiles, intelligent robots, the electric grid, the Metro, and Mason. Whereas other engineering disciplines concentrate on individual aspects of a system, such as electronics, ergonomics, or software, systems engineers focus on the system as a whole. Systems engineering, perhaps more than any other engineering discipline, is involved with the human and organizational aspects of developing the desired system. Systems engineering is the people-oriented engineering profession.

Operations Research
Operations research is the professional field that uses analytical methods in engineering to support management decision making, often focusing on how best to allocate limited resources. Operations researchers do for organizations what physicists do for the physical world: they try to find order in apparent chaos by identifying the structure in complex situations and understanding how the components of organizations interact. The goal is to explain and predict the effects of actions taken on these systems, and use the information to make informed decisions. Much of this work is developing and manipulating mathematical and computer models of organizational systems composed of people, machines, information, procedures, and frequently, big data. The overall purpose is to provide a rational basis for decision-making.

Faculty

Professors
Adelman, Chang, Chen, Hoffman, Laskey, Nash, Pyster, Shortle, Sofer (chair), Zaidi

Associate Professors
Brouse, Clemons, Costa, Ganesan, Jones, Loerch, Sherry, Xu

Assistant Professors
El-Amine, Huang, Sokolov

Research and Affiliate Professors
Wagner, Wolman
Adjunct Professors
Alexander, Bailey, Barry, Burke, Dam, Charboneau, Comer, Ferreiro, Killam, Laveson, Maxwell, Mulhearn, Rothwell, Wieland, Woodaman

Emeritus Faculty
Donohue, Palmer

Programs
• Architecture-Based Systems Integration Graduate Certificate
• Aviation Flight Training and Management Minor
• Command, Control, Communications, Computing, and Intelligence Graduate Certificate
• Computational Modeling Graduate Certificate
• Engineering Resilient Enterprise Systems Graduate Certificate
• Financial Systems Engineering Graduate Certificate
• Military Operations Research Graduate Certificate
• Operations Research, MS
• Systems Engineering and Operations Research Minor
• Systems Engineering and Operations Research, PhD
• Systems Engineering, BS
• Systems Engineering, MS

Architecture-Based Systems Integration Graduate Certificate
Banner Code: VS-CERG-ABSI

Academic Advising
2100 Nguyen Engineering Building
Fairfax Campus
Phone: 703-993-1670
Email: seor@gmu.edu
Website: http://seor.gmu.edu/msse/cert-absi.html

This graduate certificate is available to students who hold bachelor’s degrees in engineering and scientific disciplines or have graduate status in such programs. Admission requirements are identical to those for the master’s degree in systems engineering.

The graduate certificate may only be pursued on a part-time basis.

Requirements

Certificate Requirements
Total credits: 12

Coursework
The following four courses must be completed with a grade of B or better:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 520</td>
<td>System Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>SYST 618</td>
<td>Model-based Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 620</td>
<td>Discrete Event Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Certificate coursework within the Systems Engineering MS
In addition to the ABSI Certificate courses, students must take the following six courses within the Systems Engineering, MS (p. 1087):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 505</td>
<td>Systems Engineering Principles</td>
<td>3</td>
</tr>
<tr>
<td>SYST 510</td>
<td>Systems Definition and Cost Modeling</td>
<td>3</td>
</tr>
<tr>
<td>SYST 530</td>
<td>Systems Engineering Management I</td>
<td>3</td>
</tr>
<tr>
<td>SYST 611</td>
<td>System Methodology and Modeling</td>
<td>3</td>
</tr>
<tr>
<td>SYST 699</td>
<td>Masters Project</td>
<td>3</td>
</tr>
<tr>
<td>Select one approved elective from the ABSI concentration</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 18

1 Students who have work experience in systems engineering should consult with their advisor on replacing SYST 505 Systems Engineering Principles with a higher-level SYST course.

Aviation Flight Training and Management Minor
Banner Code: AVIM

Academic Advising
2100 Nguyen Engineering Building
Fairfax Campus
Phone: 703-993-1670
Email: seor@gmu.edu
Website: http://seor.gmu.edu/bsse/aviationminor.html

Students completing the minor will take classes for Pilot Ground School and Flight Training leading up to a solo flight. In addition, students will study aspects of aviation from systems engineering of air traffic control, design of airports, human factors and psychology, and financial planning and management. Students will be trained for required government licensing exams such as the Federal Aviation Administration (FAA) Knowledge Test and FAA Flight tests. Special fees will apply. Students are responsible for meeting all eligibility requirements.

Admissions & Policies

Policies
For policies governing all minors, see AP.5.3.4 Minors (p. 86).

Requirements

Minor Requirements
Total credits: 15

Required SEOR Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 460</td>
<td>Introduction to Air Traffic Control</td>
<td>3</td>
</tr>
</tbody>
</table>
SYST 462  Flight Training Lab I (Lab fees to cover flight training costs apply)  3
SYST 463  Flight Training Lab II (Lab fees to cover flight training costs apply)  3

Total Credits  9

Two Additional Courses
Select one from the following:  3
SYST 371  Systems Engineering Management
SYST 461  Air Transportation System Engineering
MIS 303  Introduction to Business Information Systems (Mason Core) (p. 135)
MBUS 301  Managing People and Organizations in a Global Economy
MBUS 305  Introduction to International Business (Mason Core) (p. 135)

Total Credits  3

Select one from the following:  3
SYST 469  Human Computer Interaction
SYST 470  Human Factors Engineering
PSYC 317  Cognitive Psychology
PSYC 333  Industrial and Organizational Psychology
HIST 378  History of Aviation

Total Credits  3

Prerequisites
Some of the courses listed above have additional prerequisites. Students should pay careful attention to prerequisites when selecting courses.

Command, Control, Communications, Computing, and Intelligence Graduate Certificate

Banner Code: VS-CERG-C4I

Academic Advising
2100 Nguyen Engineering Building
Fairfax Campus
Phone: 703-993-1670
Email: seor@gmu.edu
Website: http://seor.gmu.edu/msse/cert-c4i.html

C4I systems are concerned with gathering, retrieving, analyzing, and disseminating time-sensitive information to achieve mission-critical objectives. These systems support military operations across the spectrum of conflict, intelligence operations, transportation monitoring, emergency response, drug interdiction, and law enforcement, among others. C4I systems include the equipment, people, and procedures necessary to accomplish the mission. The equipment may include a variety of sensors, communications systems, and information processing and decision-support systems.

The C4I certificate focuses on the analysis, design, development, and management of C4I systems. Topics addressed include C4I architectures and software, communications, decision support, modeling and simulation, and sensor data fusion.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions
The certificate is available to students who hold bachelor’s degrees in engineering and scientific disciplines or are in graduate status in such programs. Admission requirements are identical to those for the Systems Engineering, MS (p. 1087).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 12

The certificate requires 12 credits (4 courses). Students must complete the following with an average grade of B or better:

Required Courses
SYST 680  Principles of Command, Control, Communications, Computing, and Intelligence (C4I)  3
or ECE 670  Principles of C4I
OR 542  Operations Research: Stochastic Models  3
or ECE 528  Introduction to Random Processes in Electrical and Computer Engineering
Select two from the following:  6
SYST 584  Heterogeneous Data Fusion
SYST 664  Bayesian Inference and Decision Theory
SYST 683  Modeling, Simulation, and Gaming
OR 635  Discrete System Simulation
ECE 542  Computer Network Architectures and Protocols
ECE 630  Statistical Communication Theory
ECE 642  Design and Analysis of Computer Communication Networks

Total Credits  12

Completing the C4I Certificate within the Systems Engineering Master’s Program
In addition to the four certificate courses above, students must complete the following six courses:

SYST 505  Systems Engineering Principles  3
SYST 510  Systems Definition and Cost Modeling  3
SYST 520  System Engineering Design  3
SYST 530  Systems Engineering Management I  3
SYST 611  System Methodology and Modeling  3
Computational Modeling Graduate Certificate

Banner Code: VS-CERG-CCM

Academic Advising
2100 Nguyen Engineering Building
Fairfax Campus
Phone: 703-993-1670
Email: seor@gmu.edu
Website: seor.gmu.edu/msor/modeling.html

This graduate certificate provides knowledge, tools, and techniques to those who work or plan to work in the field of computational modeling. The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions

For admission into the certificate program, applicants must meet minimum entrance requirements for the MS in operations research (p. 1076), the MS in statistical science (p. 1064), or the PhD in computational sciences and informatics (p. 652).

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Courses taken for this certificate can count toward a master’s degree in operations research or statistics or a PhD in computational sciences and informatics (p. 652). One must be concurrently enrolled in the program for courses to count toward the certificate and the other degree.

Requirements

Certificate Requirements
Total credits: 12

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 635</td>
<td>Discrete System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>OR 682</td>
<td>Computational Methods in Engineering and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>or MATH 685</td>
<td>Numerical Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 9

Electives

Select one from the following: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI 744</td>
<td>Linear and Nonlinear Modeling in the Natural Sciences</td>
</tr>
</tbody>
</table>
Requirements

Certificate Requirements

Total credits: 12

To be eligible for a certificate in Engineering Resilient Enterprise Systems, students must complete two required courses (6 credits) plus two electives (6 credits) with an average grade of B or better.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 523</td>
<td>Engineering Resilient and Agile Enterprise Systems</td>
<td>3</td>
</tr>
<tr>
<td>SYST 618</td>
<td>Model-based Systems Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

Electives

The remaining two electives must be taken from the list below with the approval of the advisor. Courses designated as basic methods courses may also be used as an elective. Some certificate electives may require stronger math requirements.

Electives 6

Select at least one course from the following:

- SYST 514 Systems Thinking
- INFS 622 Information Systems Analysis and Design
- SWE 619 Object-Oriented Software Specification and Construction
- SYST 542 Decision Support Systems Engineering
- SYST 584 Heterogeneous Data Fusion
- SYST 630 Systems Engineering Management II

Select the second course from the courses listed above or from the following:

- CS 555 Computer Communications and Networking
- ECE 542 Computer Network Architectures and Protocols
- INFS 612 Principles and Practices of Communication Networks

Total Credits 6

Financial Systems Engineering Graduate Certificate

Banner Code: VS-CERG-FNSE

Admissions & Policies

Admissions

The FE certificate will be open to all students who hold a BS degree in scientific and engineering disciplines from an accredited university program, with a GPA minimum established by VSE for all MS programs. Students who are already enrolled in a master’s program must submit an application form to enroll in this certificate program; all others must apply for graduate admission to this certificate program.

Policies

For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements

Total credits: 12

To be eligible for a certificate in Financial Systems Engineering, students must complete three required courses (9 credits) plus one elective course (3 credits) with an average grade of B or better.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST/OR 538</td>
<td>Analytics for Financial Engineering and Econometrics</td>
<td>3</td>
</tr>
<tr>
<td>SYST/OR 588</td>
<td>Financial Systems Engineering I: Introduction to Options, Futures, and Derivatives</td>
<td>3</td>
</tr>
<tr>
<td>SYST/OR 688</td>
<td>Financial Systems Engineering II: Derivative Products and Risk Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 9

Elective

Select one from the following:

- OR 645 Stochastic Processes
- OR 682 Computational Methods in Engineering and Statistics
- SYST 584 Heterogeneous Data Fusion
- SYST 671 Judgment and Choice Processing and Decision Making

Total Credits 3

Financial Systems Engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions, as well as facilitating the risk management of those decisions. The Graduate Certificate in Financial Systems Engineering (FSE) is intended for students who want to advance their knowledge in global financial systems, financial engineering, and financial decision analysis. Students get an understanding of the theory and/or tools of the financial systems, derivatives, investment analysis, and risk management. The certificate may be pursued concurrently with any of the graduate degree programs in the Volgenau School of Engineering (VSE).

This graduate certificate may only be pursued on a part-time basis.
Military Operations Research Graduate Certificate

Banner Code: VS-CERG-MOR

Academic Advising
2100 Nguyen Engineering Building
Fairfax Campus
Phone: 703-993-1670
Email: seor@gmu.edu
Website: seor.gmu.edu/msor/military.html

This graduate certificate program provides knowledge, tools, and techniques to those who work or plan to work in the field of military operations research. It is appropriate for students who cannot complete requirements for a master’s degree in operations research, but who want a concentrated study of military modeling.

The graduate certificate may only be pursued on a part-time basis.

Admissions & Policies

Admissions
Admissions requirements are identical to those for the Operations Research, MS (p. 1076).

Policies
For policies governing all graduate certificates, see AP.6.8 Requirements for Graduate Certificates (p. 90).

Requirements

Certificate Requirements
Total credits: 15

Certificate candidates must complete five courses, with an average grade of B or better, for a total of 15 graduate credits.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 635</td>
<td>Discrete System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>OR 651</td>
<td>Military Operations Research I: Cost Analysis</td>
<td>3</td>
</tr>
<tr>
<td>OR 652</td>
<td>Military Operations Research Modeling II: Effectiveness Analysis</td>
<td>3</td>
</tr>
<tr>
<td>SYST 683</td>
<td>Modeling, Simulation, and Gaming</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 15

Operations Research, MS

Banner Code: VS-MS-OPRS

The MS prepares students for research and professional practice associated with the formulation and analysis of mathematical models for decision making and their computer implementation. Major components include optimization, queuing and network modeling, computer simulation and modeling, applied and computational probability, and application of these components to realistic and relevant operational analysis problems. Students are expected to become proficient in these areas, as well as in supporting areas of information technology necessary to implement operations research methods.

The program includes core courses and electives selected by the student with the aid of a faculty advisor. To obtain the MS degree, students complete an approved plan of study that contains a minimum of 30 graduate credits. Students may take courses through the Commonwealth Graduate Engineering Program. Appropriate courses may be transferred, with advisor approval, into this Mason degree program.

Admissions & Policies

Admissions
To be admitted to the program, students must hold a baccalaureate degree from an accredited institution in engineering, mathematics, computer science, physical sciences, economics, or a related field. They also must have completed courses in:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
</tbody>
</table>

Specific application deadlines and requirements (https://admissions.gmu.edu/grad/application-deadlines-and-requirements/?academicUnit=VS&_ga=1.107632321.273102085.1480697294) are available through the Office of Graduate Admissions.

The department offers SYST 500 Quantitative Foundations for Systems Engineering as an intensive review of undergraduate engineering mathematics, including matrix algebra, transforms, differential equations, probability, and statistics. On acceptance, students will be required to take a foundation qualification test a week or two before school.
starts, unless waived by the department chair or graduate coordinator. Students who fail the test will be required to take SYST 500 Quantitative Foundations for Systems Engineering. A sample test is available from the department.

Students with minor deficiencies in preparation may be accepted conditionally pending removal of the deficiencies. Courses taken to remove admission deficiencies (including SYST 500 Quantitative Foundations for Systems Engineering) extend minimum requirements for the degree. Students whose undergraduate training was in the quantitative social sciences or quantitatively oriented business administration may be allowed to complete a portion of the mathematics prerequisite by taking SYST 500 Quantitative Foundations for Systems Engineering.

### Requirements

#### Degree Requirements

Total credits: 30

Students must complete four core courses and the project (15 credits). The remaining 15 credits are electives subject to the requirements below, and can be taken in one of five concentration areas or in an individual plan approved by the student’s advisor.

#### Required Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 542</td>
<td>Operations Research: Stochastic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 568</td>
<td>Applied Predictive Analytics</td>
<td>3</td>
</tr>
<tr>
<td>OR 635</td>
<td>Discrete System Simulation</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 12

#### Project

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 699</td>
<td>Masters Project</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 3

#### Methods Courses

Select at least one deterministic methods and one stochastic methods course:

<table>
<thead>
<tr>
<th>Deterministic Methods Courses:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 641</td>
<td>Linear Programming</td>
</tr>
<tr>
<td>OR 642</td>
<td>Integer Programming</td>
</tr>
<tr>
<td>OR 643</td>
<td>Network Modeling</td>
</tr>
<tr>
<td>OR 644</td>
<td>Nonlinear Programming</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stochastic Methods Courses:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 645</td>
<td>Stochastic Processes</td>
</tr>
<tr>
<td>OR 647</td>
<td>Queuing Theory</td>
</tr>
<tr>
<td>OR 674</td>
<td>Dynamic Programming</td>
</tr>
<tr>
<td>OR 675</td>
<td>Reliability Analysis</td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
</tr>
</tbody>
</table>

Total Credits: 6

#### Additional Electives

Select up to three additional electives with written concurrence of the advisor

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>

Total Credits: 9

1. At least two of these electives must be taken from SEOR course offerings, and one of these must be OR 600-level or higher. The remaining course should be taken in an area appropriate to the student’s interests, such as operations research, systems engineering, computer science, information systems, statistics, data analytics, electrical and computer engineering, economics, mathematics or supply chain management.

#### Concentrations

Students may construct concentration areas by choosing electives from among special groupings. The six concentrations available are data analytics, decision analysis, financial engineering, military operations research, optimization, and stochastic modeling. In addition to the required core courses (12 credits) and project course (3 credits), the remaining 15 credit hours consist of methods and elective courses associated with the concentration areas as outlined below. Students can also devise their own grouping of electives subject to prior approval of their advisor.

#### Concentration in Data Analytics (DNIC)

Students concentrating in data analytics must complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 504</td>
<td>Principles of Data Management and Mining</td>
<td>3</td>
</tr>
<tr>
<td>One deterministic methods course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>One stochastics methods course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>and two courses from the following list:</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>OR 604</td>
<td>Practical Optimization</td>
<td></td>
</tr>
<tr>
<td>OR 670</td>
<td>Metaheuristics for Optimization</td>
<td></td>
</tr>
<tr>
<td>STAT 663</td>
<td>Statistical Graphics and Data Exploration</td>
<td></td>
</tr>
<tr>
<td>SYST 584</td>
<td>Heterogeneous Data Fusion</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

#### Concentration in Decision Analysis (DA)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 671</td>
<td>Judgment and Choice Processing and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>OR 681</td>
<td>Decision and Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td>3</td>
</tr>
<tr>
<td>Select one deterministic methods course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select one stochastic methods course</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits: 15

#### Concentration in Financial Engineering (FNNE)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 588</td>
<td>Financial Systems Engineering I: Introduction to Options, Futures, and Derivatives</td>
<td>3</td>
</tr>
<tr>
<td>OR 688</td>
<td>Financial Systems Engineering II: Derivative Products and Risk Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following: 3
### OR 538 Analytics for Financial Engineering and Econometrics
### OR 645 Stochastic Processes
### OR 671 Judgment and Choice Processing and Decision Making
### OR 681 Decision and Risk Analysis
### OR 682 Computational Methods in Engineering and Statistics

Students must also complete:
- One deterministic methods course
- One stochastics methods course

| Total Credits | 15 |

1. If the student has already taken OR 645 Stochastic Processes this can be substituted for an elective course with written concurrence of the student’s advisor.

### Concentration in Military Operations Research (MOR)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 651</td>
<td>Military Operations Research I: Cost Analysis</td>
<td>3</td>
</tr>
<tr>
<td>OR 652</td>
<td>Military Operations Research Modeling II: Effectiveness Analysis</td>
<td>3</td>
</tr>
<tr>
<td>SYST 683</td>
<td>Modeling, Simulation, and Gaming</td>
<td>3</td>
</tr>
</tbody>
</table>

One deterministic methods course
One stochastics methods course

| Total Credits | 15 |

### Concentration in Optimization (OPT)

Select three courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 604</td>
<td>Practical Optimization</td>
<td></td>
</tr>
<tr>
<td>OR 641</td>
<td>Linear Programming</td>
<td></td>
</tr>
<tr>
<td>OR 642</td>
<td>Integer Programming</td>
<td></td>
</tr>
<tr>
<td>OR 643</td>
<td>Network Modeling</td>
<td></td>
</tr>
<tr>
<td>OR 644</td>
<td>Nonlinear Programming</td>
<td></td>
</tr>
<tr>
<td>OR 646</td>
<td>Stochastic Optimization</td>
<td></td>
</tr>
<tr>
<td>OR 670</td>
<td>Metaheuristics for Optimization</td>
<td></td>
</tr>
<tr>
<td>OR 682</td>
<td>Computational Methods in Engineering and Statistics</td>
<td></td>
</tr>
</tbody>
</table>

One deterministic methods course
One stochastics methods course

| Total Credits | 15 |

### Concentration in Stochastic Models (STM)

Select three courses from the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 645</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
<tr>
<td>OR 647</td>
<td>Queuing Theory</td>
<td></td>
</tr>
<tr>
<td>OR 674</td>
<td>Dynamic Programming</td>
<td></td>
</tr>
<tr>
<td>OR 719</td>
<td>Graphical Models for Inference and Decision Making</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td></td>
</tr>
<tr>
<td>or STAT 663</td>
<td>Statistical Graphics and Data Exploration I</td>
<td></td>
</tr>
</tbody>
</table>

Select must also complete:

- One deterministic methods course
- One elective course with written concurrence of the student’s advisor

| Total Credits | 15 |

### Dual Degree Options

#### Operations Research and Statistical Science Dual-Degree MS

This program allows students to earn an MS in Operations Research (p. 1076) and an MS in Statistical Science (p. 1064) by completing 48 credits of coursework in both areas instead of the 60 that would be required if the degrees were sought independently.

#### Admission Requirements

Applicants must satisfy admission requirements for the MS in Operations Research (p. 1076) Program and the MS in Statistical Science (p. 1064) Program. A joint faculty committee from the Statistics and Systems Engineering and Operations Research Departments make final admission decisions into the dual-degree program.

#### MS-OPRS/STAT Dual Degree Requirements

Total credits: 48

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 542</td>
<td>Operations Research: Stochastic Models</td>
<td>3</td>
</tr>
<tr>
<td>OR 635</td>
<td>Discrete System Simulation</td>
<td>3</td>
</tr>
<tr>
<td>OR 699</td>
<td>Masters Project</td>
<td>3</td>
</tr>
<tr>
<td>STAT 544</td>
<td>Applied Probability</td>
<td>3</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 652</td>
<td>Statistical Inference</td>
<td>3</td>
</tr>
<tr>
<td>STAT 654</td>
<td>Applied Statistics II</td>
<td>3</td>
</tr>
</tbody>
</table>

| Total Credits | 24 |

#### Elective Credits in OR Courses

Select 12 elective credits in OR courses at the 600 level, including at least one deterministic methods course and at least one stochastic methods course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 641</td>
<td>Linear Programming</td>
<td></td>
</tr>
<tr>
<td>OR 642</td>
<td>Integer Programming</td>
<td></td>
</tr>
<tr>
<td>OR 643</td>
<td>Network Modeling</td>
<td></td>
</tr>
<tr>
<td>OR 644</td>
<td>Nonlinear Programming</td>
<td></td>
</tr>
</tbody>
</table>

#### Deterministic Methods Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 645</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
<tr>
<td>OR 647</td>
<td>Queuing Theory</td>
<td></td>
</tr>
<tr>
<td>OR 674</td>
<td>Dynamic Programming</td>
<td></td>
</tr>
<tr>
<td>OR 675</td>
<td>Reliability Analysis</td>
<td></td>
</tr>
</tbody>
</table>

#### Stochastic Methods Courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td></td>
</tr>
</tbody>
</table>

| Total Credits | 12 |
### Elective Credits in STAT Courses

**Code** | **Title** | **Credits**
---|---|---
Select 12 elective credits from any STAT courses numbered 540-775 | 12

**Total Credits**: 12

### Notes

- Students currently enrolled in one of the MS programs must declare pursuit of the dual MS within one year of matriculation into the first MS program.
- A maximum of 6 credits across the two disciplines may be in independent research (thesis). The requirements for independent research are the same as detailed for the associated MS program.
- Students in either the BS (selected)/Operations Research, Accelerated MS program (p. 1079) or the BS (selected)/Statistical Science, Accelerated MS program (p. 1067) cannot get a reduction of 6 credits toward this dual degree. Students who want to proceed to a PhD degree will only be able to waive the number of credits specified in the associated PhD degree requirements, even though they will have 48 credits at the MS level.
- If a student decides not to complete the required 48 credits, a single MS degree will not be granted unless the student fulfills the requirements for the MS in Operations Research (p. 1076) or the MS in Statistical Science (p. 1064).
- Once a student receives one of the MS degrees from either department, the student will no longer be eligible for the reduction in credit (i.e., will need to complete 30 credits) if the student later decides to earn the other MS degree.

### Accelerated Master’s

**BS (selected)/Operations Research, Accelerated MS**

**Overview**

Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Operations Research, MS (p. 1076).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

**Admission Requirements**

Mason undergraduate students majoring in the following disciplines may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Operations Research, MS (p. 1076) program.

- Civil and Infrastructure Engineering (p. 1091)
- Computer Engineering (p. 1020)
- Computer Science (p. 991)
- Electrical Engineering (p. 1027)
- Systems Engineering (p. 1082)

**Accelerated Option Requirements**

Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree.

These two courses may be chosen from the graduate courses in the following table.

For BS candidates, these graduate courses replace the corresponding undergraduate courses. The undergraduate version of these courses may not be applied to the MS degree.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 420</td>
<td>SYST 521</td>
<td>Credit may not be received for both courses.</td>
</tr>
<tr>
<td>SYST 473</td>
<td>SYST 573</td>
<td>Credit may not be received for both courses.</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 541</td>
<td>Credit may not be received for both courses.</td>
</tr>
<tr>
<td>OR 442</td>
<td>OR 542</td>
<td>Credit may not be received for both courses.</td>
</tr>
</tbody>
</table>

Any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

### Degree Conferral

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

### Systems Engineering and Operations Research Minor

**Banner Code**: SEOR

**Academic Advising**

2100 Nguyen Engineering Building
Fairfax Campus

Phone: 703-993-1670
Email: seor@gmu.edu
Website: http://seor.gmu.edu/bsse/seorminor.html

### Admissions & Policies

**Policies**

For policies governing all minors, see AP.5.3.4 Minors (p. 86).

**Requirements**

**Minor Requirements**

Total credits: 15
### Required SEOR Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 101</td>
<td>Understanding Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>or SYST 210</td>
<td>Systems Design</td>
<td></td>
</tr>
<tr>
<td>SYST 473</td>
<td>Decision and Risk Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

### Three Additional Courses

Select three additional courses from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 210</td>
<td>Systems Design</td>
</tr>
<tr>
<td>SYST 220</td>
<td>Dynamical Systems I</td>
</tr>
<tr>
<td>&amp; SYST 221</td>
<td>Systems Modeling Laboratory</td>
</tr>
<tr>
<td>SYST 320</td>
<td>Dynamical Systems II</td>
</tr>
<tr>
<td>SYST 330</td>
<td>Systems Methods</td>
</tr>
<tr>
<td>SYST 371</td>
<td>Systems Engineering Management</td>
</tr>
<tr>
<td>SYST 460</td>
<td>Introduction to Air Traffic Control</td>
</tr>
<tr>
<td>SYST 461</td>
<td>Air Transportation System Engineering</td>
</tr>
<tr>
<td>SYST 468</td>
<td>Applied Predictive Analytics</td>
</tr>
<tr>
<td>SYST 469</td>
<td>Human Computer Interaction</td>
</tr>
<tr>
<td>or SYST 470</td>
<td>Human Factors Engineering</td>
</tr>
<tr>
<td>OR 335</td>
<td>Discrete Systems Modeling and Simulation</td>
</tr>
<tr>
<td>OR/MATH 441</td>
<td>Deterministic Operations Research</td>
</tr>
<tr>
<td>OR/MATH 442</td>
<td>Stochastic Operations Research</td>
</tr>
<tr>
<td>OR 481</td>
<td>Numerical Methods in Engineering</td>
</tr>
<tr>
<td>or MATH 446</td>
<td>Numerical Analysis I</td>
</tr>
</tbody>
</table>

**Total Credits**: 9

### Prerequisites

Some of the courses listed above have additional prerequisites. Students should pay careful attention to prerequisites when selecting courses.

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**Admissions & Policies**

### Admissions

All general Mason and specific Volgenau School admissions requirements apply. Candidates for the PhD program typically must hold an MS degree from an accredited institution of higher education in systems engineering, operations research or related areas in engineering, mathematics, and computer science with a minimum graduate GPA of 3.50 and a minimum undergraduate GPA of 3.00. In addition, well-qualified candidates holding a BS degree in these areas may apply directly to the PhD program.

All applicants should have a strong background in engineering mathematics, which includes three semesters of calculus, differential equations, linear algebra, and probability. In addition, students entering the doctoral program must have a sound working knowledge in computing.

The admission process involves submitting the application for admission, undergraduate and graduate transcripts from previous colleges and universities attended, GRE test results, three letters of reference, a résumé and a statement of career goals and aspirations, and a self-assessment of past background. Translations of international credentials must be provided, if they are not in English; in some cases, applicants will be required to have documents evaluated by an external agency. A satisfactory score on the TOEFL examination is required for non-native English speakers. All of an applicant's background is examined before an admission decision is made.

### Policies

#### Program Requirements

The program includes: course requirements, a qualifying exam that tests fundamental concepts in systems engineering and operations research; a comprehensive exam that tests the research competency of the student; dissertation proposal defense; dissertation research; and dissertation predefense and defense. All general Mason and specific Volgenau School requirements apply to this program.

PhD dissertations are extremely time intensive, and successful completion requires full time focus. It is expected that students who have reached candidacy (that is, successfully presented their dissertation proposal) will spend full time on their research for at least one academic year and will attend the majority of the SEOR departmental seminars throughout that period.

### Reduction of Credit

The doctoral program is a 72 credit hour program; however, students entering with a Master’s degree in a related discipline will be given a reduction of credit up to 24 hours. Reduction of credit requires the approval of the program director or designee and the dean or designee of the school. They determine whether the credits are eligible for reduction of credit and applicable to the degree program and the number of credits to be reduced.

The 72 hours of required doctoral-level credits typically consist of 48 credits of coursework and 24 credits of dissertation research. Students who receive a reduction of credit will complete a minimum of 48 credits as outlined in Degree Requirements; students entering without an MS will need at least 24 additional credits of coursework.
All decisions concerning the student’s course requirements and plan of study must be approved by the dissertation committee chair, as well as by the department’s doctoral coordinator.

### Requirements

#### Degree Requirements

**Total credits: 72**

**Doctoral Coursework**

A GPA of 3.50 is required, and no grade of C is allowed in these 24 credits. Students lacking prerequisites for their courses or lacking the coursework to complete the qualifying exams or their dissertation may be required to take additional courses.

- **OR 568**  Applied Predictive Analytics  3
- **SYST 763**  Research Methods in Systems Engineering and Information Technology  3
- Select 12 credits of 700-level SEOR approved courses (p. 1993)  12
- Select 6 credits in SYST or OR courses numbered 600 or higher  6
  - SYST Courses (p. 1799)
  - OR Courses (p. 1979)

**Total Credits**  24

1. A list of approved courses is available from the department
2. No more than 3 credits are allowed for a directed reading course. All courses and course substitutions must be approved by the student’s dissertation committee chair and the SEOR doctoral coordinator.
3. Excluding SYST 699 Masters Project and OR 699 Masters Project

**Additional Coursework Requirements**

Students entering without a Master’s degree are required to complete an additional 24 credits of Master’s level courses, including the following:

- **SYST 505**  Systems Engineering Principles  3
- **SYST 520**  System Engineering Design  3
- **OR 541**  Operations Research: Deterministic Models  3
- **OR 542**  Operations Research: Stochastic Models  3
- Select 12 additional credits from one of two alternatives (systems engineering or operations research)  12

**Total Credits**  24

1. Consult the SEOR Department for the list of allowable courses.

### Note

With appropriate selection of courses, students may obtain the MS degree in systems engineering or operations research by completing 6 additional credits, including 3 approved credits from the advanced emphasis courses (which may also apply towards the PhD degree advanced emphasis requirements) and 3 credits of either SYST 699 Masters Project or OR 699 Masters Project. Consult the SEOR Department for further detail. Credits taken in the courses SYST 699 Masters Project or OR 699 Masters Project may not be applied towards the PhD degree program requirements.

#### Qualifying Exams

The exams are primarily for testing the students’ familiarity with fundamental concepts. Each student must take the following four exams within two years of enrolling in the program:

- Systems Engineering Principles
- Systems Engineering Design
- Deterministic Models
- Stochastic Models

A student who passes three of the four exams in the first attempt must retake and pass the failed exam within one year. A student who passes fewer than three exams in the first attempt must retake and pass an entire set of four exams within one year. After two unsuccessful attempts, a student is dismissed from the PhD program.

**Dissertation Research**

Choose 24 credits from the following:

- **SEOR 998**  Doctoral Dissertation Proposal  24
- **SEOR 999**  Doctoral Dissertation (must complete a minimum of 12 credits)

**Total Credits**  24

#### Doctoral Supervisory Committee

Students should select a dissertation director and a doctoral supervisory committee as soon as possible. It is recommended that the committee be formed by the end of the second or third semester of study. The dissertation director must be a member of the SEOR graduate faculty or a member of the Mason graduate faculty with approval from the SEOR department chair. The doctoral supervisory committee must include at least three members from the SEOR department-approved graduate faculty, and at least one non-SEOR member from the Mason graduate faculty. The composition of the doctoral supervisory committee is to be approved by the doctoral coordinator. At least four members of the committee must be members of the Mason graduate faculty.

#### Comprehensive Exam

The comprehensive exam is taken after the student has satisfactorily completed all the advanced emphasis course work requirements in the approved plan of study filed by the student. The examiners will include the supervisory committee plus any outside examiners considered appropriate. However, the supervisory committee determines whether the student passes or not. The comprehensive exam consists of a written examination of 8 hours in length and an oral examination. The committee will determine if the student has a mastery of the advanced emphasis coursework. If a student fails the comprehensive exam, the student may request a re-examination within 60 days of receiving notice of the exam result. The request should be made in writing to the doctoral coordinator. If the student fails the re-examination or does not request a re-examination within 60 days, the student will be dismissed from the PhD program. In such a case, with recommendation of the supervisory committee and approval of the SEOR Chair, the student may apply his/her coursework towards a Master’s degree.

#### Dissertation Proposal

After passing the comprehensive exam, each doctoral student prepares a written dissertation proposal, which is presented to the doctoral
supervisory committee. After successfully completing this requirement, the student is formally admitted as a candidate for the PhD degree.

Dissertation Defense
When the central portions of the research have been completed to the point where the student is able to describe the original contributions of the dissertation effort, a candidate submits the written dissertation to the supervisory committee and schedules an oral predefense with the committee. The predefense is attended by the supervisory committee. The supervisory committee must approve the work or the student must schedule a second predefense.

Once the committee believes the student is ready, a final public oral defense may be scheduled no sooner than one month after the conclusion of the predefense, with an announcement posted for at least two weeks. The defense must be attended by the supervisory committee and the department's doctoral coordinator, unless an exception has been approved in advance by the doctoral coordinator. Following a satisfactory evaluation of the oral defense of the dissertation by the supervisory committee, the student must prepare, with supervision from the dissertation director, a final publishable dissertation that represents a definitive contribution to knowledge in systems engineering and operations research. This document must meet format guidelines specified by the Guide for Preparing Graduate Theses, Dissertations, and Projects. If the student fails to successfully defend the dissertation, the student may request a second defense, following the same procedures as for the initial defense. There is no time limit for this request, other than the general time limits for the doctoral degree. An additional predefense is not required, but the student is strongly advised to consult with the committee before scheduling a second defense. If the student fails on the second attempt to defend the dissertation, the student will be dismissed from the PhD program.

Systems Engineering, BS
Banner Code: VS-BS-SYST

Academic Advising
2100 Nguyen Engineering Building
Fairfax Campus
Phone: 703-993-1670
Email: seor@gmu.edu
Website: http://seor.gmu.edu/undergrad.html

The mission of the undergraduate program is to equip students with the ability to participate productively in the many professional activities associated with engineering a trustworthy system that satisfies client needs. The term "system" is interpreted broadly to include information, telecommunication, defense, health delivery, transportation, energy or manufacturing systems, as well as corporate processes.

Objectives
The objectives of the Bachelor of Science in Systems Engineering program at George Mason University are to produce graduates who are able to:

- Apply critical thinking, quantitative methods, systems thinking, and principles of engineering to the engineering of contemporary and future systems.
- Apply systems engineering methods, processes, models and tools to the engineering of contemporary and future systems.
- Work successfully, professionally, and ethically as members and leaders of multi-disciplinary teams.

Accreditation
This program is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org). The requirements for the degree may be satisfied through part-time enrollment.

Admissions & Policies

Policies
Change of Major
See Change of Major (p. 955) for more information.

Grade Requirements
All students in the Systems Engineering program must complete the following courses with a grade of C or better:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>CS 211</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>University Physics II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 354</td>
<td>Probability and Statistics for Engineers and Scientists II</td>
<td>3</td>
</tr>
</tbody>
</table>

Termination from the Major
No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for
a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

**Requirements**

**Degree Requirements**

Total credits: 123

**Mathematics and Statistics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214</td>
<td>Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers and Scientists I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 354</td>
<td>Probability and Statistics for Engineers and Scientists II</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 23

**Natural Science**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 160 &amp; PHYS 161</td>
<td>University Physics I (Mason Core) and University Physics I Laboratory (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 260 &amp; PHYS 261</td>
<td>University Physics II (Mason Core) and University Physics II Laboratory (Mason Core)</td>
<td>4</td>
</tr>
</tbody>
</table>

Select 4 credits from the following: ¹

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 262 &amp; PHYS 263</td>
<td>University Physics III (Mason Core) and University Physics III Laboratory (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 251</td>
<td>General Chemistry for Engineers (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12

¹ Students who select the Bioengineering technical emphasis area are strongly encouraged to take BIOL 213 Cell Structure and Function (Mason Core) (p. 135). Students are not permitted to take PHYS 262 University Physics III (Mason Core) (p. 135) and CHEM 213 General Chemistry Laboratory I (Mason Core) (p. 135) or CHEM 211 General Chemistry I (Mason Core) (p. 135) and PHYS 263 University Physics III Laboratory (Mason Core) (p. 135). Both lecture and laboratory must belong to the same natural science subject.

**Computer Science**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 112</td>
<td>Introduction to Computer Programming (Mason Core)</td>
<td>4</td>
</tr>
<tr>
<td>CS 211</td>
<td>Object-Oriented Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 7

**Communication and Economics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100 or COMM 101</td>
<td>Public Speaking (Mason Core) or Interpersonal and Group Interaction (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core)</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 6

**Engineering**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 107</td>
<td>Introduction to Engineering (Mason Core)</td>
<td>2</td>
</tr>
</tbody>
</table>

Total Credits 2

**Systems Engineering**

Students must complete each of these courses with a grade of C or better.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 101</td>
<td>Understanding Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 210</td>
<td>Systems Design</td>
<td>3</td>
</tr>
<tr>
<td>SYST 220</td>
<td>Dynamical Systems I</td>
<td>3</td>
</tr>
<tr>
<td>SYST 221</td>
<td>Systems Modeling Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>SYST 320</td>
<td>Dynamical Systems II</td>
<td>3</td>
</tr>
<tr>
<td>SYST 330</td>
<td>Systems Methods</td>
<td>3</td>
</tr>
<tr>
<td>SYST 335</td>
<td>Discrete Systems Modeling and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>SYST 371</td>
<td>Systems Engineering Management</td>
<td>3</td>
</tr>
<tr>
<td>SYST 395</td>
<td>Applied Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 470</td>
<td>Human Factors Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SYST 473</td>
<td>Decision and Risk Analysis</td>
<td>3</td>
</tr>
<tr>
<td>SYST 489</td>
<td>Senior Seminar</td>
<td>3</td>
</tr>
<tr>
<td>SYST 490</td>
<td>Senior Design Project I</td>
<td>3</td>
</tr>
<tr>
<td>SYST 495</td>
<td>Senior Design Project II</td>
<td>3</td>
</tr>
<tr>
<td>OR 441</td>
<td>Deterministic Operations Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits 12
OR 442  Stochastic Operations Research  3  
Select 3 approved technical electives selected from one of the Technical Emphasis Areas below  9  
Total Credits  55  

Additional Mason Core  
Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements.  
ENGH 101  Composition (Mason Core) (p. 135)  3  
ENGH 302  Advanced Composition (Mason Core) (p. 135)  3  
Literature (p. 140)  3  
Arts (p. 137)  3  
Western Civilization/World History (p. 143)  3  
Global Understanding (p. 139)  3  
Total Credits  18  

Technical Emphasis Areas  
The systems engineering program requires 9 credits of technical electives. Students must select one of the following technical emphases, each containing three courses. Students must complete each of these courses with a grade of C or better.  

Aviation Systems  
SYST 420  Network Analysis  3  
SYST 460  Introduction to Air Traffic Control  3  
SYST 461  Air Transportation System Engineering  3  
Total Credits  9  

Bioengineering  
BENG 313  Physiology for Engineers  3  
Select two from the following:  6  
BENG 304  Modeling and Control of Physiological Systems  
BENG 406  Introduction to Biomechanics  
BENG 420  Bioinformatics for Engineers  
Total Credits  9  

Control Systems  
ECE 201  Introduction to Signals and Systems  3  
ECE 220  Continuous-Time Signals and Systems  3  
SYST 421  Classical Systems and Control Theory  3  
Total Credits  9  

Computer Network Systems  
SYST 420  Network Analysis  3  
ECE 465  Computer Networking Protocols  3  
TCOM 500  Modern Telecommunications  3  
Total Credits  9  

Data Analytics  
SYST 468  Applied Predictive Analytics  3  
IT 214  Database Fundamentals  3  
STAT 463  Introduction to Exploratory Data Analysis  3  
or SYST 438  Analytics for Financial Engineering and Econometrics  
Total Credits  9  

Financial Engineering  
SYST 438  Analytics for Financial Engineering and Econometrics  3  
SYST 488  Financial Systems Engineering  3  
And choose one of the following:  3  
STAT 463  Introduction to Exploratory Data Analysis  
STAT 455  Experimental Design  
SYST 468  Applied Predictive Analytics  
Total Credits  9  

Mechanical Engineering  
Select one of the following options:  9  

Option 1: Mechanical Design  
ME 211  Statics  
or CEIE 210  Statics  
ME 212  Solid Mechanics  
or CEIE 310  Mechanics of Materials  
ME 341  Design of Mechanical Elements  
or ME 231  Dynamics  
Total Credits  9  

Option 2: Thermal Fluids  
ME 221  Thermodynamics  
ME 322  Fluid Mechanics  
ME 323  Heat Transfer  
or ME 342  Design of Thermal Systems  
Total Credits  9  

Operations Research  
OR 481  Numerical Methods in Engineering  3  
SYST 420  Network Analysis  3  
SYST 468  Applied Predictive Analytics  3  
Total Credits  9  

Software-Intensive Systems  
CS 310  Data Structures  3  
CS 321  Software Engineering  3  
CS 332  Object-Oriented Software Design and Implementation  3  
Total Credits  9  

Synthesis Requirement  
Mason’s synthesis requirement for systems engineering majors is satisfied by successful completion of SYST 495 Senior Design Project II (Mason Core) (p. 135). Students who do not pass SYST 495 Senior Design Project II (Mason Core) (p. 135) with a C or better must retake both SYST 490 Senior Design Project I and SYST 495 Senior Design Project II (Mason Core) (p. 135).  

Writing-Intensive Requirement  
Mason’s writing-intensive requirement for systems engineering majors is satisfied by successful completion of SYST 489 Senior Seminar.
Advising and Plan of Study
All systems engineering students are assigned a faculty advisor. With the advisor’s help and approval, each student is required to complete a plan of study. This plan of study, which is available from the SEOR office, constitutes a learning plan for the degree program and must be signed by the student’s advisor and the Department Chair. The plan of study must be updated and signed by the advisor at least once a year.

Accelerated Master’s

BS (selected)/Operations Research, Accelerated MS
Overview
Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Operations Research, MS (p. 1076).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Mason undergraduate students majoring in the following disciplines may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Operations Research, MS (p. 1076) program.

• Civil and Infrastructure Engineering (p. 1091)
• Computer Engineering (p. 1020)
• Computer Science (p. 991)
• Electrical Engineering (p. 1027)
• Systems Engineering (p. 1082)

Accelerated Option Requirements
Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree. These two courses may be chosen from the graduate courses in the following table.

For BS candidates, these graduate courses replace the corresponding undergraduate courses. The undergraduate version of these courses may not be applied to the MS degree.

Any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

BS (selected)/Statistical Science, Accelerated MS
Overview
Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Statistical Science, MS (p. 1064). Students in an accelerated degree program must fulfill all university requirements for the master’s degree.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students enrolled in a BS degree in any one of the Volgenau School (p. 953) major areas, in the Mathematics, BS (p. 716) program from the College of Science (p. 593), or in the Economics, BS (p. 342) program from the College of Humanities and Social Sciences (p. 295) may apply to this option if they have earned 90 undergraduate credits with an overall GPA of 3.00. Criteria for admission are identical to criteria for admission to the Statistical Science, MS (p. 1064) program, which include successful completion of the following Mason courses each with a grade of C or better:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 113</td>
<td>Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114</td>
<td>Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213</td>
<td>Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or MATH 321 Abstract Algebra</td>
<td></td>
</tr>
<tr>
<td>STAT 250</td>
<td>Introductory Statistics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or STAT 344 Probability and Statistics for Engineers and Scientists I</td>
<td></td>
</tr>
<tr>
<td>STAT 346</td>
<td>Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>or MATH 351 Probability</td>
<td></td>
</tr>
</tbody>
</table>

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlapping with grades of B or better in two 500-level STAT courses selected from STAT 544 Applied Probability, STAT 554 Applied Statistics I, and STAT 574 Survey Sampling I.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at
the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and Graduate Recruitment and Enrollment Services. At the completion of MS requirements, a master’s degree is conferred.

BS (selected)/Systems Engineering, Accelerated MS

Overview
Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Systems Engineering, MS (p. 1087). For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Mason undergraduate students majoring in civil and infrastructure engineering (p. 1091), computer engineering (p. 1020), computer science (p. 991), electrical engineering (p. 1027), or systems engineering (p. 1082) may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

Accelerated Option Requirements
Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree. These two courses may be chosen from the graduate courses in the following table.

For BS candidates, these graduate courses replace the corresponding undergraduate courses listed. The undergraduate version of these courses may not be applied toward the MS degree.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS 420</td>
<td>SYS 521</td>
</tr>
<tr>
<td>SYS 473</td>
<td>SYS 573</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 541</td>
</tr>
<tr>
<td>OR 442</td>
<td>OR 542</td>
</tr>
</tbody>
</table>

Any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

BS (selected)/Data Analytics Engineering, Accelerated MS

Overview
Qualified undergraduate students have the option of obtaining an accelerated Data Analytics Engineering, MS (p. 959) with a concentration in predictive analytics. For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
While no specific undergraduate degree is required, Mason undergraduate students majoring in systems engineering or any other engineering, business, computer science, statistics, mathematics, or information technology may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30.

For the predictive analytics concentration, students must submit evidence of:

- Satisfactory completion of courses in calculus, applied probability and statistics, and a scientific programming language.
- Familiarity with analytical modeling software, such as spreadsheets or math packages.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with six credits overlap chosen from the courses in the following table. For BS candidates, these graduate courses replace the corresponding undergraduate courses listed. The undergraduate version of these courses may not be applied toward the MS degree.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYS 473</td>
<td>SYS 573</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 541</td>
</tr>
</tbody>
</table>

For the predictive analytics concentration, any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

OR 541 Operations Research: Deterministic Models will substitute for the OR 531 Analytics and Decision Analysis core requirement in the MS DAE program.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.
Systems Engineering, BS/Telecommunications, Accelerated MS

Overview
Highly-qualified students in the Systems Engineering, BS (p. 1082) have the option of obtaining an accelerated Telecommunications, MS (p. 1039).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Systems Engineering, BS (p. 1082) program who preferably have chosen to take the systems engineering of telecommunications elective sequence may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Other students will be considered on their individual merit. Criteria for admission are identical to criteria for admission to the Telecommunications, MS (p. 1039) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for the BS and MS programs, with 6 credits overlap selected from the following courses:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCOM 500</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>TCOM 530</td>
<td>Data Communications Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td>3</td>
</tr>
<tr>
<td>SYST 530</td>
<td>Systems Engineering Management I</td>
<td>3</td>
</tr>
<tr>
<td>SYST 573</td>
<td>Decision and Risk Analysis (if taken, replaces TCOM 521 in the telecommunications core requirements)</td>
<td>3</td>
</tr>
</tbody>
</table>

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Systems Engineering, MS

Banner Code: VS-MS-SYST

Academic Advising
2100 Nguyen Engineering Building
Fairfax Campus

Phone: 703-993-1670
Email: seor@gmu.edu
Website: https://seor.gmu.edu/

Mason’s educational and research program in systems engineering addresses a broad range of issues relevant to the design, implementation, analysis and management of systems. Concentration areas include: Advanced Transportation Systems; Architecture-Based Systems Integration; Command, Control, Communications, Computing, and Intelligence; Financial Systems Engineering; Systems Engineering and Data Analytics; Systems Engineering of Software-Intensive Systems; and Systems Management. Research activities include both fundamental and applied research. Mason’s graduate program in Systems Engineering recognizes the importance of balancing an education in quantitative models and engineering tools with a proper understanding of the systems "perspective."

The program prepares students for a professional career in conceptualization, architecture, design, development, and management of large complex engineered systems. The program emphasizes both analytical and practical aspects of engineering complex systems. Students are expected to demonstrate proficiency in several quantitative modeling disciplines. Students are also expected to master issues relevant to practical aspects of systems architecture, design, and management.

Admissions & Policies

Admissions
Foundation and Admission Requirements
Applicants should have a baccalaureate degree from an accredited institution in engineering, mathematics, computer science, physical sciences, economics, or a related field. They also should have completed courses in calculus (MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135), MATH 114 Analytic Geometry and Calculus II, and MATH 213 Analytic Geometry and Calculus III), matrix algebra (MATH 203 Linear Algebra), differential equations (MATH 214 Elementary Differential Equations), applied probability (STAT 346 Probability for Engineers), and a scientific programming language (CS 112 Introduction to Computer Programming (Mason Core) (p. 135)).

Other requirements are as follows:

- Evidence of satisfactory educational achievement in at least one of the following forms: a GPA of at least 3.00 as an undergraduate or an acceptable GPA in graduate courses. International students must also achieve satisfactory scores on the GRE. Nonnative English speakers must have achieved a satisfactory score on the TOEFL exam.
- Two letters of recommendation submitted by former professors or supervisors
- A goals statement and resume
- Working background in engineering mathematics and computer systems. Students with minor deficiencies in preparation may apply for admission to the program, but they will be required to take one or more foundation courses. The department offers SYST 500 Quantitative Foundations for Systems Engineering as an intensive review of undergraduate engineering mathematics, including matrix algebra, transforms, differential equations, probability, and statistics.

Students who have not completed a basic engineering undergraduate mathematics sequence will be required to complete courses in engineering calculus and matrix algebra prior to acceptance. On acceptance, students will be required to take a foundation qualification test a week or two before school starts, unless waived by the department chair or graduate coordinator. Students who fail the test will be required to take SYST 500 Quantitative Foundations for Systems Engineering.
Engineering or other foundation courses. A sample test is available from the department.

Familiarity with analytical modeling software, such as spreadsheets or math packages, is also expected. Students should acquaint themselves with these software packages before beginning classes.

Policies
Advising & Plan of Study
Each student is assigned a faculty advisor with whom to work to complete an approved plan of study. This plan of study must include five core courses, three required courses in a concentration area, one elective, and a capstone systems engineering project (3 credits) for a total of 10 courses (30 credits for graduation). A thesis option that replaces the 3-credit capstone course with a 6-credit thesis (for a total of 33 credits for graduation) is available in some situations. Matriculation requirements for candidates needing additional work in mathematics or engineering also may be included in the plan of study.

Requirements
Degree Requirements
Total credits: 30-33

All Systems Engineering MS students must complete 5 core courses, 3 concentration courses, an elective, and a project or thesis.

Core Courses
Students must complete the following five courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 505</td>
<td>Systems Engineering Principles</td>
<td>3</td>
</tr>
<tr>
<td>SYST 510</td>
<td>Systems Definition and Cost Modeling</td>
<td>3</td>
</tr>
<tr>
<td>SYST 520</td>
<td>System Engineering Design</td>
<td>3</td>
</tr>
<tr>
<td>SYST 530</td>
<td>Systems Engineering Management I</td>
<td>3</td>
</tr>
<tr>
<td>SYST 611</td>
<td>System Methodology and Modeling</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 15

1 Students who have work experience in systems engineering should consult with their advisor on replacing SYST 505 Systems Engineering Principles with a higher-level SYST course.

Concentrations
Students may construct 12 credit concentration areas by choosing electives from among special groupings. Students may also devise their own grouping of electives subject to prior approval of their advisor.

Concentration in Advanced Transportation Systems (ATS)
The air transportation system is among the most complex networked systems. This concentration is designed to provide students with the skills to address the next generation of challenges of the air transportation system. Topics addressed include congestion and safety of the national air space, economic and human factors, impact of technology innovation, and public policy. The program emphasizes design, modeling, and analysis to support decision making for government and the aviation industry.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 560</td>
<td>Introduction to Air Traffic Control</td>
<td>3</td>
</tr>
<tr>
<td>SYST 660</td>
<td>Air Transportation Systems Modeling</td>
<td>3</td>
</tr>
</tbody>
</table>

One from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
<td>3</td>
</tr>
<tr>
<td>OR 531</td>
<td>Analytics and Decision Analysis</td>
<td></td>
</tr>
<tr>
<td>OR 541</td>
<td>Operations Research: Deterministic Models</td>
<td></td>
</tr>
<tr>
<td>OR 542</td>
<td>Operations Research: Stochastic Models</td>
<td></td>
</tr>
<tr>
<td>OR 568</td>
<td>Applied Predictive Analytics or SYST 568</td>
<td></td>
</tr>
<tr>
<td>SYST 563</td>
<td>Evidence-Based Systems Engineering</td>
<td></td>
</tr>
<tr>
<td>SYST 573</td>
<td>Decision and Risk Analysis</td>
<td></td>
</tr>
<tr>
<td>SYST 620</td>
<td>Discrete Event Systems</td>
<td></td>
</tr>
<tr>
<td>SYST 664</td>
<td>Bayesian Inference and Decision Theory</td>
<td>3</td>
</tr>
</tbody>
</table>

One free elective, chosen under advisement: 3

Total Credits: 12

Concentration in Command, Control, Communications, Computing, and Intelligence (C4I)
C4I systems are concerned with gathering, retrieving, analyzing, and disseminating time-sensitive information to achieve mission-critical objectives. These systems support military operations across the spectrum of conflict, intelligence operations, transportation monitoring, emergency response, drug interdiction, and law enforcement, among others. C4I systems include the equipment, people, and procedures necessary to accomplish the mission. The equipment may include a variety of sensors, communications systems, and information processing and decision-support systems.

This concentration focuses on the analysis, design, development, and management of C4I systems. Topics addressed include C4I architectures and software, communications, decision support, modeling and simulation, and sensor data fusion.

With careful planning, students who complete this concentration might be able to complete the Command, Control, Communications, Computing,
and Intelligence Graduate Certificate (p. 1073) simultaneously with their MS.

OR 542 Operations Research: Stochastic Models 3
or ECE 528 Introduction to Random Processes in Electrical and Computer Engineering
SYST 680 Principles of Command, Control, Communications, Computing, and Intelligence (C4I) 3
or ECE 670 Principles of C4I
SYST 584 Heterogeneous Data Fusion 3
One free elective, chosen under advisement: 3
Total Credits 12

Concentration in Energy Systems (NRGS)
With the rising economic and environmental costs to power homes, businesses and the transportation systems that move people and goods from place to place, innovative solutions are required to meet the world’s expanding energy needs. Students completing the energy systems concentration will build upon a foundation in systems engineering design by incorporating physical principles of thermal fluid energy transfer into system models. Students will develop the tools to model and analyze generation, transmission, and utilization systems in steady and dynamic operation. Students will optimize these systems by considering physical principles, economics, local policy and security concerns. Graduates will be able to apply their expertise to work with: traditional power generation facilities; renewable energy integration; national, local, and smart grids; mechanical and electrical energy storage systems; utilization of energy in building and transportation systems.

ME 521 Energy Transfer 3
ME 531 Energy Transmission 3
ME 541 Power Generation 3
One free elective, chosen under advisement: 3
Total Credits 12

Concentration in Financial Systems Engineering (FNSE)
Financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions, as well as facilitating the risk management of those decisions. While mathematics is indispensable in financial engineering, the concentration will try best to focus on the concepts and ideas of finance, while limiting the math within a scope acceptable to most students in engineering.

SYST 538 Analytics for Financial Engineering and Econometrics 3
SYST 588 Financial Systems Engineering I: Introduction to Options, Futures, and Derivatives 3
SYST 688 Financial Systems Engineering II: Derivative Products and Risk Management 3
One free elective, chosen under advisement: 3
Total Credits 12

Concentration in Systems Engineering and Data Analytics (SEDA)
Systems engineers must address a broad range of issues relevant to the design, implementation, analysis, and management of systems. This concentration provides methodological tools that can be applied to the systems engineering process. Areas of focus include decision support systems, distributed intelligent systems, knowledge-based planning systems, network systems, probabilistic reasoning systems, sensor fusion systems, and optimization methods.

OR 531 Analytics and Decision Analysis 3
SYST 568 Applied Predictive Analytics 3
SYST 573 Decision and Risk Analysis 3
One free elective, chosen under advisement: 3
Total Credits 12

Concentration in Systems Engineering of Software-Intensive Systems (SESII)
This concentration addresses the software component of the systems engineering life cycle. It specifically covers the allocation of system requirements to software. Practitioners are concerned with the theoretical and practical aspects of technology, cost, and the social effect of computer systems that are reliable, maintainable, secure, efficient, and cost effective. The program emphasizes the integration of hardware, software, and firmware, and the management of these complex computer systems over their life cycle through systems engineering methods, tools, and processes.

With careful planning, students who complete this concentration might be able to complete the Engineering Resilient Enterprise Systems Graduate Certificate (p. 1074) simultaneously with their MS.

SYST 542 Decision Support Systems Engineering 3
SYST 618 Model-based Systems Engineering 3
One from the following: 3
ECE 528 Introduction to Random Processes in Electrical and Computer Engineering
OR 531 Analytics and Decision Analysis
OR 541 Operations Research: Deterministic Models
OR 542 Operations Research: Stochastic Models
OR 568 Applied Predictive Analytics
or SYST 568 Applied Predictive Analytics
SYST 563 Evidence-Based Systems Engineering
SYST 573 Decision and Risk Analysis
SYST 620 Discrete Event Systems
SYST 664 Bayesian Inference and Decision Theory
One free elective, chosen under advisement: 3
Total Credits 12

Concentration in Systems Management (SMG)
The management aspect of systems engineering involves tracking and control of system development through the major phases of the system lifecycle, identifying and resolving problems to minimize their effect on cost, schedule, or performance, and iteratively improving product and process. This concentration emphasizes the theory and practice of systems management and prepares students for careers in management.

SYST 514 Systems Thinking 3
SYST 618 Model-based Systems Engineering 3
SYST 630 Systems Engineering Management II 3
One free elective, chosen under advisement: 3
Total Credits 12
Project or Thesis

Students must complete a capstone project (3 credit hours) or thesis (6 credit hours) under the direction of a Systems Engineering faculty member.

Under the project option, the student completes three credit hours of SYST 699 Masters Project. Students in these courses work in teams on an approved applied project. A project report is submitted at the end of the semester, and a final project presentation is made to the entire faculty of the SEOR Department.

The thesis option requires approval by the department chair and approval is only given in rare circumstances. Under the thesis option, the student completes six credit hours of SYST 799 Master’s Thesis. The master’s thesis should reflect a significant independent research effort. The work is conducted under the guidance of a faculty thesis advisor, and the final written thesis and oral defense are approved by a three-member faculty committee and submitted to the library. The thesis work is expected to be completed while taking six semester hours of SYST 799 Master’s Thesis. Although a student is required to maintain continuous enrollment by registering for SYST 799 Master’s Thesis each semester until the thesis is completed, only six hours will be applied to the degree.

Select one from the following:  

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 699</td>
<td>SYST 521</td>
</tr>
<tr>
<td>Masters Project (3 credits)</td>
<td>Credit may not be received for both courses.</td>
</tr>
<tr>
<td>SYST 799</td>
<td>OR 441</td>
</tr>
<tr>
<td>Master’s Thesis (6 credits)</td>
<td>OR 442</td>
</tr>
<tr>
<td></td>
<td>OR 541</td>
</tr>
<tr>
<td></td>
<td>OR 542</td>
</tr>
<tr>
<td></td>
<td>Credit may not be received for both courses.</td>
</tr>
</tbody>
</table>

Total Credits: 3-6

Accelerated Master’s

BS (selected)/Systems Engineering, Accelerated MS

Overview
Highly-qualified students in selected BS programs (see below) have the option of obtaining an accelerated Systems Engineering, MS (p. 1087).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Mason undergraduate students majoring in civil and infrastructure engineering (p. 1091), computer engineering (p. 1020), computer science (p. 991), electrical engineering (p. 1027), or systems engineering (p. 1082) may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30 and completed all MATH and PHYS requirements. Criteria for admission are identical to criteria for admission to the Systems Engineering, MS program.

Accelerated Option Requirements
Up to two courses (6 credits) of approved master’s level courses taken as part of the undergraduate degree may be applied to the graduate degree. These two courses may be chosen from the graduate courses in the following table.

For BS candidates, these graduate courses replace the corresponding undergraduate courses listed. The undergraduate version of these courses may not be applied toward the MS degree.

<table>
<thead>
<tr>
<th>Undergraduate</th>
<th>Graduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYST 420</td>
<td>SYST 521</td>
</tr>
<tr>
<td>SYST 473</td>
<td>SYST 573</td>
</tr>
<tr>
<td>OR 441</td>
<td>OR 442</td>
</tr>
<tr>
<td>OR 491</td>
<td>OR 541</td>
</tr>
<tr>
<td>OR 542</td>
<td>Credit may not be received for both courses.</td>
</tr>
</tbody>
</table>

Any other 500-level course may be applied to both the undergraduate and graduate degrees with approval of the advisor and SEOR department chair.

Degree Conferral
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.

Sid and Reva Dewberry Department of Civil, Environmental, and Infrastructure Engineering

Liza Wilson Durant, Acting Chair

Phone: 703-993-1675
Website: civil.gmu.edu

The Sid and Reva Dewberry Department of Civil, Environmental, and Infrastructure Engineering (CEIE) offers BS, MS, MEng, and PhD degrees. These degree programs focus on the physical and organizational infrastructure essential to the functioning of society.

Civil and infrastructure engineering is the study of land, transportation, water resources, environment, structures, geotechnology, and construction from a civil engineering perspective and within a complex technological, social, political, economic, and environmental context. The focus is on how these systems are successfully conceived, developed, designed, built, operated, maintained, and renewed in the built environment. This applies to major metropolitan areas in developed countries, such as Washington, D.C. and its integrated suburbs, and extends to infrastructure issues in developing nations which often involve very different issues.

An urban society thrives and prospers when adequate, appropriate, reliable, robust, secure, and cost-effective infrastructure systems are provided. The investment in existing infrastructure and other urban systems in the United States and abroad is enormous. The investment required to maintain, operate, renew, and manage the evolution of these infrastructure systems in the future is even greater. The need for highly educated and creative professionals to confront and solve these continuing vital problems is pressing. Examples of infrastructure systems
include water supply and distribution; streets, roads, and highways; wastewater management; transit; storm water management; public utilities; energy supply and distribution; telecommunications; buildings, facilities and structures; and solid waste management.

Faculty

Professors
Arciszewski (emeritus), Durant (acting chair), Goodings, Houck, Miller-Hooks

Associate Professors
Kosoglu, Tanyu, Urgessa, Venigalla

Assistant Professors
Battistini, Ferreira, Lattanzi, Maggioni, Zhu

Adjunct Faculty
Benton, Binning, Cristei, deBoinville, Doyle, Evans, Faghri, Haber, Hartmann, Hedges, Hieber, Kennedy, Lade, Loulakis, Manous, McDonald, Reseigh, Rodriguez, Schroedel, Subramanian, Teitelman, Thoesen, Woods, Yang, Younis, Yuan

Programs

• Civil and Infrastructure Engineering, BS
• Civil and Infrastructure Engineering, MS
• Civil and Infrastructure Engineering, PhD
• Environmental Engineering Minor
• Geotechnical, Construction, and Structural Engineering, MEng

Civil and Infrastructure Engineering, BS

Banner Code: VS-BS-CEIE

Lisa Nolder, Associate Director for Undergraduate Programs

Phone: 703-993-1675
Email: snolder@gmu.edu
Website: http://civil.gmu.edu/undergraduate

The bachelor’s degree program provides essential underpinnings in the theory and design methods of civil and infrastructure engineering for engineering practice. Students benefit from exposure to practical civil, environmental, and infrastructure engineering problems and their solutions in the classroom, lab, and field. The educational objectives of the Civil and Infrastructure Engineering program describe expectations for graduates approximately three to five years after obtaining their BS CIE degree. Graduates of the program will be professionals who:

• Engage in the engineering practice of planning, designing, constructing, operating and maintaining sustainable infrastructure;
• Participate in public discussions concerning infrastructure in the urban, suburban, and exurban setting by providing professional guidance;
• Stay current through continuing education opportunities, professional conferences, graduate school, and other self-learning experiences; have the ability to obtain and maintain professional licensing.

Civil engineering students can look forward to a career in local, state, and federal government organizations, and in architectural and engineering firms that specialize in land development, transportation, water resources, environment, structures, geotechnical, construction, and other related fields. The program also prepares students for continuing graduate studies for sophisticated practice, research, and teaching.

The bachelor’s program in civil and infrastructure engineering is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

This is a Green Leaf program (p. 102).

Admissions & Policies

Policies
For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Change of Major
See Change of Major (p. 955) for more information.

Termination from the Major
No math, science, or Volgenau School of Engineering course that is required for the major may be attempted more than three times. Those students who do not successfully complete such a course within three attempts will be terminated from the major. Undeclared students in the Volgenau School who do not successfully complete a course required for a Volgenau School major within three attempts will also be terminated. For more information, see AP.5.2.4 Termination from the Major (p. 85).

Once a student has attempted one of these courses twice unsuccessfully, the third attempt must be no later than the next semester of enrollment, excluding summers. Failure to take the course at that time will result in termination from the major. If the student is unable to take the course when required, the student may request an extension to a future semester; extensions require approval of the student’s advisor, their department, and the Associate Dean for Undergraduate Programs. The deadline for extension requests is the add deadline for the semester in which the course is required.

Students who have been terminated from a Volgenau School of Engineering major may not register for a Volgenau School course without permission of the department offering the course. This applies to all undergraduate courses offered by the Volgenau School except IT 104 Introduction to Computing (Mason Core) (p. 135) and STAT 250 Introductory Statistics I (Mason Core) (p. 135).

A student may not declare any major in the Volgenau School of Engineering if the student has previously met the termination criteria for that major at any time, regardless of what the student’s major was at the time the courses were taken.

Program Requirements
Degree requirements include 120 credits distributed in three main areas: mathematics and basic science, humanities and social sciences, and civil engineering analysis and design. Students must complete all math,
science and Volgenau School of Engineering courses presented as part of the required 120 credits for the degree with a grade of C or better.

The prerequisite structure for these courses is extensive. Sample schedules, available from the department, provide a comprehensive listing of major and Mason Core requirements and serve as a guide to the progression of the courses to satisfy all prerequisites.

Students are required to see their faculty advisor at least once each year to plan their curriculum, and to develop an approved plan of study, which constitutes a learning plan for the degree program.

<table>
<thead>
<tr>
<th>Requirements</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Degree Requirements</strong></td>
<td>Total credits: 120</td>
</tr>
<tr>
<td><strong>Civil Engineering</strong></td>
<td></td>
</tr>
<tr>
<td>CEIE 203 Geomatics and Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 210 Statics</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 240 Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 301 Engineering and Economic Models in Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 304 Jr Engineering Competency Exam</td>
<td>0</td>
</tr>
<tr>
<td>CEIE 310 Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 311 Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 331 Soil Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 340 Water Resource Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 355 Environmental Engineering and Science</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 360 Introduction to Transportation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 370 Construction Systems</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 404 Sr Engineering Competency Exam</td>
<td>0</td>
</tr>
<tr>
<td>CEIE 409 Professional Practice and Management in Engineering (Mason Core)</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 490 Senior Design Project (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>37</td>
</tr>
<tr>
<td><strong>Computing</strong></td>
<td></td>
</tr>
<tr>
<td>CDS 130 Computing for Scientists (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Engineering</strong></td>
<td></td>
</tr>
<tr>
<td>ENGR 107 Introduction to Engineering (Mason Core)</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>2</td>
</tr>
<tr>
<td><strong>Technical Electives</strong></td>
<td>Select 12 credits of CEIE Technical Electives from four different specialty areas from among the following six Civil Engineering specialty areas:</td>
</tr>
<tr>
<td>Construction Engineering:</td>
<td></td>
</tr>
<tr>
<td>CEIE 471/571 Construction Administration</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 472/572 Building Information Modeling</td>
<td>1</td>
</tr>
<tr>
<td>Environmental Engineering:</td>
<td></td>
</tr>
<tr>
<td>CEIE 450/550 Environmental Engineering Systems</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 453/553 Water and Wastewater Treatment Processes</td>
<td>1</td>
</tr>
<tr>
<td>Geotechnical Engineering:</td>
<td></td>
</tr>
<tr>
<td>CEIE 432/532 Foundation Design</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 435/555 Engineering Geology</td>
<td>1</td>
</tr>
<tr>
<td>Structural Engineering:</td>
<td></td>
</tr>
<tr>
<td>CEIE 412/512 Structural Steel Design</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 413/513 Reinforced Concrete Design</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 414 Structural Modeling for Engineers</td>
<td></td>
</tr>
<tr>
<td>Transportation Engineering:</td>
<td></td>
</tr>
<tr>
<td>CEIE 461/561 Traffic Engineering</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 462/562 Urban Transportation Planning</td>
<td>1</td>
</tr>
<tr>
<td>Water Resources Engineering:</td>
<td></td>
</tr>
<tr>
<td>CEIE 440/540 Water Supply and Distribution</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 442/542 Open Channel Flow</td>
<td>1</td>
</tr>
<tr>
<td>Select 12 credits of CEIE Technical Elective courses from any CEIE 4XX course</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>24</td>
</tr>
<tr>
<td>1 Taking a 500-level course requires prior approval by the department’s undergraduate program director.</td>
<td></td>
</tr>
<tr>
<td>2 One 3 credit course of those remaining credits may be from related advanced science or engineering course offerings. Approval from the student’s academic advisor is required before a non-CEIE course is taken to meet senior technical elective requirements for the degree.</td>
<td></td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td></td>
</tr>
<tr>
<td>MATH 113 Analytic Geometry and Calculus I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>MATH 114 Analytic Geometry and Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH 213 Analytic Geometry and Calculus III</td>
<td>3</td>
</tr>
<tr>
<td>MATH 214 Elementary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>14</td>
</tr>
<tr>
<td><strong>Physics</strong></td>
<td></td>
</tr>
<tr>
<td>PHYS 160 University Physics I (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 161 University Physics I Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 260 University Physics II (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 261 University Physics II Laboratory (Mason Core) (p. 135)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS 266 Introduction to Thermodynamics</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>9</td>
</tr>
<tr>
<td><strong>Chemistry</strong></td>
<td></td>
</tr>
<tr>
<td>CHEM 251 General Chemistry for Engineers (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td>or CHEM 211 &amp; CHEM 213 General Chemistry I (Mason Core) (p. 135) and General Chemistry Laboratory I (Mason Core) (p. 135)</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td>4</td>
</tr>
</tbody>
</table>
## Biology

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 377</td>
<td>Applied Ecology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 3

## Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 344</td>
<td>Probability and Statistics for Engineers</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Scientists I</td>
<td></td>
</tr>
</tbody>
</table>

**Total Credits**: 3

## Communication and Economics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 100</td>
<td>Public Speaking (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>or COMM 101</td>
<td>Interpersonal and Group Interaction (Mason Core) (p. 135)</td>
<td></td>
</tr>
<tr>
<td>ECON 103</td>
<td>Contemporary Microeconomic Principles (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**: 6

## Writing-Intensive Requirement

The university’s writing-intensive requirement for civil and infrastructure engineering majors is satisfied by the successful completion of CEIE 301 Engineering and Economic Models in Civil Engineering.

## Additional Mason Core

Students must complete all Mason Core (p. 135) requirements not fulfilled by major requirements with one modification. CIE students are required to take 6 credits of written communication, 3 credits of literature, and courses in two of the following three areas: arts, global understanding, and western civilization/world history. This exemption means that CIE students meet the Volgenau School of Engineering’s requirement for humanities and social science courses by taking 21 credits rather than 24. The two additional Mason Core (p. 135) areas to be satisfied must be approved by the CEIE faculty advisor with the goal of best meeting the Mason Core (p. 135) needs of the student. All other Mason Core (p. 135) requirements must be met.

- **Written Communication** (p. 135): 6 credits
- **Literature** (p. 140): 3 credits
- **Select courses from two of the following areas**: 6 credits
  - Arts (p. 137)
  - Western Civilization/World History (p. 143)
  - Global Understanding (p. 139)

**Total Credits**: 15

## Honors

### Honors in the Major

The Sid and Reva Dewberry Department of Civil, Environmental and Infrastructure Engineering offers an Honors Program in Civil and Infrastructure Engineering that creates a community of outstanding scholars in civil engineering who share a commitment to learning, service, and leadership. The Program is crafted around the civil and infrastructure curriculum, and is distinct from the University Honors Curriculum. Entry to the Honors Program is by invitation, extended to students with a minimum high school GPA of 3.80.

## Requirements

The Honors program is challenging, designed for the highly motivated student, and consists of 120 credits. Honors students must satisfy requirements in addition to those of the normal BS CIE degree, including:

- An advanced communication course, COMM 320 Business and Professional Communication or COMM 637 Risk Communication, which may serve as a substitute for one CEIE (4xx) level senior technical elective.
- A minimum of 6 credits of CEIE graduate (5xx/6xx) level courses (these courses may substitute for CEIE (4xx) level senior technical electives by approval of the Department Chair). Students must submit a Graduate Course for Undergraduate Credit Form for approval to the course instructor and Department Chair.

Once admitted to the Honors Program, students must remain in good standing and maintain a minimum cumulative GPA of 3.50 and a minimum GPA of 3.20 in each semester for all courses counting toward the BS CIE degree, maintain continuous enrollment working toward the BS CIE degree, and abide by the Mason Honor Code.

## Accelerated Master's

### Civil and Infrastructure Engineering, BS/Civil and Infrastructure Engineering, Accelerated MS

#### Overview

Highly-qualified students in the Civil and Infrastructure Engineering, BS (p. 1091) have the option of obtaining an accelerated Civil and Infrastructure Engineering, MS (p. 1095).

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

#### Admission Requirements

Students in the Civil and Infrastructure Engineering, BS (p. 1091) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. All other criteria for admission are identical to criteria for admission into the Civil and Infrastructure Engineering, MS (p. 1095) program.

#### Accelerated Option Requirements

Students must complete all credits that satisfy requirements for both the BS and MS programs. Students register for 6 credits of overlapping graduate level courses in place of undergraduate technical elective courses. The courses selected for this purpose must be approved by the academic advisor.

#### Degree Requirements

Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student’s final undergraduate semester, students must complete a Bachelor’s/Accelerated Master’s Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master’s degree is conferred.
Bachelor's Degree (Green Leaf)/Environmental Science and Policy, Accelerated MS

Overview
This degree option allows highly qualified George Mason University students to earn an Environmental Science and Policy, MS (p. 664) in less time than if they had first graduated with an environmentally-focused Green Leaf-designated (p. 102) BA or BS degree and then applied to the MS program sequentially.

For more detailed information, see AP.6.7 Bachelor’s/Accelerated Master’s Degrees (p. 89). For policies governing all graduate programs, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students with an overall GPA of at least 3.20 who are pursuing any Green Leaf-designated (p. 102) major or minor may apply for provisional acceptance into this accelerated master’s program after completing two semesters of chemistry (including CHEM 211 General Chemistry I (Mason Core) (p. 135) and CHEM 212 General Chemistry II (Mason Core) (p. 135)) and three semesters of biology, including a course in ecology, or the equivalent, for example:

Select one of the following options:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 213</td>
<td>Cell Structure and Function (Mason Core) (p. 135)</td>
<td>6</td>
</tr>
<tr>
<td>BIOL 214</td>
<td>Biostatistics for Biology Majors</td>
<td>6</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>Foundations of Ecology and Evolution</td>
<td>6</td>
</tr>
</tbody>
</table>

Reserve Graduate Credits
Students admitted to this program may take graduate courses after completing 90 undergraduate credits, and up to 6 credits of appropriate environmentally-focused graduate coursework may be used in partial satisfaction of the requirements for the undergraduate degree. If students earn at least a 3.00 GPA in these classes, they are granted advanced standing in the master’s program and must then complete an additional 27-31 credits to receive the master’s degree.

To apply these credits to the master’s degree, students must request that the credits be moved from the undergraduate degree to the graduate degree using the Bachelor’s/Accelerated Master’s Transition form found on the Office of the University Registrar website (http://registrar.gmu.edu/forms) (as noted above).

Students may take up to 6 additional environmentally-focused graduate credits as reserve graduate credit. These credits do not apply to the undergraduate degree but will reduce the subsequent master’s degree credits accordingly (e.g., with 6 credits counted towards undergraduate degree plus the maximum 6 reserve credits, an MS could be completed with 21 post-bachelor’s credits). The ability to take courses for reserve graduate credit is available to all high achieving undergraduates with the permission of the department.
Civil and Infrastructure Engineering, MS
Banner Code: VS-MS-CEIE

Academic Advising
Phone: 703-993-1675
Email: ceiegrad@gmu.edu
Website: civil.gmu.edu/graduate/master-of-science

This MS is designed for students who have completed a bachelor’s degree in civil engineering, although students with related undergraduate degrees may be considered for provisional admission. The MS educates students in the theory and practice of civil engineering science and design, with a technical concentration. The master’s degree is increasingly expected for high level practice in civil engineering, and prepares graduates to practice in civil engineering for: federal, state, or local government; engineering design firms; construction firms; public utilities; non-governmental organizations; and local and regional planning firms, among others. The MS degree serves as a foundation for subsequent study in a doctoral program in civil engineering, as well as for graduate studies in architecture, law, business, economics, finance, and public policy and administration.

Full-time students typically complete the degree in one and a half, to two years.

Admissions & Policies

Admissions
To be considered for admission to the program, a candidate must:

• Satisfy general University and Volgenau School requirements for admission to a graduate program,
• Have earned a baccalaureate degree in engineering or a related science,
• Provide two letters of reference, submitted by former professors or supervisors,
• Provide a goals statement and professional résumé.

Acceptance to the degree program is based on an assessment of the applicant’s capacity to pursue graduate studies successfully. Consideration is given to the undergraduate record, any previous graduate work, professional work experience, and reference letters. Students with minor admission deficiencies may be provisionally admitted subject to completing an articulation program. Prescribed courses taken in the articulation program are not creditable toward the MS degree.

Requirements

Degree Requirements
Total credits: 30

All MS students must develop a faculty-approved plan of study with a minimum of 30 graduate credits. These credits include two core courses (CEIE 601 Infrastructure Modeling and CEIE 605 Risk and Uncertainty in Civil Engineering), specific requirements of a concentration declared by the student, and seminar requirement (CEIE 795 Civil and Infrastructure Engineering Seminar).

Plan of Study
Students are responsible for developing and receiving advisor approval on a plan of study no later than the end of their second semester of study. Courses taken without prior approval by the faculty advisor may not be accepted for credit toward the degree. No more than three courses used for credit toward the MS may be cross-listed as undergraduate courses. None may repeat material completed as part of the student’s previous studies. Most MS courses are offered on a three-semester rotation.

Core Courses
All MS students must complete the following two core courses within the first 12 credit hours of their MS studies. These courses provide a common background for understanding the breadth and complexity of civil and infrastructure engineering and for analyzing and solving engineering problems.

CEIE 601 Infrastructure Modeling 3
CEIE 605 Risk and Uncertainty in Civil Engineering 3
Total Credits 6

Concentration in Construction Project Management (CPM)
Select at least three from the following five construction project management core courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 571</td>
<td>Construction Administration</td>
<td></td>
</tr>
<tr>
<td>CEIE 572</td>
<td>Building Information Modeling</td>
<td></td>
</tr>
<tr>
<td>CEIE 573</td>
<td>Legal Aspects of the Construction Process</td>
<td></td>
</tr>
<tr>
<td>CEIE 575</td>
<td>Design for Constructability</td>
<td></td>
</tr>
<tr>
<td>CEIE 576</td>
<td>Construction Cost Estimating</td>
<td></td>
</tr>
</tbody>
</table>
Total Credits 9

1 Cross-listed as undergraduate course

Electives
The remaining elective credits depend on whether the student is pursuing research credits or not:

Select one from the following options (also outlined in the Notes section below):

<table>
<thead>
<tr>
<th>Option 1: Thesis:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 799 Master’s Thesis (6 credits)</td>
<td></td>
</tr>
<tr>
<td>At least 9 credits of electives</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option 2: Project:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 798 Research Project in Civil Engineering (3 credits)</td>
<td></td>
</tr>
<tr>
<td>At least 12 credits of electives</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option 3: All Coursework:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>At least 15 credits of electives</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 15

A list of approved electives for the construction project management concentration is provided below. Note that the remaining construction project management core courses can also be selected as electives.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 524</td>
<td>Introduction to Bridge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 525</td>
<td>Structural Evaluation and Rehabilitation</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 531</td>
<td>Earth Retaining Structures and Slope Stability</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 532</td>
<td>Foundation Design</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 607</td>
<td>Public Infrastructure Management and Finance</td>
<td>3</td>
</tr>
<tr>
<td>GBUS 510</td>
<td>Engineering Marketing and Financial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 636</td>
<td>Sources of Geotechnical Data</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 679</td>
<td>Special Topics in Construction Management</td>
<td>3</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Cross-listed as undergraduate course

**Concentration in Environmental and Water Resources Engineering (EWRE)**
Select at least three from the following five environmental and water resources engineering core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 641</td>
<td>Water Resources Engineering I: Principles and Practice</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 657</td>
<td>Environmental Engineering Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 658</td>
<td>Water Quality</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 742</td>
<td>Water Resources Engineering II: Water Resource Systems</td>
<td>3</td>
</tr>
<tr>
<td>COMM 637</td>
<td>Risk Communication</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

**Electives**
The remaining elective credits depend on whether the student is pursuing research credits or not.

Select one from the following options (also outlined in the Notes section below):

1. **Option 1: Thesis:**
   - CEIE 799 Master’s Thesis (6 credits)
   - At least 9 credits of electives

2. **Option 2: Project:**
   - CEIE 798 Research Project in Civil Engineering (3 credits)
   - At least 12 credits of electives

3. **Option 3: All Coursework:**
   - At least 15 credits of electives

Total Credits: 15

A list of approved electives for the environmental and water resources engineering concentration is provided below. Note that the remaining environmental and water resources engineering core courses can also be selected as electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 540</td>
<td>Water Supply and Distribution</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 542</td>
<td>Open Channel Flow</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 550</td>
<td>Environmental Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 553</td>
<td>Water and Wastewater Treatment Processes</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 607</td>
<td>Public Infrastructure Management and Finance</td>
<td>3</td>
</tr>
<tr>
<td>or GBUS 510</td>
<td>Engineering Marketing and Financial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 634</td>
<td>Groundwater and Geoenvironmental Design</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 642</td>
<td>Flood Hazards Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 643</td>
<td>Coastal Flood Hazards</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 649</td>
<td>Special Topics in Water Resources Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 659</td>
<td>Hazardous Waste</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 664</td>
<td>Transportation Engineering and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 683</td>
<td>Water and Wastewater Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 627</td>
<td>Aquatic Environmental Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 651</td>
<td>Environmental Chemistry of Organic Substances</td>
<td>3</td>
</tr>
<tr>
<td>CLIM 714</td>
<td>Land-Climate Interactions</td>
<td>3</td>
</tr>
<tr>
<td>CSI 501</td>
<td>Introduction to Scientific Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSI 690</td>
<td>Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>CSI 720</td>
<td>Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CSI 721</td>
<td>Computational Fluid Dynamics I</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 524</td>
<td>Introduction to Environmental and Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>EVPP 670</td>
<td>Environmental Law</td>
<td>3</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GGS 656</td>
<td>The Hydrosphere</td>
<td>3</td>
</tr>
<tr>
<td>GGS 671</td>
<td>Algorithms and Modeling in GIS</td>
<td>3</td>
</tr>
<tr>
<td>GGS 787</td>
<td>Scientific Data Mining for Geoinformatics</td>
<td>3</td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Cross-listed as undergraduate courses

**Concentration in Geotechnical Engineering (GEOE)**
Select at least three from the following five geotechnical engineering core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 531</td>
<td>Earth Retaining Structures and Slope Stability</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 634</td>
<td>Groundwater and Geoenvironmental Design</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 635</td>
<td>Advanced Soil Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 636</td>
<td>Sources of Geotechnical Data</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 638</td>
<td>Advanced Foundation Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Credits: 9

**Electives**
The remaining elective credits depend on whether the student is pursuing research credits or not.

Select one from the following options (also outlined in the Notes section below):

1. **Option 1: Thesis:**
   - CEIE 799 Master’s Thesis (6 credits)
   - At least 9 credits of electives

2. **Option 2: Project:**
   - CEIE 798 Research Project in Civil Engineering (3 credits)
At least 12 credits of electives

Option 3: All Coursework:
At least 15 credits of electives

Total Credits 15

A list of approved electives for the geotechnical engineering concentration is provided below. Note that the remaining geotechnical engineering core courses can also be selected as electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 524</td>
<td>Introduction to Bridge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 532</td>
<td>Foundation Design</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 535</td>
<td>Engineering Geology</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 573</td>
<td>Legal Aspects of the Construction Process</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 575</td>
<td>Design for Constructability</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 607</td>
<td>Public Infrastructure Management and Finance</td>
<td>3</td>
</tr>
<tr>
<td>or GBUS 510</td>
<td>Engineering Marketing and Financial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 639</td>
<td>Special Topics in Geotechnical Engineering</td>
<td>1-3</td>
</tr>
<tr>
<td>CEIE 659</td>
<td>Hazardous Waste</td>
<td>3</td>
</tr>
<tr>
<td>GGS 553</td>
<td>Geographic Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Cross-listed as undergraduate courses

**Concentration in Structural Engineering (STRE)**

Select at least three of the following five structural engineering core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 526</td>
<td>Advanced Steel Design</td>
<td></td>
</tr>
<tr>
<td>CEIE 527</td>
<td>Pre-stressed Concrete</td>
<td></td>
</tr>
<tr>
<td>CEIE 611</td>
<td>Advanced Structural Analysis</td>
<td></td>
</tr>
<tr>
<td>CEIE 612</td>
<td>Structural Mechanics</td>
<td></td>
</tr>
<tr>
<td>CEIE 613</td>
<td>Structural Dynamics</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 9

**Electives**

The remaining elective credits depend on whether the student is pursuing research credits or not.

Select one from the following options (also outlined in the Notes section below):

Option 1: Thesis:
- CEIE 799  Master’s Thesis (6 credits)

At least 9 credits of electives

Option 2: Project:
- CEIE 798  Research Project in Civil Engineering (3 credits)

At least 12 credits of electives

Option 3: All Coursework:
At least 15 credits of electives

Total Credits 15

A list of approved electives for the transportation engineering concentration is provided below. Note that the remaining transportation engineering core courses can also be selected as electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 560</td>
<td>Public Transportation Systems</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 561</td>
<td>Traffic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 562</td>
<td>Urban Transportation Planning</td>
<td>1</td>
</tr>
<tr>
<td>CEIE 607</td>
<td>Public Infrastructure Management and Finance</td>
<td>3</td>
</tr>
<tr>
<td>or GBUS 510</td>
<td>Engineering Marketing and Financial Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Concentration in Transportation Engineering (TRNE)**

Select at least three of the following five transportation engineering core courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 662</td>
<td>Travel Demand Modeling</td>
<td></td>
</tr>
<tr>
<td>CEIE 663</td>
<td>Intelligent Transportation Systems</td>
<td></td>
</tr>
<tr>
<td>CEIE 664</td>
<td>Transportation Engineering and the Environment</td>
<td></td>
</tr>
<tr>
<td>CEIE 767</td>
<td>Traffic Engineering Modeling and Analysis</td>
<td></td>
</tr>
<tr>
<td>STAT 554</td>
<td>Applied Statistics I</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 9

**Electives**

The remaining elective credits depend on whether the student is pursuing research credits or not.

Select one from the following options (also outlined in the Notes section below):

Option 1: Thesis:
- CEIE 799  Master’s Thesis (6 credits)

At least 9 credits of electives

Option 2: Project:
- CEIE 798  Research Project in Civil Engineering (3 credits)

At least 12 credits of electives

Option 3: All Coursework:
At least 15 credits of electives

Total Credits 15

A list of approved electives for the structural engineering concentration is provided below. Note that the remaining structural engineering core courses can also be selected as electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 513</td>
<td>Reinforced Concrete Design</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 524</td>
<td>Introduction to Bridge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 525</td>
<td>Structural Evaluation and Rehabilitation</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 532</td>
<td>Foundation Design</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 575</td>
<td>Design for Constructability</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 607</td>
<td>Public Infrastructure Management and Finance</td>
<td>3</td>
</tr>
<tr>
<td>or GBUS 510</td>
<td>Engineering Marketing and Financial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 619</td>
<td>Special Topics in Structural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 620</td>
<td>Intelligent Structural Systems</td>
<td>3</td>
</tr>
<tr>
<td>CEIE 623</td>
<td>Advanced Reinforced Concrete Design</td>
<td>3</td>
</tr>
<tr>
<td>CSI 690</td>
<td>Numerical Methods</td>
<td>3</td>
</tr>
<tr>
<td>CSI 742</td>
<td>The Mathematics of the Finite Element Method</td>
<td>3</td>
</tr>
</tbody>
</table>

1 Cross-listed as undergraduate courses
CEIE 665  Travel Survey Methods and Data Analysis  3
CEIE 667  Multi-modal Transportation Systems  3
CEIE 668  Transportation Economics  3
CEIE 669  Special Topics in Transportation Engineering  3
CEIE 762  Network Models for Transportation Planning  3
CEIE 763  Discrete Choice Analysis in Transportation  3
CS 504  Principles of Data Management and Mining  3
GGS 553  Geographic Information Systems  3

1 Cross-listed as undergraduate courses

Note:
Electives outside of the chosen concentration can only be taken or
substituted with the approval of the faculty advisor.

Project or Thesis Option
As part of the plan of study, students may elect to pursue research
credits.

Research Project
Students complete CEIE 798 Research Project in Civil Engineering, during
which they prepare and present a scholarly paper. The scholarly paper
is a technical report on an independent study, laboratory or computer
experimentation, or literature search on a current civil and infrastructure
engineering topic selected under the guidance of a faculty advisor.
CEIE 798 Research Project in Civil Engineering credits count toward the
30 credit hours required for the MS degree.

CEIE 798  Research Project in Civil Engineering  3

Total Credits  3

Master's Thesis
Students complete CEIE 799 Master's Thesis which counts toward the
30 credit hours required for the MS degree. The MS thesis should reflect
a significant, independent research effort that advances engineering
science, and is worthy of publication. The work is conducted under the
guidance of a faculty thesis advisor, and the final written thesis and
oral defense are defended before a three-member faculty committee.
In addition, students must make a satisfactory presentation of the
thesis in the CEIE graduate seminar. The thesis is recommended for
those students who wish to develop and document their research skills,
or contemplate subsequent enrollment in a PhD program. Students
are advised of the university’s continuous registration requirement for
thesis and dissertation research credits. Upon first enrolling in CEIE 799
Master's Thesis, the student must continue registration for each fall and
spring semester until the thesis is successfully completed. CEIE 799
Master's Thesis credits count toward the 30 credit hours required for the
MS degree.

CEIE 799  Master's Thesis (must complete 6 credits)  1-6
Total Credits  1-6

Seminar Requirement
All degree candidates must attend a minimum of five graduate seminars
approved by the CEIE Department for the degree program. Students must
enroll in CEIE 795 Civil and Infrastructure Engineering Seminar each
semester (fall and spring) for the duration of their MS studies until they
receive a satisfactory (S) grade. This course is used to verify the seminar
attendance requirement and is repeatable.

CEIE 795  Civil and Infrastructure Engineering Seminar  0

Total Credits  0

Accelerated Master's

Civil and Infrastructure Engineering, BS/
Civil and Infrastructure Engineering,
Accelerated MS

Overview
Highly-qualified students in the Civil and Infrastructure Engineering, BS (p. 1091) have the option of obtaining an accelerated Civil and Infrastructure Engineering, MS (p. 1095).

For more detailed information, see AP.6.7 Bachelor's/Accelerated Master's Degrees (p. 89). For policies governing all graduate degrees, see AP.6 Graduate Policies (p. 87).

Admission Requirements
Students in the Civil and Infrastructure Engineering, BS (p. 1091) program may apply to this option if they have earned 90 undergraduate credits with an overall GPA of at least 3.30. All other criteria for admission are identical to criteria for admission into the Civil and Infrastructure Engineering, MS (p. 1095) program.

Accelerated Option Requirements
Students must complete all credits that satisfy requirements for both the BS and MS programs. Students register for 6 credits of overlapping graduate level courses in place of undergraduate technical elective courses. The courses selected for this purpose must be approved by the academic advisor.

Degree Requirements
Students must apply the semester before they expect to complete the BS requirements to have the BS degree conferred. In addition, at the beginning of the student's final undergraduate semester, students must complete a Bachelor's/Accelerated Master's Transition form that is submitted to the Office of the University Registrar and the VSE Graduate Admissions Office. At the completion of MS requirements, a master's degree is conferred.

Civil and Infrastructure Engineering, PhD

Banner Code: VS-PHD-CEIE

Academic Advising
Phone: 703-993-1675
Email: ceiegrad@gmu.edu
Website: civil.gmu.edu/graduate/doctor-of-philosophy

The Doctor of Philosophy in Civil and Infrastructure Engineering (CIE) was created to prepare students for advanced leadership positions in
research and development in the public or private sector, academics, or government. Students may elect to study in the areas of: environmental and water resources engineering, geotechnical engineering, structural engineering, or transportation engineering. Admitted students will complete both required and applicable course work in their technical interest area based on a plan of study prepared with a doctoral advisor. They will take qualifying exams that assess student’s breadth of knowledge at the graduate level and competency to conduct research. They will form a doctoral committee and prepare and defend a dissertation proposal leading to PhD candidacy. Finally, they will conduct original scholarly research and prepare, then defend a doctoral dissertation. Both part-time and full-time study is available.

Admissions & Policies

Admissions

Requirements

All general George Mason University and specific Volgenau School admission requirements (including deadlines) apply. In addition, all applicants, including Mason undergraduates, must submit the following:

• Official transcript of undergraduate and graduate course work,
• For applicants whose official language is not English, official TOEFL scores which meet the minimum requirements set by the Volgenau School,
• Three letters of recommendation from individuals knowledgeable about the applicant’s professional or academic work (at least two of the letters should be from individuals with doctorates),
• Recent professional résumé,
• Substantial statement of interest that includes a description of the specific area of proposed dissertation research, contacts the student has made with potential faculty advisors, and an explanation of career and research goals,

Admission decisions will be based on the student’s qualifications and the availability of a faculty advisor in their proposed area of research. The application materials will be reviewed by the department doctoral committee and decisions made with input from appropriate faculty members.

Financial support for outstanding applicants is available in the form of fellowships as well as research and teaching assistantships. For best consideration, applicants are encouraged to apply early and to contact potential faculty advisors to express interest in support.

Policies

Reduction of Credit

Students must complete a minimum of 72 graduate credits, which may be reduced by a maximum of 24 credits from a completed master’s degree in civil engineering or other related fields. Reduction of credit requires the approval of the program director or designee and the dean or designee of the school. They determine whether the credits are eligible for reduction of credit and applicable to the degree program and the number of credits to be reduced.

Program Requirements

The PhD in Civil and Infrastructure Engineering requires 72 graduate credits, including 48 credits of graduate coursework and 24 credits of research. Admitted students are expected to hold a Bachelor of Science in Civil Engineering or degree in a closely-related science field.

Exceptionally-qualified students without a related bachelor’s or master’s degree may be admitted provisionally and required to take additional undergraduate- and graduate-level articulation courses prescribed by the doctoral committee, which will not count towards the PhD degree.

The degree plan outlined in Degree Requirements is based on a student who receives a full 24 credit reduction. Students who do not receive a full credit reduction should choose additional credits in consultation with their advisor.

Requirements

Degree Requirements

Total credits: 72

Doctoral Coursework

A minimum GPA of 3.50 is required and no C grades are allowed for the 24 credits earned beyond the MS. A detailed plan of study will be prepared for each student upon acceptance into the program and in consultation with the faculty advisor, which outlines all course requirements to include:

Required Courses

The following must be completed while in residence in the program.

CEIE 800 Civil, Environmental, and Infrastructure Engineering Colloquium (must be taken at least twice)
CEIE 990 Civil and Infrastructure Dissertation Topic Presentation
Select one from the following: 3
CEIE 603 Research Methods in Civil Engineering
CEIE 796 Directed Reading

Total Credits 6

Courses Chosen with Advisor

Courses, especially in the student’s technical interest area, chosen in consultation with his or her advisor 1

Total Credits 18

1 No more than three courses used for credit toward the PhD may be cross-listed as undergraduate courses. None may repeat material completed as part of the student’s previous studies.

Qualifying Exam

The PhD qualifying exam is offered twice a year prior to the start of the fall and spring semesters. The qualifying exam is intended to test students’ breadth of knowledge at the MS level in their research area and to evaluate readiness for research. Students entering with a MS degree are required to attempt the qualifying exam within 18 months of admission to the program. Students entering without a MS degree must attempt the qualifying exam within two years of admission to the program.
Dissertation Committee

A dissertation committee (separate from the examination committee) is formed upon successful completion of the qualifying exams. The student, in consultation with their advisor, shall select at least three full-time CEIE Department faculty members, and at least one committee member from outside of the CEIE department. At least three members of the committee are to be members of the Mason graduate faculty. All committee members must hold earned doctorates and possess applicable knowledge and experience in the student’s chosen topic. The CEIE Department Chair must approve the composition of the dissertation committee. Additional committee members from outside Mason (e.g., from industry, other institutions, etc.) may be appointed if approved by the majority of the CEIE faculty. The committee must be formed and approved before admission to candidacy (described in the next section) and before registering for CEIE 999 Doctoral Dissertation. Substitutions to the dissertation committee are allowed with the approval of the CEIE Department chair.

Dissertation Proposal Preparation and Advancement to Candidacy

After successfully passing the qualifying exams and forming of a dissertation committee, the student may register for CEIE 998 Doctoral Dissertation Proposal research credits and begin preparation of the dissertation research proposal. The student will consult with his or her advisor on the selection of an original scholarly topic and preparation of a formal research proposal. Students are also encouraged to register for the required CEIE 990 Civil and Infrastructure Dissertation Topic Presentation course during this time. Students must schedule a formal proposal defense (also known as the research competency exam) with all members of their chosen committee present. This cannot be done before successful completion of the qualifying exams. Committee members should receive printed copies for the final proposal not less than two weeks prior to the scheduled defense date.

The research competency exam (proposal defense) includes the written proposal and a presentation of the planned dissertation research. The dissertation proposal defense shall not include already completed research. The dissertation proposal defense is the main opportunity for the committee to provide input and for the dissertation committee members to examine the student’s knowledge in higher-level course work and familiarity with existing and emerging research related to the student’s research area. After the student’s presentation, and after private deliberation, the committee makes a pass/fail determination that is given to the student by his or her advisor.

Students who pass the research competency exam are admitted to candidacy and become PhD Candidates. Students who do not pass the exam may, in consultation with their advisor, schedule a second exam within 120 days of receiving notice of the first exam result. Students who do not re-schedule and successfully pass the research competency within this period are dismissed from the program.

Dissertation Research

Students become eligible for CEIE 998 Doctoral Dissertation Proposal upon passing the qualifying exam (preceding section). Upon admission to candidacy, which requires satisfactory preparation and defense of a dissertation proposal, students may register for CEIE 999 Doctoral Dissertation.

Select 24 credits from the following: 24

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEIE 998</td>
<td>Doctoral Dissertation Proposal</td>
<td>12</td>
</tr>
<tr>
<td>CEIE 999</td>
<td>Doctoral Dissertation (minimum 12 credits required)</td>
<td></td>
</tr>
</tbody>
</table>

Total Credits 24

The requirements of the written exam (deadlines for exam request, list of topics, allowed aid sheets, calculator policy etc.) are posted on the department’s website. The oral exam is conducted by an examining committee of three CEIE graduate faculty, of whom two must be in the student’s research area. Students give a five minute research presentation, and answer questions from the examination committee about the written exam, the research presentation and other related topics.

Students who receive an overall passing grade form a dissertation committee and register for CEIE 998 Doctoral Dissertation Proposal. Students who receive an overall failing grade may petition to repeat the exam. If granted, the second attempt, which includes both the written and the oral exam, must be completed within one calendar year. The petition to repeat the exam must be received within one month of the first exam attempt. No more than two exam attempts are permitted. Students who do not receive an overall passing grade are terminated from the program.

The qualifying exam consists of one written exam and one oral exam in the student’s primary research area. The available examination areas include:

- Area A: Environmental Engineering
- Area B: Geotechnical Engineering
- Area C: Structural Engineering
- Area D: Transportation Engineering
- Area E: Water Resources Engineering

The research competency exam (proposal defense) includes the written proposal and a presentation of the planned dissertation research. The dissertation proposal defense shall not include already completed research. The dissertation proposal defense is the main opportunity for the committee to provide input and for the dissertation committee members to examine the student’s knowledge in higher-level course work and familiarity with existing and emerging research related to the student’s research area. After the student’s presentation, and after private deliberation, the committee makes a pass/fail determination that is given to the student by his or her advisor.

Students who pass the research competency exam are admitted to candidacy and become PhD Candidates. Students who do not pass the exam may, in consultation with their advisor, schedule a second exam within 120 days of receiving notice of the first exam result. Students who do not re-schedule and successfully pass the research competency within this period are dismissed from the program.

Dissertation Research and Defense

On successful completion of the dissertation proposal, students are to conduct original research under the guidance of their dissertation director and dissertation committee members. Students are not to schedule their dissertation defense sooner than two semesters after a successful proposal defense. The dissertation must represent achievement in research, must be a significant contribution to the field of civil engineering, and should be deemed publishable in refereed journals. When the majority of the research has been completed, the candidate is to submit a written draft of the dissertation to the doctoral dissertation committee and schedule an oral pre-defense with the doctoral dissertation committee. The pre-defense is to be attended by the doctoral dissertation committee and the department chair.

A final, public, oral defense may be scheduled no sooner than one month after the conclusion of the pre-defense, which will allow for a minimum of two weeks to advertise it broadly. The final defense is to be attended by the doctoral dissertation committee and the department chair. On successful completion of the oral defense, students must submit a final dissertation that meets the guidelines specified by the Guide for Preparing Graduate Theses, Dissertations, and Projects. If the student fails to defend the dissertation successfully, the student may request a second defense following the same procedures as the initial defense. This request has no time limit, other than the general time limits for the doctoral degree as per Mason policy. An additional pre-defense is not required; however, the student is strongly advised to consult with the committee before scheduling the second defense. If the student fails on the second attempt to defend the dissertation, the student will be
dismissed from the PhD program. Following a successful public defense and completion of the final form of the dissertation, the dissertation committee recommends the candidate for the degree of Doctor of Philosophy.

Teaching Opportunities
All PhD students are encouraged to participate in teaching activities in consultation with their major advisors. Teaching opportunities include presenting lectures, conducting recitation sessions, serving as a teaching assistant, working as a laboratory assistant, participating in teaching workshops, preparing course materials, and other related activities approved by the student’s advisor.

Environmental Engineering Minor
Banner Code: EENG
Lisa Nolder, Associate Director for Undergraduate Programs
Phone: 703-993-1675
Email: snolder@gmu.edu
Website: http://civil.gmu.edu/undergraduate/minors

Students with engineering majors in CEIE (p. 1091), BIOE (p. 970), and SEOR (p. 1082), and non-engineering majors in Biology (p. 619), Chemistry (p. 637), Environmental Science and Policy (p. 661), Geography and Geoinformation Science (p. 689), and Geology (p. 611) are especially encouraged to consider this offering. The minor prepares students through additional coursework for subsequent graduate studies in water and environmental engineering at Mason or elsewhere, and for employment in environmental engineering, although the minor by itself does not constitute an engineering qualification.

Requirements
Minor Requirements
Total credits: 19

Coursework
CEIE 240 Hydraulics 3
CEIE 355 Environmental Engineering and Science 3
CEIE 450 Environmental Engineering Systems 3
or CEIE 453 Water and Wastewater Treatment Processes 3
PHYS 331 Fundamentals of Renewable Energy 3
EVPP 355 Ecological Engineering and Ecosystem Restoration 4
or EVPP 378 RS: Ecological Sustainability (Mason Core) (p. 135) 3
GGS 302 Global Environmental Hazards 3
or GGS 319 Air Pollution 3

Total Credits 19

Geotechnical, Construction, and Structural Engineering, MEng
Banner Code: VS-MENG-GCS

Admissions & Policies
Admissions
Requirements
To be considered for admission to the MEng program, a candidate must:
• Satisfy general University and Volgenau School requirements for admission to a graduate program,
• Have earned a baccalaureate degree in engineering or a related science,
• Provide two letters of recommendation from individuals knowledgeable about the applicant’s academic or professional work,
• Provide a goals statement and professional résumé.

Acceptance to the degree program is based on an assessment of the applicant’s capacity to pursue graduate study successfully. Students are assumed to have completed an undergraduate degree in civil engineering. Consideration is given to the undergraduate record, any previous graduate work, professional work experience, and reference letters. Students with minor admission deficiencies or with undergraduate degrees in related fields, such as geology or another branch of engineering, may be provisionally admitted subject to completing an articulation program of civil engineering undergraduate courses. Courses required for articulation are not creditable toward the MEng degree.

Research Assistantships & Fellowships
Research Assistantships and Fellowships are typically not awarded to students pursuing the MEng Program because it is entirely a course-based degree, rather than a research degree. Students interested in Teaching Assistantships (usually reserved for full-time graduate study) should indicate their interest on their application and also contact the department after an admissions decision is made.

Policies
Plan of Study
All MEng students must develop a faculty-approved plan of study with a minimum of 30 credits of graduate coursework. The coursework
presented for the degree must include at least three MEng core courses (9 credits) and approved electives (21 credits). Note that the fourth or fifth core course that is not counted for the core requirement may also be selected as an elective. There is no project or thesis requirement for the MEng degree. Most MEng courses are offered once every three semesters and are scheduled to meet in the late weekday afternoons or evenings.

## Requirements

### Degree Requirements

**Total credits: 30**

#### Core Courses

Select 9 credits from the following:

- CEIE 524 Introduction to Bridge Engineering
- CEIE 525 Structural Evaluation and Rehabilitation
- CEIE 531 Earth Retaining Structures and Slope Stability
- CEIE 575 Design for Constructability
- CEIE 605 Risk and Uncertainty in Civil Engineering

**Total Credits** 9

#### Electives

Select 21 credits from the following:

- CEIE 512 Structural Steel Design
- CEIE 513 Reinforced Concrete Design
- CEIE 526 Advanced Steel Design
- CEIE 527 Pre-stressed Concrete
- CEIE 532 Foundation Design
- CEIE 535 Engineering Geology
- CEIE 571 Construction Administration
- CEIE 572 Building Information Modeling
- CEIE 573 Legal Aspects of the Construction Process
- CEIE 576 Construction Cost Estimating
- CEIE 607 Public Infrastructure Management and Finance
- CEIE 611 Advanced Structural Analysis
- CEIE 612 Structural Mechanics
- CEIE 613 Structural Dynamics
- CEIE 619 Special Topics in Structural Engineering
- CEIE 620 Intelligent Structural Systems
- CEIE 623 Advanced Reinforced Concrete Design
- CEIE 634 Groundwater and Geoenvironmental Design
- CEIE 635 Advanced Soil Mechanics
- CEIE 636 Sources of Geotechnical Data
- CEIE 638 Advanced Foundation Design
- CEIE 639 Special Topics in Geotechnical Engineering
- CEIE 679 Special Topics in Construction Management

**Total Credits** 21

1 Cross-listed as undergraduate courses

### Interdisciplinary Programs and Courses

#### Programs

- Applied Science, BAS

#### Administration

- Janette Kenner Muir, Academic Director and Associate Provost for Academic Initiatives and Services
- Marcy R. L. Glover, Curriculum Coordinator
- Krystal Dains, Coordinator, Volgenau School of Engineering concentrations
- Jane Walker, Coordinator, School of Conflict Analysis and Resolution concentration
- Hermione Pickett, Adult Learning Advisor

The Bachelor of Applied Science (BAS) is an undergraduate liberal arts degree program for adult learners. It is designed primarily to deepen student knowledge in an academic area and foster critical thinking, analytic reasoning, and an ability to synthesize information.

The BAS articulates well with specialized Applied Associate Science (AAS) degree programs, providing a streamlined path to completion of traditional academic requirements leading to the baccalaureate degree. It meets students’ professional and personal goals while developing a depth of knowledge and proficiency of skill that translates well to the workplace. However, it is not organized in the same way as a traditional baccalaureate degree. Students planning graduate study should consult with an academic advisor prior to undertaking this degree program.

### Admissions & Policies

#### Admissions

As a prerequisite to enrollment in the BAS, students must be at least 7 years out of high school and have received an Associate of Applied Science (AAS) degree from an accredited two-year institution in an approved area of specialization. The AAS degree will normally fulfill some, but not all, Mason Core (p. 135) requirements. Students who do not meet the 7 year rule may be eligible for an Admissions waiver if additional criteria are met. Details are available at the program’s website. (http://bas.gmu.edu)
Policies

For policies governing all undergraduate degrees, see AP.5 Undergraduate Policies (p. 84).

Program Requirements

BAS students must fulfill all requirements for bachelor's degrees including Mason Core (p. 135) requirements, to include 45 credits of upper-level coursework. All Mason Core (p. 135) requirements must be met with either George Mason courses or transferrable equivalents.

The minimum credit requirement for a bachelor's degree is 120 credits; however, while there is some variation between concentration areas, fulfilling all Mason Core (p. 135) requirements and an academic concentration or specialization is likely to require most BAS students to complete at least 63-66 credits at George Mason, which may lead to over 120 credits of coursework in order to receive the degree.

Admitted BAS students will be academically advised by the appropriate BAS Program concentration Advisor to plan their course of study including completion of the Mason Core (p. 135), the BAS concentration or specialization, and any remaining requirements. See the website (http://bas.gmu.edu) for more information.

The degree plan outlined is based on a student who transfers in a minimum of 30 credits from a completed AAS degree. Some of these credits may count only towards the elective requirement within the BAS degree.

Degree Requirements

Total credits: 120-126

Concentrations are intended to provide focus for the BAS curriculum in an area relevant to the student's AAS degree while allowing for the breadth of study associated with a liberal arts baccalaureate degree. Please note that determination of current transfer work for these concentrations may impact course requirements.

In addition to satisfying all Mason Core (p. 135) requirements, students must satisfy the requirements for one of the seven concentrations. Students who do not wish to pursue a concentration may seek permission to plan a course of study in a specialization outside the concentration areas in collaboration with the program advisor.

Concentration in Applied Conflict Analysis and Resolution (ACAR)

This concentration is in collaboration with the School for Conflict Analysis and Resolution (p. 882).

Core Requirement

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAS 300</td>
<td>Building Professional Competencies</td>
<td>3</td>
</tr>
<tr>
<td>CONF 101</td>
<td>Conflict and Our World (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>CONF 301</td>
<td>Research and Inquiry in Conflict Resolution</td>
<td>3</td>
</tr>
<tr>
<td>CONF 302</td>
<td>Culture, Identity, and Conflict</td>
<td>3</td>
</tr>
<tr>
<td>CONF 320</td>
<td>Interpersonal Conflict Analysis and Resolution</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following:

- CONF 320 Interpersonal Conflict Analysis and Resolution 3
- CONF 340 Global Conflict Analysis and Resolution 3
- CONF 340 Community, Group, and Organizational Conflict Analysis and Resolution 3

Applied Coursework

- CONF 300 Conflict Resolution Techniques and Practice 3
- Choose three credits of Skills Coursework from:
  - CONF 325 Dialogue and Difference 3
  - CONF 370 Internship Field Experience 3
  - CONF 385 International Field Experience 3
  - CONF 398 Special Topics in Advanced Techniques and Practices 3
  - CONF 425 Mediating Conflict 3
- or foreign language completed at the 250 level.
  - CONF 490 RS: Integration (Mason Core) (p. 135) 3

Electives

In consultation with their advisor, students are required to take 18 credits of concentration coursework; at least 9 credits must be from the CONF department. The concentration list can be found in the catalog or on our website.

Total Credits 42

Electives (variable)

All BAS students are required to complete a minimum of 120 credit hours of coursework. Students will work with their advisor to determine how to fulfill their outstanding credit hours to ensure they have met all major and university requirements. The number of elective credits that a BAS student may have available will vary by concentration and the amount of applicable transfer coursework the student has been awarded.

Concentration in Conservation Studies (CNST)

This concentration is in collaboration with New Century College and the Smithsonian-Mason School of Conservation. This degree is ideal for students who have earned an AAS in Veterinary Technology. One semester of study at the Smithsonian-Mason School of Conservation is required for completion of degree requirements.

- BAS 300 Building Professional Competencies 3
- BAS 490 Introduction to Research Methods 3
- BAS 491 Applied Sciences Capstone (Mason Core) (p. 135) 3

Select one of the Smithsonian Semesters listed below: 16

Smithsonian Semester: Conservation, Biodiversity and Society:

- CONS 320 Conservation in Practice
- CONS 401 Conservation Theory
- CONS 402 Applied Conservation
- CONS 410 Human Dimensions in Conservation (Mason Core) (p. 135)
- CONS 490 RS: Integrated Conservation Strategies (Mason Core) (p. 135)

Smithsonian Semester: Wildlife Ecology and Conservation:

- CONS 400 Conservation Seminar
- CONS 404 Biodiversity Monitoring
- CONS 405 Landscape and Macrosystems Ecology
- CONS 496 Research in Conservation
### Smithsonian Semester: Endangered Species and Conservation

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS 400</td>
<td>Conservation Seminar</td>
</tr>
<tr>
<td>CONS 406</td>
<td>Small Population Management</td>
</tr>
<tr>
<td>CONS 491</td>
<td>RS: Conservation Management Planning</td>
</tr>
<tr>
<td></td>
<td>(Mason Core)</td>
</tr>
<tr>
<td>CONS 496</td>
<td>Research in Conservation</td>
</tr>
</tbody>
</table>

### Electives

Select a minimum of 15 required elective credit hours from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTS 318</td>
<td>Exploring Virginia’s Watersheds</td>
</tr>
<tr>
<td>INTS 331</td>
<td>The Nonprofit Sector</td>
</tr>
<tr>
<td>INTS 334</td>
<td>Environmental Justice</td>
</tr>
<tr>
<td>INTS 336</td>
<td>Poverty, Wealth and Inequality in the US</td>
</tr>
<tr>
<td>INTS 338</td>
<td>Animal Rights and Humane Education</td>
</tr>
<tr>
<td>INTS 395</td>
<td>Field-Based Work</td>
</tr>
<tr>
<td>INTS 402</td>
<td>Plants and People - Sustenance, Ceremony, and Sustainability</td>
</tr>
<tr>
<td>INTS 435</td>
<td>Leadership in a Changing Environment</td>
</tr>
</tbody>
</table>

Total Credits 40

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1. Please note: All BAS students are required to complete a minimum of 120 credit hours of coursework. Students will work with their advisor to determine how to fulfill their outstanding credit hours to ensure they have met all major and university requirements. The number of elective credits that a BAS student may have available will vary by concentration and the amount of applicable transfer coursework the student has been awarded.

### Concentration in Cyber Security (CYBS)

This concentration is in collaboration with the Volgenau School of Engineering and is only available to students who graduate with an AAS degree in Cyber Security from the Virginia Community College System.

#### Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAS 300</td>
<td>Building Professional Competencies</td>
<td>3</td>
</tr>
<tr>
<td>BAS 490</td>
<td>Introduction to Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>BAS 491</td>
<td>Applied Sciences Capstone (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
</tbody>
</table>

#### Concentration Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>IT 105</td>
<td>IT Architecture Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 304</td>
<td>IT in the Global Economy (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>IT 343</td>
<td>IT Project Management</td>
<td>3</td>
</tr>
<tr>
<td>IT 357</td>
<td>Computer Crime, Forensics, and Auditing</td>
<td>3</td>
</tr>
<tr>
<td>IT 429</td>
<td>Security Accreditation of Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>IT 462</td>
<td>Information Security Principles</td>
<td>3</td>
</tr>
<tr>
<td>IT Cyber Security</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specific courses must be taken at the community college to fulfill this requirement (15 credits met via transfer). Students should consult with their advisor.</td>
<td>15</td>
</tr>
</tbody>
</table>

#### IT Elective Transfer Courses

Select one from the following options:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MBUS 301</td>
<td>Managing People and Organizations in a Global Economy</td>
</tr>
<tr>
<td>MBUS 302</td>
<td>Managing Information in a Global Economy</td>
</tr>
<tr>
<td>MBUS 303</td>
<td>Marketing in a Global Economy</td>
</tr>
<tr>
<td>MBUS 304</td>
<td>Entrepreneurship: Starting and Managing a New Enterprise</td>
</tr>
<tr>
<td>MBUS 305</td>
<td>Introduction to International Business (Mason Core) (p. 135)</td>
</tr>
<tr>
<td>MBUS 306</td>
<td>Managing Projects and Operations</td>
</tr>
<tr>
<td>MBUS 308</td>
<td>Corporate Finance and Investments in a Global Economy</td>
</tr>
<tr>
<td>MIS 303</td>
<td>Introduction to Business Information Systems (Mason Core) (p. 135)</td>
</tr>
</tbody>
</table>

Total Credits 78

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1. All BAS students are required to complete a minimum of 120 credit hours of coursework. Students will work with their advisor to determine how to fulfill their outstanding credit hours to ensure they have met all major and university requirements. The number of elective credits that a BAS student may have available will vary by concentration and the amount of applicable transfer coursework the student has been awarded.

### Concentration in Defense Information Systems Technology (DIST)

This concentration is in collaboration with the Volgenau School of Engineering and is only available to students who graduate with an AAS degree in Applied Science. All courses in this concentration have sections offered via distance learning.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAS 300</td>
<td>Building Professional Competencies</td>
<td>3</td>
</tr>
<tr>
<td>BAS 490</td>
<td>Introduction to Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>BAS 491</td>
<td>Applied Sciences Capstone (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>MATH 108</td>
<td>Introductory Calculus with Business Applications (Mason Core) (p. 135)</td>
<td>3</td>
</tr>
<tr>
<td>IT 104</td>
<td>Introduction to Computing (Mason Core)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(p. 135)</td>
<td></td>
</tr>
<tr>
<td>IT 105</td>
<td>IT Architecture Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 102</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>IT 106</td>
<td>Introduction to IT Problem Solving Using Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>IT 206</td>
<td>Object Oriented Techniques for IT Problem Solving</td>
<td>3</td>
</tr>
<tr>
<td>IT 223</td>
<td>Information Security Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>IT 300</td>
<td>Modern Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>IT 341</td>
<td>Data Communications and Network Principles</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one from the following options:

Specific courses must be taken at the community college to fulfill this requirement (15 credits met via transfer). Students should consult with their advisor.
Networking and Telecommunications:
IT 366 Network Security I
IT 441 Network Servers and Infrastructures
IT 445 Advanced Networking Principles
IT 499 Wireless Communications and Networking
IT 499 Special Topics in Information Technology

Information Systems Security:
IT 366 Network Security I
IT 441 Network Servers and Infrastructures
IT 462 Information Security Principles
IT 466 Network Security II
IT 499 Special Topics in Information Technology

Electives
Select 12-15 hours of required 300/400 level elective coursework, in consultation with the advisor as need to complete the required 45 hours

Total Credits 63-66

Electives
All BAS students are required to complete a minimum of 120 credit hours of coursework. Students will work with their advisor to determine how to fulfill their outstanding credit hours to ensure they have met all major and university requirements. The number of elective credits that a BAS student may have available will vary by concentration and the amount of applicable transfer coursework the student has been awarded.

Concentration in Health, Wellness and Social Services (HWSS)
This concentration is in collaboration with the College of Health and Human Services (p. 235).

To enroll in this concentration, students must have an AAS in one of the following areas:
- Health Information Management
- Hospitality Management, Nutrition Management specialization
- Nursing
- Physical Therapist Assistant
- Respiratory Therapy

Core Requirements
BAS 300 Building Professional Competencies 3
SOCW 200 Introduction to Social Work 3
GCH 205 Global Health (Mason Core) (p. 135) 3
NURS 434 Vulnerable Populations 3
BAS 490 Introduction to Research Methods 3
BAS 491 Applied Sciences Capstone (Mason Core) (p. 135) 3

Total Credits 18

Additional Concentration Requirements
To complete the Health, Wellness and Social Services concentration, students must complete one of the two following areas:
- Health Care Administration
- Physical and Mental Health Care Delivery

Health Care Administration
HAP 301 Health Care Delivery in the United States 3
HAP 360 Introduction to Health Information Systems 3
HAP 442 Introduction to Health Care Politics and Policy 3
SOCW 380 Changing Social Policies and Systems 3

Total Credits 12

Physical and Mental Health Care Delivery
HAP 301 Health Care Delivery in the United States 3
NUTR 295 Introduction to Nutrition (Mason Core) (p. 135) 3

Select one from the following:
GCH 360 Health and Environment 3
HHS 432 Healthy Aging 3
SOCW 375 Human Behavior and the Family Life Course (Mason Core) (p. 135) 3
SOCW 435 Introduction to Gerontology 3
SOCW 483 Selected Approaches to Social Work Intervention 3

Total Credits 9

Electives (variable)
All BAS students are required to complete a minimum of 120 credit hours of coursework. Students will work with their advisor to determine how to fulfill their outstanding credit hours to ensure they have met all major and university requirements. The number of elective credits that a BAS student may have available will vary by concentration and the amount of applicable transfer coursework the student has been awarded.

Concentration in Human Development and Family Science (HDFS)
This concentration is in collaboration with College of Humanities and Social Sciences, New Century College and College of Education and Human Development.

Core Requirement
BAS 300 Building Professional Competencies 3
HDFS 200 Individual and Family Development 3

Concentration Requirements
Adult Development and Aging:
PSYC 415 Psychological Factors in Aging 3

Family Processes:
Select one from the following: 3-4
ECED 404 Engaging Families of Diverse Young Learners
INTS 317 Issues in Family Relationships
PSYC 466 Psychology of Intimate Relationships
SOCI 309 Marriage, Families, and Intimate Life

Diversity:
Select one from the following: 3-6
ANTH 315 Socialization Processes: Family, Childhood, Personality in Cross-Cultural Perspective
ATEP 205 Cultural Competence
EDUC 203  Disability in American Culture (Mason Core) (p. 135)
HEAL 350  Interventions for Populations and Communities at Risk
INTS 320  Construction of Differences: Race, Class, and Gender
INTS 336  Poverty, Wealth and Inequality in the US
PSYC 379  Applied Cross-Cultural Psychology (Mason Core) (p. 135)
SOCI 355  Social Inequality (Mason Core) (p. 135)

Applied Research Methods:
Select one from the following: 3
- PRLS 450  Research Methods
- PSYC 301  Research Methods in Psychology
- SOCI 303  Methods and Logic of Inquiry

Human Service Delivery:
HD 300  Individual and Family Services Delivery 3
(fulfills synthesis and writing intensive requirement)

Internship:
HD 498  Internship and Analysis in Human Development and Family Science 3
HD 499  Advanced Internship Analysis in Human Development and Family Science 3

Total Credits 27-31

Electives (variable)
All BAS students are required to complete a minimum of 120 credit hours of coursework. Students will work with their advisor to determine how to fulfill their outstanding credit hours to ensure they have met all major and university requirements. The number of elective credits that a BAS student may have available will vary by concentration and the amount of applicable transfer coursework the student has been awarded.

Concentration in Legal Studies (LGLS)
This concentration is in collaboration with New Century College and Volgenau School of Engineering.

Core Requirements
BAS 300  Building Professional Competencies 3
BAS 490  Introduction to Research Methods 3
BAS 491  Applied Sciences Capstone (Mason Core) (p. 135)

Concentration Requirements
Required Courses:
- BULE 303  Legal Environment of Business 3
- GOVT 301  Public Law and the Judicial Process 3
- GOVT 422  Constitutional Interpretation 3
or GOVT 423  Constitutional Law: Civil Rights and Liberties
- PHIL 311  Philosophy of Law 3
Select 15 credits from the following: 15
- COMM 475  Journalism Law
- GOVT 307  Legislative Behavior
- GOVT 420  American Political Thought
- GOVT 446  International Law and Organization
- GOVT 452  Administrative Law and Procedures
- INTS 304  Social Movements and Community Activism
- INTS 305  Conflict Resolution and Transformation
- INTS 362  Social Justice and Human Rights
- SOCI 301  Criminology
- SOCI 302  Sociology of Delinquency
- SOCI 471  Prevention and Deterrence of Crime

Total Credits 36

Concentration in Technology and Innovation (TCNV)
This concentration is in collaboration with School of Business and Volgenau School of Engineering.

Core Requirements
BAS 300  Building Professional Competencies 3
BAS 490  Introduction to Research Methods 3
BAS 491  Applied Sciences Capstone (Mason Core) (p. 135)

Concentration Requirements 1
- IT 105  IT Architecture Fundamentals 3
- IT 213  Multimedia and Web Design 2 3
- IT 214  Database Fundamentals 2 3
- IT 223  Information Security Fundamentals 3
- IT 304  IT in the Global Economy (Mason Core) (p. 135) 3
- IT 343  IT Project Management 3
- MBUS 300  Accounting in a Global Economy 3
- MBUS 301  Managing People and Organizations in a Global Economy 3
- MBUS 302  Managing Information in a Global Economy 3
- MBUS 303  Marketing in a Global Economy 3
- MBUS 305  Introduction to International Business (Mason Core) (p. 135) 3

Total Credits 42

1 All courses for this concentration are available in an online format with most offered as asynchronous delivery.
2 The Information Sciences and Technology department offers 1-credit, self-paced, online review courses; ending with an in-class final exam. Students who register for a 1-credit course and successfully pass will receive credit (not a waiver) for the corresponding 3-credit course. Students who are not successful must take the respective course at Mason to meet their degree requirements.

Review courses are available as follows:
- for IT 213 Multimedia and Web Design: IT 193 Review of Multimedia and Web Design
- for IT 214 Database Fundamentals: IT 194 Review of Database Fundamentals
Electives (variable)
All BAS students are required to complete a minimum of 120 credit hours of coursework. Students will work with their advisor to determine how to fulfill their outstanding credit hours to ensure they have met all major and university requirements. The number of elective credits that a BAS student may have available will vary by concentration and the amount of applicable transfer coursework the student has been awarded.
A-Z COURSES

For more detailed information on courses, see please go to AP.2 Course Information (p. 79). See Courses at Mason (http://catalog.gmu.edu/course-search) for additional schedule details.

Academic English (AE)

000 Level Courses

AE 000: AE Pre-Registration. 0 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 010: Level 1 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 005.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 011: Level 1 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 007.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 012: Level 1-2 Special Topics. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 021.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 013: Vocabulary in Daily Life. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 014: Listening in Daily Life. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 015: Writing Daily Life. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 017: Listening and Speaking. 6 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 020: Level 2 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 010.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 021: Level 2 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 012.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 022: Level 2-3 Special Topics. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 023: Basic Spelling Skills. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 024: Basic Pronunciation Skills. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 030: Level 3 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 020.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture
AE 031: Level 3 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 022.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 032: Level 3-4 Special Topics. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 051.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 033: Reading Plus. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 034: Dictionary Skills. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 035: Developing Vocabulary. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 060.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 036: American Culture. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 040: Level 4 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 025.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 041: Level 4 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 027.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 042: Level 4-5 Special Topics. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 044: Intro to IELTS Academic. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 045: Developing Spelling Skills. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 046: Developing Pronunciation Skill. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 047: Intro to TOEFL iBT. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 048: Present Yourself. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 050: Level 5 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 030.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 051: Level 5 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to AE 032.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture
AE 052: Level 5-6 Special Topics. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 053: Newspaper Production. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 054: TED Talks. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 055: Let's Talk Math. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 056: Business English. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 060: Level 6 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.
Equivalent to AE 035.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 061: Level 6 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.
Equivalent to AE 037.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 062: Level 6-7 Special Topics. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 063: American TV Comedy. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 064: English through Pop Music. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 065: Advanced Pronunciation Skills. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 067: Acting with Americans. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 070: Level 7 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.
Equivalent to AE 040.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 071: Level 7 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.
Equivalent to AE 042.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 072: Level 6-7-8 Special Topics. 2-4 credits.
Offered by INTO Mason (p. 123). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 073: Dialogue with Americans. 4 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 074: Giving Presentations. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.
Schedule Type: Lecture

AE 075: Advanced Vocabulary. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 076: Preparation for GRE. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 077: Preparation for IELTS. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 078: Preparation for TOEFL. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 079: Advanced English Grammar. 4 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 080: Level 8 Core. 10 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 081: Level 8 Oral Comm Skills. 6-8 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 082: Level 7-8 Special Topics. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 083: SuperTOEFL. 4 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Lecture

AE 088: Elective Topic 3. 2 credits.
Offered by INTO Mason (p. 123). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to English Language level students.

Schedule Type: Seminar

Accounting (ACCT)

200 Level Courses

ACCT 203: Survey of Accounting. 3 credits.
Introduction to financial and managerial accounting. Financial accounting from viewpoint of those who prepare and use financial information. Financial accounting topics include recording financial transaction, creating financial statements, the study of cash and internal controls. Managerial accounting topics include introduction to job order costing, breakeven analysis, standard costs and variances and short term decision making. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to ACCT 204.

Registration Restrictions:
Required Prerequisite: ECON 103C.
C Requires minimum grade of C.

Schedule Type: Lecture, Recitation

ACCT 204: Honors Survey of Accounting. 3 credits.
Introduction to financial and managerial accounting. Financial accounting from viewpoint of those who prepare & use financial information. Financial accounting topics include recording financial transaction, creating financial statements, the study of cash and internal controls. Managerial accounting topics include introduction to job order costing, breakeven analysis, standard costs and variances and short term decision making. Project on a global corporation is conducted to reinforce accounting concepts. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to ACCT 203.

Recommended Prerequisite: Cum GPA of 3.5 or higher

Schedule Type: Lecture

ACCT 301: Financial Accounting and Managerial Decision Making. 3 credits.
Examines financial accounting from the viewpoint of both users and preparers of financial statements, emphasizing use of financial statement information to make financing, operating, and investing decisions. International Financial Reporting Standards (IFRS) are introduced. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in ACCT 301. Note: Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible...
to receive a degree from the School of Business. Mid-term and final exams may be scheduled on Saturdays for this class. The number of class sessions will be modified to compensate for mid-term examination time. Accommodations will be made for religious conflicts, Saturday classes, and certain official university activities. Students cannot receive credit for ACCT 301 and ACCT 303/330. This course will not meet School of Business requirements for students with catalog year Fall 2015 or forward. Offered by School of Business (p. 846). Limited to three attempts.

Registration Restrictions:
Required Prerequisites: (ACCT 203\(^C\) or 204\(^C\)).
\(^C\) Requires minimum grade of C.

Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 303: Accounting for Decision Making. 3 credits.
Examines accounting from the viewpoint of managers and users of accounting information including using financial statement information to make financing, operating, and investing decisions, recognizing how tax system and body of tax law impacts business decision making, using managerial accounting information to make operating and compensation decisions, and understanding importance of internal and external audits to business and capital markets. Notes: Students cannot receive credit for ACCT 301 and ACCT 303/ACCT 330. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in ACCT 303. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. This course will not meet School of Business requirements for students with a catalog year before Fall 2015. Offered by School of Business (p. 846). Limited to three attempts.

Recommended Prerequisite: BUS 103 and BUS 200 are strongly recommended.
Registration Restrictions:
Required Prerequisites: (ACCT 203\(^C\), U203, 204\(^C\) or U204) and (BUS 100\(^C\), SOM 100\(^C\) or BUS U100) and (BUS 210\(^C\) or U210) and (MATH 108\(^C\), U108, 113\(^C\), U113, 114\(^C\), U114, HNRT 225\(^C\) or U225).
\(^C\) Requires minimum grade of C.

Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 311: Managerial and Cost Accounting. 3 credits.
Develops skills in identifying business processes, transforming data into useful information, and making managerial decisions. Designed for students in all areas of management, especially those whose career aims include cost management. Topics include analyzing and managing costs, developing cost systems that facilitate decision making, identifying opportunities for improving business process, creating financial and operating budgets for planning and control, and developing measures to assess performance. Mid-term and final exams may be scheduled on Saturdays for this class. The number of class sessions will be modified to accommodate for mid-term examination time. Accommodations will be made for religious conflicts, Saturday classes, and certain official university activities. Offered by School of Business (p. 846). Limited to three attempts.

Recommended Prerequisite: Degree status.
Registration Restrictions:
Required Prerequisites: ACCT 301\(^C\) or 330\(^C\).
\(^C\)Requires minimum grade of C.

Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

This is the first of the three-course financial accounting sequence that examines financial accounting from the viewpoint of preparers and users of financial statements, including preparing financial statements to reflect financing, operating, and investing decisions of the firm and using financial statement information to make financing, operating and investing decisions for the firm. Notes: ACCT 330 is required for all School of Business Accounting and Finance majors. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in ACCT 330. Those who do not successfully complete this course within three attempts will be terminated from their major. For more information about this, see the “Termination from the Major” section under Academic Policies. Offered by School of Business (p. 846). Limited to three attempts.

Recommended Prerequisite: BUS 103 and BUS 200 are strongly recommended.
Registration Restrictions:
Required Prerequisites: (ACCT 203\(^C\), U203, 204\(^C\) or U204) and (BUS 100\(^C\), SOM 100\(^C\) or BUS U100) and (BUS 210\(^C\) or U210) and (MATH 108\(^C\), U108, 113\(^C\), U113, 114\(^C\), U114, HNRT 225\(^C\) or U225).
\(^C\) Requires minimum grade of C.

Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 331: Financial Accounting II. 3 credits.
This is the second of the three-course financial accounting sequence that examines financial accounting from the viewpoint of preparers and users of financial statements, including preparing financial statements to reflect financing, operating, and investing decisions of the firm and using financial statement information to make financing, operating and investing decisions for the firm. Mid-term and final exams may be scheduled on Saturdays for this class. The number of class sessions will be modified to accommodate for mid-term examination time. Accommodations will be made for religious conflicts, Saturday classes, and certain official university activities. Offered by School of Business (p. 846). Limited to three attempts.

Registration Restrictions:
Required Prerequisites: (ACCT 301\(^C\) or 330\(^C\)).
\(^C\) Requires minimum grade of C.
ACCT 332: Financial Accounting III. 3 credits.
This is the third of the three-course financial accounting sequence that examines financial accounting from the viewpoint of preparers and users of financial statements, including preparing financial statements to reflect financing, operating, and investing decisions of the firm and using financial statement information to make financing, operating and investing decisions for the firm. Continuation of ACCT 331. Mid-term and final exams may be scheduled on Saturdays for this class. The number of class sessions will be modified to compensate for mid-term examination time. Accommodations will be made for religious conflicts, Saturday classes, and certain official university activities. Offered by School of Business (p. 846). Limited to three attempts.

Registration Restrictions:
Required Prerequisites: ACCT 331C and (FNAN 301C, L301, 303C or L303).  
C Requires minimum grade of C.
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 351: Taxation and Managerial Decision Making. 3 credits.
Introduction to fundamental topics in taxation using a business-entities approach. Specific topics include gross income, deductions, losses, and property transactions. The course emphasizes the identification of planning and compliance issues and the application of tax law to resolve those issues. Both tax and non-tax factors affecting decision making are considered. Mid-term and final exams may be scheduled on Saturdays for this class. The number of class sessions will be modified to compensate for mid-term examination time. Accommodations will be made for religious conflicts, Saturday classes, and certain official university activities. Offered by School of Business (p. 846). Limited to three attempts.

Registration Restrictions:
Required Prerequisites: (ACCT 301C, 303C or 330C).  
C Requires minimum grade of C.
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 360: Introduction to Accounting Information Systems. 3 credits.
This course involves the study and development of accounting information systems. The focus is on business processes covering many industries with an emphasis on data modeling and internal control. Special topics including XBRL and commercial systems are incorporated throughout the course. Offered by School of Business (p. 846). Limited to three attempts.

Registration Restrictions:
Required Prerequisites: (ACCT 301C, 303C or 330C) and (MIS 301C or 303C).  
C Requires minimum grade of C.
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 370: Accounting in a Global Economy. 3 credits.
International Accounting is study of entity reported as multinational company or entity whose reporting obligations to stakeholders are located in a different country. Course focuses on effects of financial reporting, managerial planning and control, international taxation, and international financial statement analysis on multinational reporting entity, and as the convergence of U.S. Generally Accepted Accounting Principles and International Financial Reporting Standards. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: ACCT 301C, 303C, 330C, L301, L303, L330, 301T, 303T or 330T.  
C Requires minimum grade of C.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 372: Financial Statement Analysis. 3 credits.
Detailed overview of financial statement analysis by users of financial statements. Students learn about common features of mandatory and voluntary accounting disclosures, behaviors and interactions among different users of financial statement information. Primary focus is analysis of financial statement information in body of financial statements and footnotes, and implications of those disclosures for firm valuation, fraud prediction, taxation, and governance. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (ACCT 331C or FNAN 341C).  
C Requires minimum grade of C.
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

ACCT 411: Advanced Managerial Accounting. 3 credits.
Managerial uses of accounting information in planning, controlling, motivating, and decision making. Emphasizes quantitative and behavioral aspects of managerial accounting. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: (ACCT 311C).
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**ACCT 461: Assurance and Audit Services.** 3 credits.
Introduction to audit and other assurance services' objectives, theory, and practices. Focuses on developing skills for interpreting business strategies and identifying related business risks, describing internal control solutions to those risks, identifying evidential sources, providing assurance about those risks and controls, and designing strategies to provide assurance services about the reliability of business information. Offered by School of Business (p. 846). Limited to three attempts.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: ACCT 331<sup>C</sup> and 361<sup>C</sup>.<br>C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.
Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.
contact the School of Business for internal eligibility requirements. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 6 credits. Equivalent to BUS 492.

**Registration Restrictions:**

**Required Prerequisites:** ACCT 330\(^C\) or L330.  
\(^C\) Requires minimum grade of C.

Students with a class of Freshman or Sophomore may **not** enroll.

Non-Degree level students may **not** enroll.

Students with the terminated from BU major attribute may **not** enroll.

**Schedule Type:** Internship

**ACCT 499:** Independent Study. 1-3 credits. 
Research and analysis of selected problems or topics in accounting. Notes: Must be arranged with an instructor, and students must receive written approval from the associate dean for undergraduate programs before registration. Written report required. May be repeated if topics vary. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** 9 hours in upper-level accounting courses.

**Registration Restrictions:**  
Students with a class of Freshman or Sophomore may **not** enroll.

Non-Degree or Washington Consortium level students may **not** enroll.

Students with the terminated from BU major attribute may **not** enroll.

**Schedule Type:** Independent Study

### 500 Level Courses

**ACCT 531:** Foundations of Financial Reporting I. 3 credits. 
Upon completing course students will be knowledgeable about global business and trade as it applies to international financial reporting standards. Students will be capable of recording, analyzing, interpreting, and communicating financial and non-financial information for users of such information in accordance with applicable professional authoritative literature. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** ACCT 301 or BMGT 613, or equivalent with grade of B- or higher or permission of program director.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Accounting or Forensic Accounting.

Enrollment limited to students in a Master of Science degree.

**Schedule Type:** Lecture

**ACCT 532:** Foundations of Financial Reporting II. 3 credits. 
Upon completing course students will be knowledgeable about global business and trade as it applies to international financial reporting standards. Students explore topics including: current liabilities and contingencies, bonds and long term notes, leases, accounting for income taxes, pensions, shareholder’s equity and share based compensation. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** ACCT 331, ACCT 531, or equivalent and FNAN 301, BMGT 643 or equivalent, both with a grade of B- or higher or permission of program director.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Accounting or Forensic Accounting.

Enrollment limited to Graduate, Non-Degree or Undergraduate level students.

Enrollment limited to students in a Master of Science degree.

**Schedule Type:** Lecture

**ACCT 551:** Foundations of Taxation of Business Entities. 3 credits. 
The objective of this course is to build a sound conceptual and technical foundation for the study of federal income taxation that provides students with the tools necessary to stay current with the ever-changing tax law. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Permission of program director.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Accounting or Forensic Accounting.

Enrollment limited to Graduate, Non-Degree or Undergraduate level students.

Enrollment limited to students in a Master of Science degree.

**Schedule Type:** Lecture

**ACCT 561:** Foundations of Assurance Services. 3 credits. 
The course focuses on planning, performing and reporting on an audit of financial statements conducted in accordance with U.S. generally accepted auditing standards (U.S. GAAS). It also introduces the public accounting profession and the services CPAs provide. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** ACCT 331 or ACCT 531 with a B- or better or permission of MSA Program Director.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Accounting or Forensic Accounting.

Enrollment limited to Graduate, Non-Degree or Undergraduate level students.

Enrollment limited to students in a Master of Science degree.
Schedule Type: Lecture

600 Level Courses

ACCT 601: Online MSA Orientation Course. 0 credits.
The main objective of this course is to help students understand program expectations and time commitment and prepare themselves for online communication and technology requirements necessary to successfully complete their online MSA degree. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Enrollment in the online MSA program or permission of the MSA academic director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ACCT 611: Advanced Managerial Accounting. 3 credits.
Examines the firm's planning and control decisions that require a more sophisticated approach than the rule-of-thumb procedures advocated for traditional cost accounting problems. Students will work with real-world issues and problems and apply the appropriate analytical model to develop relevant management accounting treatments. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Admission to the MSA program and ACCT 311 or equivalent, or permission of the program director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ACCT 630: Advanced Financial Accounting. 3 credits.
This course covers advanced topics in financial accounting like business combinations and preparation of consolidated financial statements. Students are also introduced to specialized accounting issues related to partnerships and segment reporting. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Accounting, Business Administration or Forensic Accounting.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ACCT 633: Identifying and Resolving Advanced Issues in Financial Accounting. 3 credits.
Students will gain knowledge and skills used in the interpretation of complex corporate financial accounting issues and in the preparation of complex financial statements. Topics include acquisitions, consolidations, derivatives, segment reporting, partnerships, and SEC reporting. Students also will learn to conduct research using the FASB Accounting Standards Codification to resolve ambiguous reporting issues. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Permission of MSA Director if not already enrolled in the MSA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Accounting or Business Administration.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ACCT 636: Fraud Examination. 3 credits.
Introduces strategies and techniques for fraud prevention and detection. Focuses on financial fraud such as bribery, contract rigging and kickbacks, embezzlement, fraudulent financial reporting, payroll fraud, and misappropriation of inventory and other assets. Several real-life cases and examples will be used to illustrate how to detect and prevent fraud. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to ACCT 744, MBA 744.

Recommended Prerequisite: Admission to MSA program or permission of program director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ACCT 651: Identifying and Resolving Advanced Issues in Taxation. 3 credits.
Examines the application of the federal income tax law to C-corporations, S-corporations, and partnerships. Topics will include the formation, operations, and dissolutions of such entities. Students will read and apply primary tax authorities to client fact patterns and engage in significant professional research and writing. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Admission to the MSA program or permission of the program director. ACCT 351 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ACCT 662: Seminar in Accounting.** 3 credits. Provides selective analysis of important issues in contemporary accounting practice. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Permission of program director if not already admitted to MSA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Accounting or Forensic Accounting.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ACCT 672: Governmental and Nonprofit Accounting.** 3 credits. Accounting and Reporting for non-business organizations. Emphasizes accounting issues unique to these entities, including non-exchange transactions and lack of ownership interest. Includes accounting and reporting for state and local governments, nongovernment organizations, and the federal government. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MSA program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ACCT 690: Professional Accounting Colloquium.** 3 credits. The Professional Accounting Colloquium is designed to give graduate accounting students the opportunity to identify, develop, and improve professional skills and attributes critical to success in the accounting profession. Students will gain an understanding of these professional accounting skills and attributes from both a theoretical and applied perspective. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MSA program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ACCT 695: Graduate Field Experience.** 1-3 credits. This course provides a framework for approaching, successfully completing, and reflecting upon a professional field experience in accounting. The course is designed for students who will complete semester long internship in the field of accounting either in public accounting or in industry. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Permission of MSA Program Director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Accounting or Forensic Accounting.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**ACCT 696: Directed Studies in Accounting.** 1-3 credits. Approval by faculty member and program director required prior to registration. Studies specialized topics in business not otherwise available in the curriculum. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Admission to the MSA program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**ACCT 697: Special Topics in Accounting.** 1-3 credits. Sections established as necessary to focus on various topical issues that emerge in practice of accounting. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Admission to the MSA program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

### 700 Level Courses

**ACCT 701: Business Valuation.** 3 credits.
Provides hands-on-experience in financial statement analysis and valuation. Takes an accounting-based valuation perspective and offers a comprehensive framework for analyzing financial statements consisting of (a) Business Strategy, (b) Accounting Analysis, (c) Financial Analysis, and (d) Prospective Analysis and Valuation. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 701.

**Recommended Prerequisite:** Admission to the MSA program or permission of instructor. Grade of B or better in MBA 613.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ACCT 708: Taxes and Business Strategy.** 3 credits.
Provides a framework for making managerial decisions in a global tax environment. Examines business decisions such as location of facilities, employee compensation, mergers and acquisitions, capital and asset structure, and business form. Focuses on tax planning concepts and the effect of taxes on business decisions. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 708.

**Recommended Prerequisite:** Admission to the MSA program or permission of instructor. Completion of MBA core requirements.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ACCT 737: Fraud and the Law.** 3 credits.
Provides an overview of US legal system including law-making process, structure of court system, and how frauds are brought to trial, prosecuted and resolved. Explores common fraud statutes used to penalize wrongdoers. Course will examine evidentiary rules including types of evidence, hearsay, impeachment and privileges. Highlight the legal requirements for serving as an expert witness and testifying in court. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ACCT 738: Advanced Topics in Fraud.** 3 credits.
Course will cover advanced topics in forensic accounting. The focus will be on contemporary issues in fraud. Examples of topics include litigation support, money laundering, consumer fraud, bankruptcy, divorce and tax fraud, fraud in e-commerce, insurance fraud and mortgage fraud. The course will provide a comprehensive look at fraud investigation. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

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**Required Prerequisites:** ACCT 636\textsuperscript{C} or MBA 744\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ACCT 741: Information Technology Auditing.** 3 credits.
Introduces methodologies to assess security and control issues concerning accounting and other information systems. Key feature of course is applying computer-assisted audit tools and techniques to test effectiveness of application controls. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 741.

**Recommended Prerequisite:** Permission of program director if not already admitted to MSA or MBA program.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting or Business Administration.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ACCT 742: Corporate Governance and Ethics.** 3 credits.
Focuses on developing understanding of corporate governance issues and ethical decision making. Topics include examination of internal and external international governance issues, and ethical analysis in current business environment. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 742.

**Recommended Prerequisite:** Permission of program director if not already admitted to MSA or MBA program.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting or Business Administration.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ACCT 743: Corporate Financial Reporting.** 3 credits.
Addresses contemporary issues in corporate financial reporting. Focuses on role of financial reporting in providing decision-useful information to participants of capital market, and theoretical and empirical assessments of its performance. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 743.

**Recommended Prerequisite:** Permission of program director if not already admitted to MSA or MBA program.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting or Business Administration.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Schedule Type: Seminar

ACCT 745: International Financial Reporting. 3 credits. Examines accounting from an international perspective, including the study of various functional areas of accounting across countries and the reporting requirements encountered by companies engaged in international trade and making foreign direct investments. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 745.

Recommended Prerequisite: Completion of MBA or MSA core requirements, or permission of program director.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ACCT 792: Seminar in Accounting. 3 credits. Selective analysis of topics addressing important issues in contemporary accounting practice. Discussion of two or three major topics. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ACCT 795: Global Accounting Environment. 3 credits. Examines the activities of accounting firms competing in the global business environment. Students will observe these activities in residency and study the decision-making processes of international accounting firms to develop an understanding of the regulatory environment of global accounting. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Admission to the MSA program or permission of the program director.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ACCT 796: Independent Studies/Directed Readings. 1-3 credits. Research and analysis of selected problems or topics in accounting not otherwise available in curriculum. Notes: Approval of faculty member and program director required. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Permission of Program Director.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

African and African American Studies (AFAM)

200 Level Courses

AFAM 200: Introduction to African American Studies. 3 credits. Interdisciplinary introduction to the field of African American studies. Includes comparative analysis of approaches, methodologies, and key concepts related to the study of people of African descent in the United States, continental Africa, and throughout the African diaspora. Lectures and discussion integrate attention to such issues as diversity and multiculturalism from national and global perspectives. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

300 Level Courses

AFAM 390: Special Topics in African and African American Studies. 3 credits. Study of selected topics related to the study of people of African descent in Africa, the United States, the Caribbean, Latin America and throughout the African Diaspora. Notes: May be repeated when topic is different. Offered by Humanities & Social Sciences (p. 295). May be repeated within the term for a maximum 12 credits.

Schedule Type: Lecture

400 Level Courses

AFAM 490: Internship. 2-6 credits. Approved work-study program in cooperation with specific organizations including area museums; NGOs; and local, state, and federal agencies. Students should arrange for an internship in the semester before they wish to enroll. Permission required from program director, Dr. Wendi Manuel-Scott. Notes: Credit to be determined by the African American Studies Program. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

Schedule Type: Internship

AFAM 499: Independent Study. 1-3 credits. Investigation of an area related to African American studies according to individual interest, with emphasis on research. Permission required from program director, Dr. Wendi Manuel-Scott. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

Schedule Type: Independent Study

Anthropology (ANTH)

100 Level Courses

ANTH 114: Introduction to Cultural Anthropology. 3 credits. Overview of major ideas and approaches to the study of cultures around the world. Surveys kinship, social organization, political economy, religious beliefs, language and other aspects of non-Western cultures. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Specialized Designation: Non-Western Culture
Schedule Type: Lecture

ANTH 120: *Unearting the Past: Prehistory, Culture and Evolution*. 3 credits.
Introduction to archeology and bioanthropology. Explore issues and debates in human biological evolution, prehistory and social change, as well as lab and field methods for understanding archaeological remains. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

ANTH 135: *Introduction to Biological Anthropology*. 3 credits.
Uses an evolutionary perspective to introduce students to the study of humans and non-human primates as biological organisms. The course will analyze the genetic and environmental bases for modern human biological variation, understand primate behavior and biological relationships, and reconstruct the fossil record. Discussions about prehistoric skeletal remains will emphasize biological responses to changes in subsistence and social structure. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Natural Science Overview, Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

200 Level Courses

ANTH 299: *Independent Study*. 1-3 credits.
Individual study in anthropology on topic organized in advance by student and instructor. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 114 or permission of instructor.

Schedule Type: Independent Study

300 Level Courses

ANTH 300: *Civilizations*. 3 credits.
Cross-cultural and transtemporal examination of complex societies and civilizations. Explores developmental schema for rise, articulation, spread, and decline of historic and contemporary civilizations. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 301: *Native North Americans*. 3 credits.
Exploration of native North American cultures and selected aspects of Indian-white historical relations. Emphasizes cultural persistence as well as change. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 302: *Peoples and Cultures of Latin America*. 3 credits.
Examines Latin American cultures and selected aspects of historical record. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite: ANTH 114, 60 hours, or permission of instructor.

Schedule Type: Lecture

ANTH 303: *Peoples and Cultures of the Andes*. 3 credits.
Examines issues and problems of selected regions of highland and lowland Andean South America. Provides knowledge of people of the Andes, their diverse cultural practices and adaptations, and the causes and consequences of conflicts. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 306: *Peoples and Cultures of Island Asia*. 3 credits.
Examines cultures of the Island Asia culture region, focusing on native cultures of Indonesia, Borneo, and the Philippines. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 307: *Ancient Mesoamerica*. 3 credits.
Examines the peoples and cultures of ancient Mesoamerica, including Olmec, Maya, Teotihuacan, and Aztec societies. Major topics include the rise of civilization, the development of the Mesoamerican cultural tradition, the growth of cities, trade, exchange, writing systems, political organization, religion, conflict, and the archaeological study of this indigenous heritage. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 308: *Peoples and Cultures of the Middle East*. 3 credits.
Examines the anthropological literature on peoples and cultures of the Middle East, with particular attention to political and social change over the course of the 20th century. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 309: *Peoples and Cultures of India*. 3 credits.
Examination of South Asia, with emphasis on India. Includes general overview of prehistory and history; impact of colonialism; contemporary Indian culture, including the changing relations of caste and class, family organization, and the roles of women, religion, and ideology; and current trends in economic development and socioeconomic differences in
different parts of the country. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 312: Political Anthropology. 3 credits. Examines cultural and ecological contexts of political structures and competition for power in selected societies; and cross-cultural and comparative approaches to study of political conflict, leadership, values, and symbolism. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: ANTH 114, 60 hrs, or permission of instructor.

Schedule Type: Lecture

ANTH 313: Myth, Magic, and Mind. 3 credits. Examines religion as a cultural system. Topics include mythology, ritual, symbolism, and dogma. Emphasizes cross-cultural and predominantly non-Western material. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 314: Zombies. 3 credits. Examines the social, cultural, and political history of the Caribbean Sea islands and coastal Central and South American lowlands that collectively constitute the geographic and cultural region known as the Caribbean. Emphasizes the central role this region has historically played in creating a sense of global interconnectedness among diverse regions of the world. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: ANTH 114, 60 hours, or permission of instructor.

Schedule Type: Lecture

ANTH 316: Peoples and Cultures of the Caribbean. 3 credits. Examines the social, cultural, and political history of the Caribbean Sea islands and coastal Central and South American lowlands that collectively constitute the geographic and cultural region known as the Caribbean. Emphasizes the central role this region has historically played in creating a sense of global interconnectedness among diverse regions.
Recommended Prerequisite: ANTH 114, 60 credits, or permission of instructor.

Schedule Type: Lecture

ANTH 331: Refugees. 3 credits.
Introduction to causes and consequences of forced dislocation as a global issue. Covers formally recognized refugees, as well as people such as internally displaced persons and asylum seekers who are in refugee-like circumstances. Focuses on understanding the personal experiences of refugees and examining efforts on their behalf at national and international levels. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: ANTH 114, 60 credits, or permission of instructor.

Schedule Type: Lecture

ANTH 332: Cross-Cultural Perspectives on Globalization. 3 credits.
Examines the varieties of cultural experience. Several cultures are studied in depth; with attention to local histories, global contexts, and shifting perspectives on the practice of ethnography. Notes: May be used for credit toward the BA in sociology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 340: Comparative Perspectives on Immigration. 3 credits.
Considers the dimensions and meanings of the immigrant experience in the United States, with a focus on the diversity of immigrants and refugees who have arrived during the past 30 years. Emphasis on the social context in which immigration occurs and on the bearing of institutional and cultural influences on patterns of adaptation, assimilation, and exclusion from the host society. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Specialized Designation: Scholarly Inquiry

Schedule Type: Lecture

ANTH 350: Human Growth and Development. 3 credits.
Introduces human developmental stages in terms of behavior, biology, and genetics. Addresses the history and methods of human growth research. Explores the environmental and socioeconomic influences on human growth. Investigates the evolution of uniqueness in human developmental stages of the human species in comparison of other primates. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Schedule Type: Lecture

ANTH 355: Human Origins. 3 credits.
Explores the fossil evidence for human and primate evolution. Exposes students to evidence for the origins of mammals and primates, and to discussions of human evolution. Uses human fossils as tools to understand evolutionary relationships (phylogenetics), behavior, functional anatomy, and broader adaptation. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Schedule Type: Lecture

ANTH 357: Bioarchaeology. 3 credits.
Introduces students to the study of human skeletal remains and their associated archaeological artifacts, focusing on using the human skeleton to address behavior, growth, stress, ritual, social complexity, diet, disease, and violence in the past. Uses the human body and associated artifacts to provide a detailed analysis of cultural transitions, expression of socioeconomic inequality, the origins of ritual complexity, violence, and disease. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Schedule Type: Lecture

ANTH 360: Evolution, Sex, and Society. 3 credits.
Inquiry into the biological dimensions of humans as culture-bearing animals. Topics include altruism, aggression, primate social organization, morphology, comparative ethnology, and microevolutionary genetic differentiation. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135, 60 credits or permission of instructor.

Schedule Type: Lecture

ANTH 363: Humans, Disease, and Death. 3 credits.
Explores human health and disease from anthropological and evolutionary perspectives. Examines what a disease is, what causes them, how we have co-evolved with diseases, how disease patterns have changed over human history, and the future of disease. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Specialized Designation: Scholarly Inquiry

Schedule Type: Lecture

ANTH 365: Human Variation. 3 credits.
Examines biological dimensions of human variation and the beginnings of race as a concept. Discusses evolution of human biodiversity in culturally distinct human groups related to environment, physiology, genetics, nutrition, and disease. Explores use of scientific analyses of human biodiversity. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135, 60 hours or permission of instructor.

Schedule Type: Lecture

ANTH 366: Food and Human Evolution. 3 credits.
Explores the relationship between diet and human adaptation from biological, archaeological, cultural, and evolutionary perspectives. Examines how humans are unique in our ability to find and process a wide range of foods. Introduces agriculture as a co-evolutionary strategy between humans and other species. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Scholarly Inquiry
Anthropology (p. 482). May not be repeated for credit.

**anthropology**

Interactions with the animal kingdom. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** ANTH 114, or 60 hours, or permission of instructor.

**Schedule Type:** Lecture

**ANTH 370: Environment and Culture.** 3 credits.
Examines relationships among environment, culture, and human behavior with an emphasis on cultural ecological explanations in mainly non-Western contexts. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** ANTH 114, or 60 hours, or permission of instructor.

**Schedule Type:** Lecture

**ANTH 372: Cultures of Disaster, Risk, and Hope.** 3 credits.
By using ethnographic accounts on disasters in different cultural settings, this course explores cultural meanings of disasters as well as broader anthropological issues such as risk, power, modernity, memory, trauma, temporality, monster, nature, science and technology, and hope. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences (p. 135)

**Schedule Type:** Seminar

**ANTH 375: Culture, Power, History.** 3 credits.
Use of ethnographic, archaeological, linguistic, and documentary data, in light of anthropological theory, to interpret the past and processes of change among indigenous peoples throughout the world. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**ANTH 376: Food and Culture.** 3 credits.
Examines a variety of experiences through foods, which bring not only nutritional but also sociocultural debates to our table (e.g. identity, memory, senses, ethnicity, gender, geopolitics, climate change, and globalization). Focuses on both Western and non-Western cultures. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**ANTH 377: Mortuary Archaeology.** 3 credits.
Focuses on the study of burial patterns and death rituals in antiquity by introducing students to the methods of burial excavation, examining the history of mortuary archaeology theory and engagement with processual and postprocessual schools of thought, and examining case studies from around the world to decode the complex symbolisms encoded in burial practices. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** ANTH 135.

**Schedule Type:** Lecture

**ANTH 378: Humans and Animals.** 3 credits.
Provides an introduction to anthropology of human’s relationship with animals across a large geographic and temporal span. From domestication of animals to animism, pets and animal classification systems, course explores society’s attitudes toward and dynamic interactions with the animal kingdom. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**ANTH 379: Andean Archaeology.** 3 credits.
Examines 12,000 years of pre-Hispanic cultures of the Andean region of western South America. Focuses on the development and key achievements of some of the most remarkable civilizations of the New World, including the Chavin, Paracas, Cupisnique, Moche, Sicán, Nasca, Chimú, Wari, and Inka. Considers as well the nature, priorities, and accomplishments of scientific Andean archaeology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** ANTH 135.

**Schedule Type:** Lecture

**ANTH 380: Language and Culture.** 3 credits.
Anthropological analyses of language behavior, origins, and change. Emphasizes the interplay of language, culture, anthropology, and linguistics. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** ANTH 114, 60 credits, or permission of instructor.

**Schedule Type:** Lecture

**ANTH 381: Medical Anthropology.** 3 credits.
Surveys the discipline of medical anthropology, focusing on traditional medical beliefs and the diverse responses to modern scientific medicine in developing countries and among cultural minorities in the United States. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** ANTH 114, 60 credits, or permission of instructor.

**Schedule Type:** Lecture

**ANTH 382: Urban Anthropology.** 3 credits.
Uses tools and resources of sociocultural anthropology to study life in cities in a comparative, global context, including topics such as poverty, discrimination, migration, transnationalism, and urban planning. Case studies draw from different urban environments in Asia, Latin America, Europe, Africa, and North America. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Recommended Prerequisite:** ANTH 114 and 60 credits, or Permission of Instructor.

**Schedule Type:** Lecture

**ANTH 383: Cities of the Global South.** 3 credits.
Explores ethnographic perspectives on urban life in Latin America, Africa, and Asia in order to build a ground-up, comparative approach to studying cities. Examines the global connections between cities and critically evaluates north/south and first/third world paradigms. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Lecture
ANTH 387: Zooarchaeology. 4 credits.
Explores the methods and theories applied in zooarchaeology through integrating hands-on assignments working with a comparative collection. Examines how archaeologists can understand human-animal relationships in the past including their role in reconstructing paleoenvironments, their contribution to ancient foodways, domestication of animals, and ritual uses of fauna. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Laboratory, Lecture

ANTH 388: Human Osteology. 3 credits.
Introduces students to the methods of modern human skeletal analysis in bio- and forensic anthropology. Covers introductory human skeletal and dental gross anatomy and describes analytical techniques spanning including age and sex estimation, osteometry, and paleopathology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Recommended Corequisite: ANTH 388.

Schedule Type: Laboratory

ANTH 389: Human Osteology Lab. 2 credits.
Laboratory course associated with ANTH 388. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Schedule Type: Lecture

ANTH 390: Theories, Methods, and Issues I. 3 credits.
First of a two-course sequence that reviews the major theoretical traditions and schools of thought in anthropology. Notes: Required for anthropology majors. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 114 and 60 credits, including 6 credits of ANTH 300-level (or above) courses, or permission of instructor

Schedule Type: Lecture

ANTH 391: Forensic Anthropology. 3 credits.
Human remains play key roles in medicolegal investigations. Provides an overview of contemporary forensic anthropology including age and sex estimation from human remains, estimation of the time since death, analysis of sharp force, blunt force, and gunshot trauma, mass disaster contexts, and the forensic archaeological recovery of buried remains. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Schedule Type: Lecture

ANTH 392: Forensic Anthropology Lab. 2 credits.
This lab class in the companion to ANTH 391. Involves hands-on lab exercises in the learning of methods in modern forensic anthropology, covering age and sex estimation from human remains, estimation of the time since death, analysis of traumatic trauma, individual identification, and archaeological recovery of buried remains. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Schedule Type: Lecture

ANTH 393: Paleopathology. 3 credits.
Provides an introduction to the field of paleopathology which involves identification of pathological conditions in human skeletal remains, and reconstruction of the natural history and co-evolution of disease with humans. Covers the differential diagnosis and history of infectious pathogens, skeletal trauma, oral diseases, metabolic abnormalities, developmental defects, and more. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 135.

Schedule Type: Lecture

Introduction to the anthropology of work, technology, and society, with emphasis on information technology. Covers general conceptual issues of information technology and also involves specific practical exercises with computers, their operating systems, the logic of automated production, databases, and web-based communication. Attention also directed to social and ethical issues raised by contemporary information technology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Information Technology: With Ethics (p. 135)

Recommended Prerequisite: ANTH 114, 60 hours, or permission of instructor.

Schedule Type: Lecture

ANTH 396: Issues in Anthropology. 3 credits.
Topic of contemporary interest in anthropology, focusing on social science topics of interest. Notes: May be repeated when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 18 credits.

Mason Core: Social/Behavioral Sciences (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ANTH 398: Study Abroad. 1-6 credits.
Field project or study abroad experience leading to the production of a written report Notes: May be repeated with permission of department. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

ANTH 399: Issues in Anthropology. 3 credits.
Topic of contemporary interest in anthropology, changing from semester to semester, and focusing on topics such as sex roles, anthropology and ethics, and primate social organization. Notes: May be repeated for credit when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the term.

Recommended Prerequisite: ANTH 114, 60 hours, and permission of instructor.
Schedule Type: Lecture

400 Level Courses

ANTH 400: Engaging the World: Anthropological Perspectives. 3 credits.
Examines selected topics with emphasis on the integration of different kinds of knowledge and the balancing of alternative ways of assessing meaning and relevance. Topics usually drawn from issues of global economic processes, civic rights and responsibilities, ethics, museums, public policy, the environment, and migration. Notes: May be repeated when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 9 credits.

Mason Core: Synthesis (p. 135)

Recommended Prerequisite: ANTH 114, 60 credits, or permission of instructor.

Schedule Type: Seminar

ANTH 420: Interpretation in Archaeology. 3 credits.
Explores theoretical and methodological issues in archaeology. Considers patterns and contexts of archaeological remains, analytic problems, and interpretation of material culture. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: 6 credits of ANTH, including ANTH 120 or permission of instructor.

Schedule Type: Lecture

ANTH 427: Historic Cemetery Survey. 4 credits.
Explores demographic, stylistic, and religious aspects of historic cemeteries. Students learn to survey, record, and analyze gravestone data through field projects. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 120, or permission of instructor.

Schedule Type: Lecture

ANTH 430: Research Methods in Archaeology. 3 credits.
Studies archaeological research process through discussions of current archaeological methodologies and student participation in designing and critiquing research projects. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 120, 60 hrs, or permission of instructor.

Schedule Type: Lecture

ANTH 435: Special Projects: Archaeology and Biological Anthropology. 1-3 credits.
Lab or field project leading to a written report of the research. Notes: Research and paper completed under instructor’s guidance. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 120 or 135, 60 credits, and Permission of Instructor.

Schedule Type: Lecture

ANTH 436: Special Projects: Archaeology and Biological Anthropology. 1-3 credits.
Lab or field project leading to a written report of the research. Notes: Research and paper completed under instructor’s guidance. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 120 or 135, 60 credits, and Permission of Instructor.

Schedule Type: Lecture

ANTH 440: Applied Anthropology. 3 credits.
Examines the needs and problems of communities and organizations and develops professional skills for a career in applied anthropology. Topics include the history of applied anthropology, research methods and ethics, fields in which applied anthropologists work, career options, and professionalization. Students prepare a career portfolio and other documents common in the workplace for applied anthropologists. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 114, 60 hours, or permission of instructor.

Schedule Type: Lecture

ANTH 450: Qualitative Methods: Nonstatistical Approaches in Culture and Social Research. 3 credits.
Explores some of the most useful nonquantitative research techniques in social sciences and offers practice in their application. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: 60 credits and 6 credits of ANTH including ANTH 114, or permission of instructor.

Schedule Type: Lecture

ANTH 488: Gender, Sexuality, and Culture. 3 credits.
Examines how gender, sexuality, race, and class come together as analytically distinct, yet practically intertwined, systems of meaning and practice. Examples highlight questions of political economy and history while focusing on specific ethnographic or historical readings. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: 60 hours and ANTH 340 or Permission of Instructor.

Schedule Type: Lecture

ANTH 490: Theories, Methods, and Issues II. 3 credits.
Second of a two-course sequence that reviews major theoretical traditions and schools of thought in anthropology. Notes: Required for anthropology majors and usually taken as a senior seminar. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: 60 hours and 9 hours of ANTH, including ANTH 390, or permission of instructor.

Schedule Type: Lecture
ANTH 492: Contemporary Controversies in Anthropology. 3 credits. Examines recent important works, issues, and controversies in anthropology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: 60 hours and 9 hours of ANTH, including ANTH 390, or Permission of instructor.

Schedule Type: Lecture

ANTH 495: Internship. 1-6 credits. Supervised project in applying anthropology in relevant settings including public and historical archaeology, developmental anthropology, museums, non-profit organizations, advocacy, communications, or consulting organizations. Notes: Students must complete 45 hours of work at the internship site for each credit. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum of 6 credits.

Recommended Prerequisite: 60 hours or 9 hours of ANTH, including ANTH 390, or Permission of instructor.

Schedule Type: Internship

ANTH 496: Evolutionary Theory. 3 credits. Considers evolution as a biological as well as cultural concept. Parallels and contrasts among conceptual approaches allow a critique of the potential of evolution as a unifying biosocial theory. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: 60 hours and 9 hours of ANTH, including ANTH 390, or Permission of instructor.

Schedule Type: Lecture

ANTH 499: Independent Research. 1-12 credits. Individual research on a topic to be organized in advance by student and instructor. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum of 12 credits.

Schedule Type: Independent Study

500 Level Courses

ANTH 535: Anthropology and the Human Condition: Seminar I. 3 credits. Examines some of the major theorists of 19th- and early 20th-century cultural theory. Marx, Freud, Durkheim, and Weber are surveyed as foundational thinkers for reading the works of such 20th-century theorists as Boas, Malinowski, Benedict, and Sapir. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: ANTH 535.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ANTH 555: Policy and Culture. 3 credits. Examines the relevance of cultural processes to policymaking and the culture of policymaking organizations. Topics include development, welfare policy, environmental and energy policy, regulation and risk; health care and immigration policy; and the war on drugs. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar


Recommended Prerequisite: ANTH 535.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ANTH 557: Human Origins. 3 credits. Examines recent important works, issues, and controversies in anthropology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.
Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ANTH 570:** *Andean Archaeology*. 3 credits.
Examines 12,000 years of pre-Hispanic cultures of the Andean region of western South America - that constituted the most remarkable complex civilizations of the New World. Focuses on the development and key achievements of the Chavin, Paracas, Cupisnique, Moche, Sican, Nasca, Chimú, Wari, and Inka cultures, and the nature, priorities, and accomplishments of scientific Andean archaeology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ANTH 576:** *American Cultures*. 3 credits.
Examines U.S. cultures and explores concept of an American culture. Course readings and discussions explore underpinnings of the American experience, document broad historical shifts, and detail the experience of diverse groups of Americans, thus forming the basis for a critical, analytical, and comparative discussion of American life and life in America. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ANTH 577:** *Mortuary Archaeology*. 3 credits.
Focuses on the study of burial patterns and death rituals in antiquity by introducing students to the methods of burial excavation, examining the history of mortuary archaeology theory and engagement with processual and postprocessual schools of thought, and examining case studies from around the world to decode the complex symbolisms encoded in burial practices. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ANTH 578:** *Humans and Animals*. 3 credits.
Provides an introduction to anthropology of human's relationship with animals across a large geographic and temporal span. From domestication of animals to animism, pets and animal classification systems, course explores society's attitudes toward and dynamic interactions with the animal kingdom. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ANTH 580:** *Environmental Anthropology*. 3 credits.
Covers major theoretical trends and ethnographic works in environmental anthropology, focusing on the frameworks developed and used by environmental anthropologists, including cultural ecology, ecological anthropology, environmentalism, political ecology, new ecology, and science and technology studies. Explores how environmental anthropologists have contributed to broader debates about modernity, globalization, power, kinship, science and technology, and human-environmental relations. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ANTH 582:** *Human Osteology*. 3 credits.
Introduces students to the methods of modern human skeletal analysis in bioarchaeological and forensic science. Covers introductory human skeletal and dental gross anatomy and describes analytical techniques spanning including age and sex estimation, osteometry, and paleopathology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Corequisite:** ANTH 583.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture
ANTH 583: Human Osteology Lab. 2 credits.
Laboratory course associated with ANTH 582. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Corequisite: ANTH 582.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

ANTH 584: Paleopathology. 3 credits.
Provides an introduction to the field of paleopathology which involves identification of pathological conditions in human skeletal remains, and reconstruction of the natural history and co-evolution of disease with humans. Covers the differential diagnosis and history of infectious pathogens such as tuberculosis and syphilis, skeletal trauma, oral diseases, metabolic abnormalities neoplasms developmental defects joint disease and more. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ANTH 585: Bioarchaeology. 3 credits.
Explores the cutting-edge methods of bioarchaeological science and reconstructs ancient living worlds from the remarkable information encoded in bones via patterns of demography, disease, diet, trauma, violence, lifestyle, social structures, sex and gender, ethnicity, and identities on a global scale and over the last 10,000 years of history. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ANTH 590: Forensic Anthropology Lab. 2 credits.
Laboratory course associated with ANTH 590. Involves hands-on lab exercises in the learning of methods in modern forensic anthropology, covering age and sex estimation from human remains, estimation of postmortem intervals, analyses of traumatic trauma, individual identification, forensic taphonomy, and archaeological recovery of buried remains. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Corequisite: ANTH 591.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ANTH 591: Forensic Anthropology. 3 credits.
Explores the changing relations between culture, indigenous groups, representation and knowledge by examining how meaning is created and conveyed in museums and exhibits. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Corequisite: ANTH 590.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

ANTH 593: Zooarchaeology. 4 credits.
Explores the methods and theories applied in zooarchaeology through integrating hands-on assignments working with a comparative collection. Examines how archaeologists can understand human-animal relationships in the past including their role in reconstructing paleoenvironments, their contribution to ancient foodways, domestication of animals, and ritual uses of fauna. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Corequisite: ANTH 591.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

600 Level Courses

ANTH 600: Anthropology and Museums. 3 credits.
Explores the methods and theories applied in zooarchaeology through integrating hands-on assignments working with a comparative collection. Examines how archaeologists can understand human-animal relationships in the past including their role in reconstructing paleoenvironments, their contribution to ancient foodways, domestication of animals, and ritual uses of fauna. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 615:** *Ritual and Power in Social Life.* 3 credits.

Domains of religion and politics are conjoined by questions of power: its deployment, distribution, and forms of resistance it engenders. Course investigates connections among religious thought, ritual practice, and political action by drawing on a variety of theoretical orientations in the social sciences including structuralism, semiotics, psychoanalysis, and performance theory. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 616:** *Anthropology of the City.* 3 credits.

Examines classic and contemporary works in urban theory, in light of broader scholarly discussions of modernity and globalization. Uses a case-study approach to analyze topics such as: public and private space, citizenship and governance, architecture and design, housing, transportation, formal and informal settlements, and the contest over space and environmental resources in cities around the world. Notes: Course may be offered fall or spring. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

**ANTH 617:** *Political Economy.* 3 credits.

Human societies have always engaged in complex political relations and economic exchanges. The cultural meanings people create are shaped by, and in turn shape, systems of power. Political economy is the attempt to understand the relationship between politics and economics, at the juncture of local meanings and global histories. Course reviews major works and models of political economy, especially as they relate to social and cultural analysis. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 620:** *Theory: Archaeology and Biological Anthropology.* 3 credits.

Examines theoretical approaches in archaeology, paleoanthropology, and biological anthropology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: Course in ARCHAEOLOGY or Permission of Instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 631:** *Refugees in the Contemporary World.* 3 credits.

Explores major refugee flows since the mid-20th century, emphasizing mechanisms for providing assistance, asylum, and resettlement. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 632:** *International Migration in Comparative Perspective.* 3 credits.

International migration in the contemporary world, focusing on the full range of economic, political, and social reasons for migration and the effects of different national policies on that process. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 635:** *Regional Ethnography.* 3 credits.

In-depth study of peoples and cultures of a specific world region (Latin America, East Asia, the Pacific, or United States). Content may include cultures defined by diaspora, migration, and other global forces and processes. Notes: May be repeated when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

**ANTH 640: Applied Anthropology.** 3 credits.
Explores the application of contemporary anthropological ideas, theories, and methods to find solutions to practical problems as defined by various organizations and institutions including business, government, nongovernmental organizations, and various institutions. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**ANTH 650: Methods in Anthropology.** 3 credits.
Reviews and examines major research methods commonly employed in cultural anthropological field study, with emphasis on ethnographic research design and the use of standard ethnographic techniques. Includes practice in designing ethnographic research project and using ethnographic methods and techniques in a field setting. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 655: Nationalism, Transnationalism, and States: Local and Global Perspectives.** 3 credits.
Explores different approaches to understanding the interaction of nationalism, transnationalism, and states given the apparently simultaneous dissolution of demographic, economic and cultural borders, and modernist social science paradigms. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ANTH 670: Regional Studies in Archaeology.** 3 credits.
Regional survey of specific culture area in archaeology to be chosen by student and instructor. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: Permission of Instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

**ANTH 677: Anthropology and History.** 3 credits.
Considers anthropological approaches to the study of history, the ways in which people construct their histories, and social historians' effort to incorporate anthropological and ethnographic orientations into their accounts. Attention to tensions between culture and power in the constitution of historiography and to methodological challenges of interpreting qualitative and quantitative data. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

**ANTH 684: Independent Study in Sociocultural Anthropology.** 1-6 credits.
Directed reading and research on a specific topic, agreed on by student and faculty member, resulting in a written project. May be repeated for maximum of 6 credits. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

**ANTH 687: Medical Anthropology.** 3 credits.
Explores the wide variety of cultural interpretations of health, illness, and curing. Examines a number of different curing systems, both traditional and modern, and compares them with cosmopolitan biomedicine. Several book-length case studies cover a wide variety of cultural groups, health topics, and theoretical orientations. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Special attention to the role of cultural differences in the structuring of culture, power, and conflict. Explores power and social conflict through the lens of cultural analysis.

ANTH 721: Culture, Power, and Conflict. 3 credits. 
Explores power and social conflict through the lens of cultural analysis. Special attention to the role of cultural differences in the structuring of conflict and the deployment of cultural theory in formulating a practice of conflict resolution. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ANTH 690: Internship. 3-6 credits.
All internships must be approved by faculty advisor to ensure suitability to the student's course of study. Introduction to applied anthropology through approved work and study at a museum, institute, agency, or other approved site. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Graduate standing, with 3 hours of methods and 12 hours in program, or by permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

ANTH 698: Study Abroad. 1-6 credits.
Intended for participation in formally organized course offered by Center for Global Education or an overseas institution or engagement in a field project related to the Master's thesis or project. May be repeated for a maximum of 6 credits. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

ANTH 699: Contemporary Issues in Sociocultural Anthropology. 3 credits.
Explores current issues and debates in sociocultural anthropology. Notes: May be repeated when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ANTH 769: Gender, Sexuality, and Culture. 3 credits.
Explores current issues and debates in sociocultural anthropology. Notes: May be repeated when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

ANTH 696: Master's Research Project. 1-6 credits.
Capstone research project conducted under the supervision of a faculty project director and project evaluation committee. Project should be a substantial contribution to anthropological knowledge and is in lieu of a thesis. Notes: Students must initially enroll for a minimum of 3 credits of ANTH 796 and maintain continuous enrollment in 796 until project is submitted. A maximum of 6 credits of ANTH 796 may be applied to the degree. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Approval of project proposal.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

ANTH 796: Master's Research Project. 1-6 credits.
Capstone research project conducted under the supervision of a faculty project director and project evaluation committee. Project should be a substantial contribution to anthropological knowledge and is in lieu of a thesis. Notes: Students must initially enroll for a minimum of 3 credits of ANTH 796 and maintain continuous enrollment in 796 until project is submitted. A maximum of 6 credits of ANTH 796 may be applied to the degree. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Approval of project proposal.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

ANTH 798: Thesis or Project Proposal. 3 credits.
Work on research proposal that forms basis for master's thesis or project. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.
Recommended Prerequisite: Completion of 15 credits, including all other core courses.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

ANTH 799: Master's Thesis. 1-6 credits.
Master's thesis research and writing under direction of thesis committee.
Notes: Students must register for a minimum of three credit hours in their first semester of 799 and maintain continuous enrollment in 799 while writing and submitting a thesis. A maximum of 6 credits of 799 may be applied to the degree. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 24 credits.

Recommended Prerequisite: Approval of thesis proposal.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

Applied Information Technology (AIT)

500 Level Courses

AIT 500: Quantitative Foundations for Information Systems Analysis. 3 credits.
Provides common background in basic quantitative areas focused on decision making, information processing, and telecommunications. Topics include review of precalculus, introduction to matrix algebra, problems in optimization, and introduction to probability and statistics.
Notes: Does not fulfill any VSITE graduate degree requirement. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: MATH 108 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 501: Software Engineering Essentials. 3 credits.
Provides an overview of essential topics in software engineering, including problem solving with computers, requirements, software design, software development, testing, verification, validation, usability, and management. Discuss concepts related to building software, including data structures, object-oriented programming, event handling in GUIs, and web application technologies and how these concepts are handled in various languages, but without requiring the students to program.
Notes: This course does not count towards MS programs offered in the Computer Science Department and cannot be used to satisfy course
enormous amounts of data available from numerous sources. Lectures and non-technical disciplines required to collect, process and use scientific, governmental and other applications. Topics include technical

Course provides an overview of Big Data and its use in commercial, applied information technology. Enrollment is limited to students with a major, minor, or concentration in information systems, and networking. This graduate course provides an overview of OS and networking elements of information systems, and examines commercial systems. Computing lab. Notes: This course does not count towards MS programs offered in the Computer Science Department and cannot be used to satisfy course requirements for PhD IT students. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit. Equivalent to INFS 524.

**Recommended Prerequisite:** Academic or industry experience with database systems.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 524:** Database Management Systems. 3 credits.
Relational database management systems. Covers logical and physical database design; query languages and database programming; and examines commercial systems. Computing lab. Notes: This course does not count towards MS programs offered in the Computer Science Department and cannot be used to satisfy course requirements for PhD IT students. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit. Equivalent to INFS 524.

**Recommended Prerequisite:** Academic or industry experience with database systems.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 542:** Fundamentals of Computing Platforms. 3 credits.
Contemporary information systems are platforms inextricably combining operating systems and networks. This graduate course provides an overview of OS and networking elements of information systems, and examines the particular issues relating to the range of platforms, from handheld mobile devices to cloud and supercomputer systems. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Academic or industry experience with operating systems and computer networks.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology.

**Schedule Type:** Lecture

**AIT 580:** Analytics: Big Data to Information. 3 credits.
Course provides an overview of Big Data and its use in commercial, scientific, governmental and other applications. Topics include technical and non-technical disciplines required to collect, process and use enormous amounts of data available from numerous sources. Lectures cover system acquisition, law and policy, and ethical issues. It includes brief discussions of technologies involved in collecting, mining, analyzing and using results. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 581:** Problem Formation and Solving in Big Data. 3 credits.
The course explores challenges facing analysts exploiting Big Data or Bespoke Data in combination with Big Data, and looks at solutions, mindful of the fact that our intellectual and practical practices are based entirely on the 5000 year old Bespoke Data paradigm, and considering that Big Data practices are too recent to lead to comparable Big Data tools and practices. Notes: Course may be used in other certificate and degree programs. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 582:** Applications of Metadata in Complex Big Data Problems. 3 credits.
The course explores technical and analytical issues, solutions and gaps in processing large volumes of data by leveraging metadata. The goal is to find “facts of interest” (intelligence) that represent threats to, or even opportunities for, a given industry or domain (e.g., healthcare, finance or national intelligence/national defense) where there is limited time. Notes: Course may be used in other Certificate or Degree programs. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture
AIT 590: Topics in Applied Information Technology. 3 credits.
Topics in the application of information technology. Students are expected to participate actively through class dialogues and the crafting of IT solutions to specific problem areas. Notes: Course cannot be used to satisfy course requirements for PhD IT students. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 597: Developing IT Leaders of Integrity. 3 credits.
Considers the cultural and organizational influences and focuses on leadership's ethical dimensions. Students identify their core values, study the attributes of effective and toxic leaders, and examine the difference between managing and leading through selected readings, discussions, team projects, in-class activities and guest presentations. Students practice and receive in-class coaching to hone their leadership skills. Notes: Course cannot be used to satisfy course requirements for PhD IT students. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: Registered student in MS, Applied IT or instructor's permission.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

600 Level Courses

AIT 601: Foundations of Applied Information Technology. 3 credits.
Introduces students to foundational scholarship in applied information technology. Reviews seminal readings and applications of information technology. Students learn about the interdisciplinary history of the field, are introduced to influential scholars and important topics, and get an overview of key theoretical paradigms in applied information technology. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: Admission to a graduate program in Applied IT.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 602: Introduction to Research in Applied Information Technology. 3 credits.
Introduces students to research methods required to conduct original research in applied information technology. Reviews different research approaches and methods, discusses issues of data collection, validity reliability, data analysis, and interpretation. Throughout, seminal research papers will be used as case studies and students will also learn to read and understand research. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: Admission to a graduate program in Applied IT.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 603: Research Practice. 3 credits.
Complementing AIT 602's treatment on the nature of AIT research, this course examines various pragmatic aspects of conducting research, including: research venues, public & private funding sources, grant proposals, publishing, regulation and reporting obligations, operating labs and centers, legal and intellectual property issues, collaboration nationally and internationally. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: AIT 602 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 614: Big Data Essentials. 3 credits.
Hands-on course discusses emerging technologies for big data analytics and their applications in real-world environments. Students apply learned concepts and best practices using several emerging technology
tools simulating development, implementation, and use of big data analytical systems. Topics include RDBMS, SQL, NoSQL, R, MapReduce Programming paradigm, Hadoop, HDFS, HIVE, PIG and others in the Hadoop ecosystem for unstructured data analytics. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Academic or industry experience with database systems.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 624: Knowledge Mining from Big-Data.** 3 credits.
Introduction to methods and tools related to knowledge mining/representation/visualization, and annotation and retrieval for Big-Data Applications from an applied perspective with the focus on emerging research problems. This course combines survey lectures with in-depth presentation of relevant issues through seminars, and hands-on experience using existing technologies and public data sources. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** AIT 582B-.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 631: Advanced Decision Making in IT Ventures.** 3 credits.
The course provides students with an understanding of decision making processes and methodologies needed to successfully run IT companies. Topics include: assessment of IT ideas and investments; measuring IT investments performance; forecasting methods; multi-criteria information technology decision making methods; decision support systems; value analysis and benefit/risk methodologies. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** IT 496 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 650: Distributed Systems and Overlay Networking.** 3 credits.
This graduate level seminar examines advanced networking research topics and potential applications, including distributed systems, peer-to-peer and overlay net workings, routing, protocols, replication strategies, tree formation, resource sharing, fault tolerance, and network modeling. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Thorough understanding of computer networking, IP and TCP protocols, congestion control, queuing, and addressing and routing mechanisms.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**AIT 660: Cyber Security Fundamentals.** 3 credits.
Introduces fundamental security principles and real-world applications of cyber security. Topics covered in the course include access control, common classes of attacks, monitoring, attack and intrusion detection, basic cryptography, computer security models, legal and privacy issues, and risk analysis. The course also provides students with opportunities
to gain hands-on experience with several security tools (e.g., protocol analyzers). Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 664: Information: Representation, Processing and Visualization.** 3 credits.
The course explores basic concepts to understand and analyze the design of information systems, and focuses on conceptual understanding of data, information, and knowledge, boundaries in representing and processing information for humans and machines, information theory, and basic techniques to organize, structure, and interact with the information through visualization. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** AIT 524 or permission of department.

**Schedule Type:** Lecture

**AIT 665: Managing Information Technology Programs in the Federal Sector.** 3 credits.
This case study-grounded seminar introduces student team members to the unique complexities of the Federal Sector, including Congressional and Executive Branch oversight, reporting, justifying and sustaining annually very large IT programs. Notes: Course cannot be used to satisfy course requirements for PhD IT students. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

**AIT 670: Cloud Computing Security.** 3 credits.
Offers a survey of security and privacy issues in Cloud Computing systems, along with an overview of current solutions and available technologies. Examines cloud computing models and threat model and security issues related to data and computation outsourcing, and explores practical applications of secure Cloud Computing. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** AIT 542.

**Registration Restrictions:**
Required Prerequisite: AIT 660B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 671: Information System Infrastructure Lifecycle Management.** 3 credits.
Examines information system infrastructure lifecycle management including the audit process, IT governance and best practices, system and infrastructure control, IT service delivery and support, protection of information assets, physical security, business and disaster recovery. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Registration in MS, Applied IT program or permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 672: Identity and Access Management.** 3 credits.
Provides a hands-on in-depth description of the principles, concepts, and technology of Identity Management. Topics include digital identity, credentials, authentication, authentication protocols, trust frameworks, cryptography and digital signatures, identity tokens (smart cards), and smart card-based identity verification and authorization applications. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Admission into MS AIT program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 673: Cyber Incident Handling and Response. 3 credits.
Examines Computer Emergency Response Team (CERT), including Incident Response, Vulnerability Assessment, Incident Analysis, Malcode Analysis, Forensics and Investigations. Includes exercises in CERT operations and a final Incident Handling project. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: AIT 670 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 674: Research, Development and Technology in the Intelligence Community. 3 credits.
Provides overview of research, development and engineering components of agencies within U.S. Intelligence Community, how they prioritize research and deliver products used in collection, processing, and dissemination of information. Examines different types of technical intelligence and related phenomenologies employed in their collection. Highlights evolution of technologies used in gathering and discusses new and emerging trends in intelligence collection and analysis. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 675: Overview of the National Intelligence Community. 3 credits.
Introduces structure and basic operations of the U.S. national intelligence community (IC). Students learn general information about organization, structure and missions of the IC and about the tools and techniques employed by intelligence agencies of the U.S. and other intelligence services. Surveys the range of intelligence problems and challenges, types of data and data collectors employed, and how information is processed, analyzed, and disseminated. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: Admission into the MS-AIT degree program or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 676: Intelligence Technologies, Research and Development in the Intelligence Community. 3 credits.
Overview of R & D and engineering components of agencies within U.S. Intelligence. Describes: process by which these agencies prioritize research and deliver products to collect, process and disseminate information; types of technical intelligence and the related phenomenologies employed in their collection; evolution of technologies used in gathering, and; discusses new and emerging trends in intelligence collection and analysis. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: Admission into the MS-AIT degree program or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

AIT 677: Intelligence Analysis Methods. 3 credits.
Presents various intelligence analysis methods addressing basic topics: substance-blind analysis of evidence and its credentials, chain of custody analysis, combination of evidence, divide and conquer paradigm for analysis, sources of uncertainty, competing hypotheses and analyses. Discusses case studies in various domains following a hands-on approach using educational analysis tools. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Recommended Prerequisite: AIT 524.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 678: National Security Challenges.** 3 credits. Presents the process by which decision makers identify and prioritize intelligence problems and allocate collection and analysis resources to their solutions. Discusses nation-state issues such as Russia, China, and Iran, and transnational issues such as terrorism, weapons proliferation, narcotics and smuggling, and cyber conflict and the intelligence shortcomings and needs in regard to these problems. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Admission into the MS-AIT degree program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 679: Law and Ethics of Big Data.** 3 credits. Examines Law, Ethics and Policy in Big Data operations. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MS, AIT program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture


**Recommended Prerequisite:** Registered students in Homeland Security Information Systems and Cyber MS or permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 681: Secure Software Development.** 3 credits. Provides secure software development approaches for putting software security principles into practice and addressing software-induced security risk by studying software fundamentals and software security best practices. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** AIT 542B. B: Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 682: Network and Systems Security.** 3 credits. Introduces the principles and practices of cryptography, network security, and secure software by covering security policies, models, and mechanisms for secrecy, integrity, and availability; basic cryptography and its applications; secret key cryptography; hash functions; basic number theory and public key cryptography; trusted intermediaries, and network security (firewalls, IDS, IPsec, and SSL) etc. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** AIT 660.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 685: Capstone Seminar.** 3 credits. Student team-based experience grounded on solid understanding of the proceeding nine courses mastered in each of the program’s three areas of study. Teams analyze cases of mega-system programs from the 20th Century. Notes: Course cannot be used to satisfy course requirements for PhD IT students. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.
**Recommended Prerequisite:** Completion of all core courses and at least nine credits of concentration courses in the program, or permission of department.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students in the MS Applied Info Technology program.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

**AIT 686:** Capstone: Student Design Solution. 3 credits.
Student teams examine several historical or hypothetical cases that demonstrate vulnerabilities to the homeland security of the nation. Task is to choose one case, conduct appropriate outside research, then design and brief detection/prevention/mitigation processes that can protect the nation. Must be among the last two courses attempted in the degree program. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

**AIT 690:** Advanced Topics in Applied Information Technology. 3 credits.
Students participate actively through class dialogues and the crafting of IT solutions to specific problem areas. Notes: Course cannot be used to satisfy course requirements for PhD IT students. Offered by Info Sciences & Technology (p. 1044). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

**AIT 699:** Research Project. 3 credits.
Research project chosen and completed under guidance of graduate faculty member that results in technical report. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Independent Study

**700 Level Courses**

**AIT 701:** Cyber Security: Emerging Threats and Countermeasures. 3 credits.
Covers emerging security threats and current best practices in several applicative domains, ranging from the enterprise to the military. Discusses advanced topics, including advanced persistent threats, security of cyber-physical systems, distributed denial of service attacks, and mobile security. Also presents current trends and open research problems in the cyber security space. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 702:** Incident Handling and Penetration Testing. 3 credits.

Presents students with a principled approach to ethical hacking, and offers an in-depth analysis of the overall process, including aspects related to scanning, testing, ethically attacking, and eventually securing systems and networks. The course covers popular attack tools such as Social Engineering and DDoS, and concludes with a discussion about open challenges and current research in the area. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**

- **Required Prerequisite:** AIT 660\(^\text{B-}\).
  - \(B^-\) Requires minimum grade of \(B^-\).

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 710:** Design of Learning and Educational Technologies. 3 credits.

Examines foundations, theoretical perspectives, underlying learning theories, case studies, and key enabling technologies to provide context for understanding, designing, and researching learning and educational technologies. Considers technologies for diverse areas and users including teachers, instructors, higher education and K-12 learners, and learning among informal communities of interest. Technologies demonstrations are combined with hands-on activities involving participation in multiple learning environments. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** AIT 501 or permission of department.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 711:** Rapid Development of Scalable Applications. 3 credits.

Presents software engineering, programming techniques, security practices, platforms and tools necessary for rapid development of applications. Provides a survey of programming techniques and static code analysis, including security and privacy consideration throughout the application life cycle. Students work in small teams and develop or maintain scalable applications exercising risk based analysis and techniques and practices presented in the course. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**

- **Required Prerequisites:** AIT 512\(^\text{B-}\) and 524\(^\text{B-}\).
  - \(B^-\) Requires minimum grade of \(B^-\).

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 716:** Human Computer Interaction. 3 credits.

Covers the foundations of Human Computer Interaction, including: (1) Basic definitions and motivations of HCI, history, theories, interaction paradigms, design principles and models; (2) User-centered design methods, studies, design approaches for interfaces and interaction, quality factors, evaluation methods and techniques for data analysis; (3) Research frontiers of HCI, accessibility, universal design, and ubiquitous computing (mobile and wearable applications). Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**AIT 721:** Design of IT Artifacts, Applications and Systems. 3 credits.

This course will introduce students to design principles and design thinking in applied information technology. Students will learn different approaches to design IT applications across a range of domains. Students will learn how to approach design of systems for large organizations and also for individuals. Students will learn about the interdisciplinary nature of design and get introduced to influential designers. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** Enrollment in the IST concentration of the PhD in IT program and AIT 501, or permission of department.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 724:** Data Analytics in Social Media. 3 credits.

Introduce the necessary theories and the state-of-the-art techniques in Web mining, network analysis, information retrieval, and predictive modeling to study emerging problems with social media. These problems include information diffusion, recommendations, behavior analysis, and event analytics in social media. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**

- **Required Prerequisite:** AIT 664\(^\text{B-}\).
  - \(B^-\) Requires minimum grade of \(B^-\).

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 734: Advanced Web Analytics Using Semantics.** 3 credits. Covers a range of current practices for metadata extraction, knowledge discovery from big complex data, as well as knowledge representation and reasoning. This course discusses Data Modeling issues in Web Information Systems and Internet of Things (IoT) Web Semantics. Current trends and open problems are also covered in this course. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Recommended Prerequisite:** AIT 582, 624.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**AIT 799: Master's Thesis.** 1-6 credits. Research project chosen and completed under guidance of graduate faculty members that results in a thesis manuscript and a presentation accepted by a committee of three faculty members. Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree for a maximum of 6 credits.

**Recommended Prerequisite:** Open only to students in the MS AIT program with at least 18 credit hours of coursework prior to registration and with advisor approval.

**Registration Restrictions:**
Enrollment limited to students with a major, minor, or concentration in Applied Information Technology.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Thesis

**800 Level Courses**

**AIT 800: Applied Information Technology Colloquium.** 1 credit. Students attend a series of colloquia including talks by distinguished speakers, faculty candidates and Mason faculty. Topic areas include research advances in technology, its application, and policy issues. Notes: Students must attend a minimum of three events per semester to earn one credit in this course. PhD INFT students with a concentration in Information Science and Technology must complete at least two credits of AIT 800. Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of AIT Core and at least 6 credits of AIT Field Requirements in PhD program.

**Schedule Type:** Seminar

**Arabic (ARAB)**

**100 Level Courses**

**ARAB 101: Introduction to the Arabic Language.** 3 credits. Introduction to Arabic language, dialects, countries, and culture. Beginning modern standard and classical Arabic, with emphasis on the written language, script and phonology. Basic grammar covering gender, numbers, cases, prepositions, nominal sentences, and basic conversation and greetings. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ARAB 110.

**Schedule Type:** Lecture

**ARAB 102: Introduction to the Arabic Language.** 3 credits. Introduction to developing reading skills in formal settings. Emphasizes modern standard Arabic in oral communication. Beginning grammar level focuses on verbal sentences, present tenses, questions, and compound nouns. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ARAB 110.

**Recommended Prerequisite:** ARAB 101.

**Schedule Type:** Lecture

**ARAB 110: Elementary Arabic.** 6 credits. Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ARAB 101, ARAB 102.

**Schedule Type:** Lecture

**200 Level Courses**


**Recommended Prerequisite:** ARAB 101, 102.

**Schedule Type:** Lecture


**Recommended Prerequisite:** ARAB 201.

**Schedule Type:** Lecture

**ARAB 210: Intermediate Arabic.** 3 credits. Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Arabic-speaking regions. Offered
by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ARAB 201, ARAB 202.

**Recommended Prerequisite:** ARAB 110 or appropriate placement score.

**Schedule Type:** Lecture

**ARAB 250:** Gateway to Advanced Arabic. 3 credits.
Integration of advanced intermediate-level Arabic reading, writing, listening, and speaking skills and the development of critical thinking and understanding authentic texts from the Arabic world. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Arabic

**Recommended Prerequisite:** ARAB 250.

**Schedule Type:** Lecture

**ARAB 300:** Advanced Arabic. 3 credits.
Introduces new complex syntactical and grammatical structures for critical enhancement of fluency in Modern Standard Arabic. Emphasis is placed on sentence structure and vocabulary enrichment. Students also gain additional exposure to linguistic diglossia, culture, and history. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** ARAB 250.

**Schedule Type:** Lecture

**ARAB 325:** Major Arab Writers/Stories. 3 credits.
Studies works of major Arab writers or collections such as The Arabian Nights. Notes: Knowledge of Arabic helpful but not required. May be repeated when topic is different with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Literature (p. 135)

**Specialized Designation:** Taught in English

**Recommended Prerequisite:** ENGL 101/ENGH 101 or permission of instructor.

**Schedule Type:** Lecture

**ARAB 330:** Reading and Conversation I. 3 credits.
Development of conversational fluency and reading skills in modern standard Arabic through class discussion, reports, and presentations. Includes readings from newspapers, journals, magazines, web sites, literary works, and other sources. Notes: ARAB 330 and 331 must be taken in sequence. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Arabic

**Recommended Prerequisite:** ARAB 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**ARAB 331:** Reading and Conversation II. 3 credits.
Continuation of ARAB 330. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Arabic

**Recommended Prerequisite:** ARAB 250 or equivalent; appropriate placement score; or permission of instructor

**Schedule Type:** Lecture

**ARAB 350:** Media Arabic I (Written Media). 3 credits.
Develops advanced reading skills through work with current written media in Arabic. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Arabic

**Recommended Prerequisite:** ARAB 330 and 331 or appropriate placement score or permission of instructor.

**Schedule Type:** Lecture

**ARAB 351:** Media Arabic II (Spoken Media). 3 credits.
Develops advanced listening and speaking skills through work with current broadcasts in Arabic TV and Radio. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Capstone (p. 135)

**Specialized Designation:** Taught in Arabic

**Recommended Prerequisite:** ARAB 350 or permission of instructor.

**Schedule Type:** Lecture

**ARAB 360:** Topics in Arabic Cultural Production. 3 credits.
Focuses on major trends and issues in modern Arabic cultural production. In addition to material from the Middle East and North Africa, the course surveys works of art, cinema, media, and literature from across the global Arabic diaspora. Notes: Some knowledge of Arabic is preferable. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Taught in English, Non-Western Culture

**Schedule Type:** Lecture

**ARAB 375:** Study Abroad - Arab World. 1-6 credits.
Designated study abroad programs in the Arab world. Notes: must be approved by Arabic program coordinator. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** ARAB 110.

**Schedule Type:** Independent Study

**ARAB 380:** Arabic Dialects. 3 credits.
Study of the structure of one Arabic dialect with comparison to Modern Standard Arabic and the classical Fus-ha. Includes study of literature, proverbs, and culture associated with that dialect. Notes: May be repeated when dialect covered is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

**Specialized Designation:** Taught in Arabic

**Recommended Prerequisite:** ARAB 250, appropriate placement score, or permission of instructor.
ARAB 390: Translation Methods: Arabic to English. 3 credits.
Provides students with essential tools and techniques to translate Arabic
texts to English. Includes practice applying these techniques to a variety
of documents including literary, media, and legal texts. Offered by Modern
& Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Arabic

Recommended Prerequisite: ARAB 330 and 331 or appropriate placement
score or permission of instructor.

Schedule Type: Lecture

400 Level Courses

ARAB 420: Survey of Arabic Literature. 3 credits.
A survey of Arabic literature from its genesis to the present day. Offered
by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Arabic, Non-Western Culture

Recommended Prerequisite: Six credits of 300 level courses taught in
Arabic or permission of instructor.

Schedule Type: Lecture

ARAB 430: Advanced Arabic Grammar. 3 credits.
Introduction to traditional Arabic grammar. Covers parts of speech,
sentence structure, case marking, and verb structure. Combines
traditional with modern approaches to Arabic grammar and includes
practical drills. Offered by Modern & Classical Languages (p. 414). May not
be repeated for credit.

Specialized Designation: Taught in Arabic

Recommended Prerequisite: 6 credits of 300 level Arabic or permission
of instructor.

Schedule Type: Lecture

ARAB 440: Topics in Arabic Religious Thought and Texts. 3 credits.
Survey of the religious and intellectual heritage of the Arab world. Notes:
May be repeated when topic and texts are different. Offered by Modern
& Classical Languages (p. 414). May be repeated within the degree for a
maximum 9 credits.

Mason Core: Capstone (p. 135)

Specialized Designation: Taught in Arabic, Non-Western Culture

Recommended Prerequisite: Six credits of 300 level Arabic or permission
of instructor.

Schedule Type: Lecture

ARAB 498: Independent Study. 1-6 credits.
Designated independent study in the United States or abroad under the
direction of a full-time faculty member. Notes: Must be approved by
Arabic program coordinator. Offered by Modern & Classical Languages
(p. 414). May not be repeated for credit.

Recommended Prerequisite: ARAB 250.

Schedule Type: Independent Study

Art History (ARTH)

100 Level Courses

ARTH 101: Introduction to the Visual Arts. 3 credits.
Introduction to the content and principles of the visual arts. Approach
varies with instructor. Offered by History & Art History (p. 381). May not
be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

ARTH 102: Symbols and Stories in Art. 3 credits.
Introduces themes and imagery in art. Approaches and traditions to
explore vary with the instructor. Offered by History & Art History (p. 381).
May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

ARTH 103: Introduction to Architecture. 3 credits.
Introduces study, principle, and understanding of art of architecture.
Approach varies with instructor; may be historical, geographical,
technical, or thematic. Notes: Field trips required. Offered by History & Art
History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

200 Level Courses

ARTH 200: History of Western Art I. 3 credits.
Major periods, monuments, and themes of Western art and architecture.
Introduces Washington, D.C., museum collections and a historical
framework for further study in art history. Covers prehistory, the ancient
world, and the Middle Ages. Notes: Designed as a two-course sequence,
but each part may be taken independently without prerequisite. Offered
by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

ARTH 201: History of Western Art II. 3 credits.
Major periods, monuments, and themes of Western art and architecture.
Introduces Washington, D.C., museum collections and a historical
framework for further study in art history. Covers the art of the
Renaissance, the baroque period, and modern Europe and the Americas.
Notes: Designed as a two-course sequence, but each part may be taken
independently without prerequisite. Offered by History & Art History
(p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

ARTH 203: Survey of Asian Art. 3 credits.
Introduces the arts of South, Southeast, and East Asia. Examines aspects
of the culture and history of Asia. Discusses monuments and artifacts
in a variety of media and their relation to social and historical contexts.
Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)
Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ARTH 204: Survey of Latin American Art. 3 credits.
Introduces arts of Latin America from pre-Columbian to modern era. Discusses important examples of painting, sculpture, and architecture in relation to culture and history of region. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ARTH 206: Survey of African Art. 3 credits.
Introduces arts of Africa, from antiquity to the present day. Presents a variety of arts in relation to their historical and cultural contexts, and makes use of local museum resources. Offered by History & Art History (p. 381). May not be repeated for credit. Equivalent to ARTH 380.

Mason Core: Arts (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

300 Level Courses

ARTH 303: National Traditions. 1-3 credits.
Studies traditions of art and architecture within a single selected country or historical region. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: 24 hours or permission of instructor.

Schedule Type: Lecture

ARTH 311: Design of Cities. 3 credits.
Explores problems in urban design in a particular geographical region or historical period. Approach varies with instructor and may involve archaeological or theoretical approaches appropriate to the specific context. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 315: Modern Architecture. 3 credits.
Studies in modern architecture from the Beaux Arts movement to the present; an investigation of stylistic, structural, or theoretical innovations. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 24 credits.

Schedule Type: Lecture

ARTH 318: Art and Archaeology of Ancient Egypt. 3 credits.
Explores the art, architecture, and archaeology of ancient Egypt in its cultural and historic context. Besides the famous monuments, students will also examine the influence of ancient attitudes about cultural identity on the art of the period as well as the impact of ancient Egyptian art on ancient Greece and modern western culture. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Recommended Prerequisite: 24 credits (sophomore standing)

Schedule Type: Lecture

ARTH 319: Art and Archaeology of the Ancient Near East. 3 credits.
Aspects of the art, archaeology, and culture of ancient Near East and Bronze Age Mediterranean. Approach varies depending on instructor; emphasis may be on Mesopotamia, Iran, Egypt, Anatolia, the Levant, or the Aegean. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite:

Schedule Type: Lecture

ARTH 320: Art of the Islamic World. 3 credits.
Introduction to Islamic art, from the time of Muhammad to present. Cultural and regional approach, utilizing local museum collections. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite: Completion of 24 hours.

Schedule Type: Lecture

ARTH 321: Greek Art and Archaeology. 3 credits.
History of ancient Greek architecture, sculpture, and painting. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 322: Roman Art and Archaeology. 3 credits.
History of Roman architecture, sculpture, and painting. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 24 hours.

Schedule Type: Lecture

ARTH 324: From Alexander the Great to Cleopatra: The Hellenistic World. 3 credits.
Arts of the Hellenistic age within the context of history and culture of the period. Explores the powerful dynasties ruling wealthy empires; achievements in learning and literature housed in the Great Library at Alexandria; baroque sculpture adorning the Altar of Zeus at Pergamon; and Roman collectors of Greek art and antiques. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)
Recommended Prerequisite: Completion of 24 hours.

Schedule Type: Lecture

ARTH 333: Early Christian and Byzantine Art. 3 credits.
Aspects of medieval art and culture in eastern Mediterranean world. Topics may include late antiquity, early Christianity, and the Byzantine empire and its neighbors. Designed to take advantage of unique local museum resources. Notes: Specific focus varies with instructor. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisites: Completion of 24 hours.

Schedule Type: Lecture

ARTH 334: Western Medieval Art. 3 credits.
Aspects of art and architecture in medieval Europe, from the fall of the Roman Empire through the Gothic period. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 335: Arts of Medieval England. 3 credits.
Studies in architecture, sculpture, and painting in the age of Giotto, Ghiberti, Masaccio, and Botticelli. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 336: Early Renaissance Art in Italy, 1300-1500. 3 credits.
Studied in architecture, sculpture, and painting in the age of Leonardo, Michelangelo, Raphael, and Titian. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 337: Northern Renaissance Art. 3 credits.
Studied in architecture, sculpture, and painting in the age of Caravaggio, Bernini, Velazquez, and Poussin. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 338: High Renaissance Art in Italy, 1480-1570. 3 credits.
Studied in architecture, sculpture, and painting in the age of Caravaggio, Bernini, Velazquez, and Poussin. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)
Schedule Type: Lecture

ARTH 370: Arts of the United States. 3 credits.
Introduces students to high art (painting and sculpture) and popular material and visual cultural forms (prints, furniture, textiles) through a chronological and thematic survey of U.S. Art, 1600 to 1950. Explores changing roles of arts, artists, craftsmen; issues of gender, race, class; and formation of national identity through the arts. Lectures and discussion are featured. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: 24 hours of undergraduate credit.

Schedule Type: Lecture

ARTH 371: American Architecture and Material Culture. 3 credits.
Studies in the history of American architecture or decorative arts in cultural context. Topics range from 17th century to 20th century, depending on instructor. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Completion of 24 hours.

Schedule Type: Studio

ARTH 372: Studies in 18th- and 19th-Century Art of the United States. 3 credits.
Developments in visual culture and the changing status of art practitioners throughout these periods. Focus is either chronological (Colonial Period, Gilded Age) or thematic (19th-century genre scenes, the American landscape and national identity). Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Recommended Prerequisite: 24 hours.

Schedule Type: Lecture

ARTH 373: Studies in 20th-Century Art of the United States. 3 credits.
Developments in 20th-century American visual culture across all media. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 374: Art Now. 3 credits.
Explores visual art production since 1980, drawing on regional resources. Examines social, institutional, and political issues in recent art and its markets. Notes: Requires students to work collaboratively and make several field trips, including one Saturday bus trip to New York. Specific topics and assignments vary with the changing art season and instructor. Lecture, discussion. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Completion of 24 credits and one course in ARTH or AVT, or permission of instructor.

Schedule Type: Lecture

ARTH 376: Twentieth-Century Latin American Art. 3 credits.
Major movements and important artists in 20th-century Latin American art discussed in relation to social, cultural, and political conditions in the region. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: 24 credits.

Schedule Type: Lecture

ARTH 382: Arts of India. 3 credits.
History, culture, and arts of south Asia from earliest civilizations along the Indus River to onset of Western colonialism. Emphasizes role of material evidence in the creation of the South Asian history and how political, social, and religious developments affected the arts. Discusses monuments and artifacts in a variety of media in relation to historical contexts. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite: 24 credits.

Schedule Type: Lecture

ARTH 383: Arts of Southeast Asia. 3 credits.
Examines various cultural and artistic traditions of ancient Southeast Asia, from the earliest archaeological evidence to onset of colonialism. Lectures and discussions focus on material culture of the great civilizations that arose within borders of modern Thailand, Cambodia, Indonesia, Burma (Myanmar), Vietnam, Laos, and Malaysia. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite: Completion of 24 credits.

Schedule Type: Lecture

ARTH 384: Arts of China. 3 credits.
Explores the complex and dynamic history of China by examining ways in which social, religious, and political shifts have given rise to new and variant forms of material culture. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

ARTH 385: Arts of Japan. 3 credits.
Art and architecture of Japan, with particular attention to the ways political changes, religious movements, and social developments influenced and shaped those creations. Discusses monuments and artifacts in a variety of media in relation to social and historical contexts. Offered by History & Art History (p. 381). May not be repeated for credit.
Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite: 24 credits.

Schedule Type: Lecture

**ARTH 386:** The Silk Road. 3 credits.
Explores luxury arts and material culture of Eurasian trade routes between Mediterranean and China in historical, religious, and social contexts. Emphasizes cultural interactions in medieval Central Asia. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite: 24 credits.

Schedule Type: Lecture

**ARTH 393:** Art History Internships. 3-6 credits.
Internship with a professional arts institution, organization, or individual in the Washington, D.C., area. Project to be arranged by student in consultation with faculty instructor and field supervisor. Notes: Strongly recommended for advanced art history students seeking exposure to professional work in visual arts. May be taken for 3 to 6 credits, or repeated for up to 6 credits. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Art History major or minor and permission of instructor.

Schedule Type: Internship

**ARTH 394:** The Museum. 3 credits.
Examines history, theory, practice, ethics, and current problems of collecting and displaying art and artifacts to the public. Emphasizes issues central to museums in Washington, D.C., or museums in other locations; focus varies with instructor. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Independent Study

**ARTH 398:** Study Abroad in the History of Art. 1-6 credits.
Study abroad. Course topics, content, and locations vary. Notes: A maximum of 6 credits may be applied to the major or minor with permission of the program. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 12 credits.

Schedule Type: Independent Study

**ARTH 399:** Special Topics in the History of Art. 3 credits.
Topics vary. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Schedule Type: Lecture

**400 Level Courses**

**ARTH 400:** Historiography and Methods of Research in Art History (Topic Varies). 3 credits.
Historical investigation of theories, methods, and critiques involved in the discipline of art history. Approach or focus may vary with instructor. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: History at the 300 level or permission of instructor.

Schedule Type: Seminar

**ARTH 420:** Advanced Studies in Ancient Art. 3 credits.
Studies a particular area of ancient art of the Mediterranean, Near East, or Middle East. Topics may be art form or medium, geographical area, theme, function, or context. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302 and 6 credits in Art History at the 300 level or permission of instructor.

Schedule Type: Seminar

**ARTH 430:** Advanced Studies in Medieval or Islamic Art. 3 credits.
Studies a particular area of medieval or Islamic art. May focus on a particular period, region, or medium, or may explore cultural interconnections within medieval Eurasian world. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 12 credits.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302 and a 300-level course in medieval or Islamic art, or permission of instructor.

Schedule Type: Seminar

**ARTH 440:** RS: Advanced Studies in Renaissance and Baroque Art. 3 credits.
Studies a particular aspect of Renaissance or baroque art. Topics may be monographic, thematic, or concentrated on the art of a smaller time period or a particular area. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Specialized Designation: Research/Scholarship Intensive, Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302 and a 300-level course in medieval or Islamic art, or permission of instructor.

Schedule Type: Seminar

**ARTH 460:** RS: Advanced Studies in 20th-Century European Art. 3 credits.
Study of a particular topic in 20th century European art. Course may focus on a specific period, region, movement, medium, or theoretical issue, or explore cultural connections and transfer between regions. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 9 credits.
Specialized Designation: Research/Scholarship Intensive, Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302 and 3XX level course in 19th or 20th century European or American art, or permission of instructor.

Schedule Type: Seminar

ARTH 471: Advanced Studies in Art of the United States. 3 credits.
Studies a particular area of American art, focusing on a form, such as landscape or genre painting; theme, such as nationalism, regionalism, or iconography of the family, or movement, such as American modernism. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302 and 6 credits in art history at the 3XX level or permission of instructor.

Schedule Type: Lecture

Study a particular topic in 20th-century Latin American art. Course may focus on a specific period, region, movement, medium, or theoretical issue, or explore cultural connections and transfer between regions. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 9 credits.

Specialized Designation: Research/Scholarship Intensive, Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302 and a 3XX level course in 19th or 20th century art of Europe or the Americas, or permission of instructor.

Schedule Type: Seminar

ARTH 474: Advanced Studies in Contemporary Art. 3 credits.
Study of a particular topic in contemporary art in a research seminar setting. Focus on particular theme, region, artist, or medium, or take a comparative approach. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302; 3XX level coursework in modern or contemporary art; or permission of instructor.

Schedule Type: Seminar

ARTH 482: RS: Advanced Studies in Asian Art. 3 credits.
Seminar-style discussions on a specific topic in Asian art. May focus on the art of a particular period, movement, reign, or region, as well as theoretical issues or works in a particular medium. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 6 credits.

Specialized Designation: Research/Scholarship Intensive, Non-Western Culture, Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302, and 3XX-level course in any area of Asian art; or permission of instructor.

Schedule Type: Seminar

ARTH 490: Independent Study in Art History. 3 credits.
Intensive study of a particular artist, period, or theoretical problem to be conducted by an individual student in consultation with instructor. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: 60 credits, ENGH 302, permission of instructor and chair, plus 9 credits in art history beyond ARTH 200, 201. Study proposal submitted prior to registration.

Schedule Type: Independent Study

ARTH 491: Independent Study in Art History. 3 credits.
Intensive study of a particular artist, period, or theoretical problem to be conducted by an individual student in consultation with instructor. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: ENGH 302, permission of instructor and chair, plus 9 credits in art history beyond ARTH 200, 201. Study proposal submitted prior to registration.

Schedule Type: Independent Study

ARTH 492: Honors Directed Readings. 3 credits.
Linked individualized courses, usually given by same instructor. Involves directed readings. Notes: Students must have completed at least one course in the field, or with the professor, chosen for these honors courses. The 3 credits of readings should be taken before the 3 research credits, or they may be taken concurrently. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Admission to Art History Honors Program, ENGL 302, permission of instructor and chair, departmental approval of Honors Proposal submitted term prior to registration.

Schedule Type: Independent Study

ARTH 493: Honors Directed Research. 3 credits.
Linked individualized courses, usually given by same instructor. Culminates in research paper related to subject of readings. Notes: Students must have completed at least one course in the field, or with the professor, chosen for these honors courses. The 3 credits of readings should be taken before the 3 research credits, or they may be taken concurrently. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Admission to Art History Honors Program, ENGL 302, permission of instructor and chair.

Schedule Type: Independent Study

ARTH 495: RS: Objects and Archives in Art History. 3 credits.
Conduct hands-on research with objects and primary and secondary sources. Select particular artifacts, works of art, or group of objects and undertake original research, and bring objects from storage to publication to exhibition. Develops skills in material analysis, critical reading, and academic writing. Focuses on VA/DC/MD libraries, archives,
Students in a Non-Degree Undergraduate degree may not enroll.

Specialized Designation: Research/Scholarship Intensive, Writing Intensive in the Major

Recommended Prerequisite: 6 credits of 300-level courses in the College of Humanities and Social Sciences and ENGH 302.

Schedule Type: Seminar

ARTH 499: Advanced Studies in Art History. 3 credits.
Seminar-style discussion on specific subjects in art history. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: ENGL 302/ENGH 302 and 3XX level course in Art History; or permission of instructor.

Schedule Type: Seminar

500 Level Courses

ARTH 570: Proseminar in History of Decorative Arts. 3 credits.
A writing-intensive course designed to equip students with the skills required for professional scholarship in the history of decorative arts. Examines a variety of theories and methods for analyzing objects. Teaches visual and contextual analysis skills as well as critical thinking about and documentation of primary and secondary sources. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ARTH 571: Survey of Decorative Arts I. 3 credits.
Overview of European decorative arts from fifteenth to eighteenth centuries, with focus on objects from Italy, France, and England. Examines the role of decorative arts in the formation of identity of the elite in Renaissance Italy as well as Renaissance France and England. Also concentrates on European decorative arts from seventeenth and eighteenth centuries, with emphasis on Paris and London. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ARTH 572: Survey of Decorative Arts II. 3 credits.
This writing-intensive course is designed to equip students with the skills required for professional scholarship in the history of decorative arts. Students will examine a variety of theories and methods for analyzing objects through assigned readings, class discussions, and short writing assignments. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

ARTH 593: Internship in Art History and the Decorative Arts. 3-6 credits.
Internship with a professional arts institution, organization, or individual in the Washington, D.C., area. Project to be arranged by student in consultation with faculty instructor and field supervisor. Notes: Recommended for advanced art history students seeking exposure to professional work in visual arts. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: BA or equivalent or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

ARTH 594: The Museum. 3 credits.
Examines history, theory, practice, ethics, and current problems of collecting and displaying art and artifacts to the public. Emphasizes issues central to museums in Washington, D.C., or museums in other locations. Focus may vary with instructor. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Baccalaureate degree or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
ARTH 596: Independent Study. 1-3 credits.
Independent reading and research on specific project under direction of department member. Notes: Written report is required. May be repeated for credit. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** Baccalaureate degree or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

ARTH 599: Special Topics in Art History and the Decorative Arts. 1-6 credits.
Topics vary. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

**Recommended Prerequisite:** Baccalaureate degree or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**600 Level Courses**

ARTH 600: Methods and Research in Art History. 3 credits.
Investigates theories, methods, and research strategies in discipline of art history. Designed for first-semester students in art history MA program; foundation for further graduate-level work in the program. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Art History MA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

ARTH 601: Colloquium in Art History. 3 credits.
Offers graduate-level survey in academic art history led by an instructor of record, with input from full Art History faculty. Participants review the current field through lectures, focused readings and group discussions with relevant faculty member. Participants may read in more depth in areas of special interest. Provides preparation for MA exams and professional preparation for teaching. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MA Program in Art History.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

ARTH 610: Theory of Decorative Arts. 3 credits.
Covers the analysis of objects and design from a number of different perspectives: cultural studies, art history, Marxism, the Frankfurt School, and feminism among others. Offers different tools and viewpoints for each approach to analyze and understand decorative arts. Offered by History & Art History (p. 381). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

ARTH 620: Topics in Individual Decorative Arts. 3 credits.
Survey of a single decorative art including media and methods of production. Covers connoisseurship issues such as identifying materials and techniques, fakes, forgeries, repairs, reproductions. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 24 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

ARTH 630: Material Culture Studies. 3 credits.
Introduction to traditions that have contributed to the field of material culture study. Examines a broad range of the material world from the past to the present. Surveys the field's historical roots and examines approaches to material culture scholarship. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 24 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ARTH 640: European Decorative Arts.** 3 credits.
Examines one or more European decorative arts from periods from the Renaissance to the early 20th century. Arts may include tapestries, pottery and ceramics, silver, furnishing, jewelry and metalwork, glass as well as distinctive stylistic periods. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 24 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ARTH 650: Global Decorative Arts.** 3 credits.
Examines specific key media, moments, or locations in the global decorative arts beyond the Western tradition. Notes: May be repeated for credit with topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 24 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ARTH 660: Museum Studies.** 3 credits.
Explores the role of museums, through presentations by key museum personnel and discussion of required readings. Administrators, curators, conservators, educators, editors, among others, work with students to expand their knowledge of how museums function. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 24 credits.

Registration Restrictions:

**ARTH 670: Design and Design History.** 3 credits.
Examination of key moments in design history. Through focus on the chosen topic, discusses the nature of design. Covers history of interiors, furniture and architecture, and theories of design and design composition. Notes: May be repeated for credit with topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 24 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**ARTH 696: Independent Directed Readings.** 3 credits.
Designed to prepare students for comprehensive exams by integrating past work and filling gaps in expected knowledge before the exam. Notes: Taken in final semester of art history MA. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Admission to Art History MA program and permission instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

**ARTH 699: Topics in Art History.** 3 credits.
Research seminar on aspects of art history. Topics vary, but course entails extensive critical readings and discussion, development of bibliographies, and advanced-level research papers. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 15 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

### 700 Level Courses

**ARTH 797:** Thesis Writing Workshop. 0 credits.
Offered by History & Art History (p. 381). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in History of Decorative Arts.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**ARTH 799:** Master's Thesis. 1-3 credits.
Research and writing on approved thesis topic under direction of thesis committee. Notes: Students must register for a minimum of three credits in their first semester of 799 and maintain continuous enrollment in 799 while writing and submitting a thesis. A maximum of 3 credits of 799 may be applied to the MA in art history and a maximum of 6 credits to the MA in the history of decorative arts. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 24 credits.

**Recommended Prerequisite:** Completion of 24 credits (for art history) or 45 credits (for history of decorative arts) and approval of thesis proposal by the faculty and program director.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

### Art and Visual Technology (AVT)

#### 100 Level Courses

**AVT 101:** New Majors Colloquium. 1 credit.
Provides a common core experience of contemporary perspectives on the broad range of professional career options open to studio art majors. Lectures address practical concerns but emphasize social, ethical, and philosophical aspects of visual arts professions. Notes: Students who enrolled at Mason in Fall 2007 or later must take AVT 101 during or before their first semester as an AVT major. Required of all AVT majors. May be taken prior to declaring the major or during the first semester as a declared AVT major. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Lecture

**AVT 103:** Introduction to the Artist's Studio. 3 credits.
Through projects, readings, class critiques, visuals, and field trips, students explore materials, techniques, concepts, and processes essential to understanding the language of visual arts and the artist's role. Develops imaginative thinking and sensitivity to visual environment. Note: for non-majors only. Offered by School of Art (p. 784). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Registration Restrictions:**
Students cannot enroll who have a major in Art and Visual Technology.

**Schedule Type:** Lecture

**AVT 104:** Two-Dimensional Design and Color. 4 credits.
Explores elements and principles of two-dimensional design, establishment of visual vocabulary, and critical analysis that supports conceptual development. Studio projects build fundamental knowledge, skills, understanding of precedents, and contemporary practices in visual arts. Offered by School of Art (p. 784). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Schedule Type:** Studio

**AVT 105:** Three-Dimensional Design and Beyond. 4 credits.
Explores elements and principles of three-dimensional design, establishment of visual vocabulary, and critical analysis that supports conceptual development. Studio projects explore form and composition, time-based media, materials, precedents, and contemporary practices in visual arts. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 104, or permission of instructor.

**Schedule Type:** Studio

**AVT 180:** New Media in the Creative Arts. 3 credits.
Introduces computer use for artistic creation and research. Overview of image making and time-based media within the broad context of contemporary art, new media art, and mediated culture. Offered by School of Art (p. 784). May not be repeated for credit.

**Mason Core:** Information Technology: Without Ethics (p. 135)

**Schedule Type:** Studio

#### 200 Level Courses

**AVT 204:** Visual Thinking. 3 credits.
Explores the ways contemporary artists use principles of design and perception to challenge how we see our world physiologically, psychologically, or socially. Examples drawn from film, photography, new media art, and other contemporary artistic media. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Lecture

**AVT 206:** Color. 4 credits.
Color theory and principles of color interaction, including additive, subtractive, and partitive color experience; study of harmony, contrast, focus, space, opacity, transparency, temperature and value in both wet and dry media; and related applications of color technology. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 104, or permission of instructor.

**Schedule Type:** Studio

**AVT 215:** Typography. 4 credits.
Introduction to history and use of type. Reading and projects develop awareness of type as a linguistic and visual communication tool. Introduces typographic design elements, including color, hierarchy,
integration with imagery, structure, and content. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Admission to the Graphic Design Undergraduate Certificate or permission of instructor.

Registration Restrictions:
Required Prerequisite: AVT 104C and 180C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 217: Introduction to Web Design. 4 credits.
An introduction to contemporary web design, in particular to standards, as a successful tool in design communication. Students gain hands-on experience on design issues specific to Web-based presentations, learn web page layout, effective navigation and delve into the design process. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the Graphic Design Undergraduate Certificate or permission of instructor.

Registration Restrictions:
Required Prerequisite: AVT 180C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 222: Drawing I. 4 credits.
Introduction and exploration of the fundamentals of drawing methods and materials, with emphasis on observational study and critical analysis of the effective and expressive use of line, mass, value, perspective, and formal composition. Emphasis on problems involved in representational and abstract visual interpretations of forms. Notes: AVT majors encouraged to take AVT 222 with AVT 104. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Studio

AVT 232: Painting I. 4 credits.
Introduction to the basic methods and principles of painting with a focus on observation, paint application, formal composition, color mixing, and the articulation of form. Students develop a visual awareness as they become familiar with the language of image making, construction, analysis, and awareness. Students prepare portfolios for collaborative and reflective critique. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Studio

AVT 243: Printmaking I. 4 credits.
Introduction to basics of hand printing. Emphasis on translation and transferal of images, tools, equipment, and technical skills for making a well-defined print. Students explore drawing, synthesis, and multiplicity in this interactive and collaborative course. Presentations and field trips focus on aesthetic and cultural concerns of making multiple images. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Studio

AVT 252: Darkroom Photography I. 4 credits.
Introduces photographic study and investigation of the fundamental practices and techniques of both film and digital forms with attention to its history and contemporary practices. Class discussions, field trips and critiques enhance visual and verbal vocabularies. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Studio

AVT 253: Digital Photography I. 4 credits.
Introduction to the digital camera as a tool for electronic photographic image making. Students will be introduced to principles and exploration of the aesthetics of digital photography and also learn basic image-editing skills in a computer environment. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Studio

AVT 254: Photography. 4 credits.
Introduces photographic study and investigation of the fundamental practices and techniques of both film and digital forms with attention to its history and contemporary practices. Class discussions, field trips and critiques enhance visual and verbal vocabularies. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Restricted to AVT majors and AVT minors.

Schedule Type: Studio

AVT 262: Sculpture I. 4 credits.
Projects in sculpture that emphasizes contemporary theory and issues, the development of individual concepts, and creative solutions. Explores the application of materials, tools, and imaginative processes. Faculty demonstrations, lectures, gallery and museum visits, and regular student work critiques. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Studio

AVT 272: Interdisciplinary Arts. 4 credits.
Introduces contemporary interdisciplinary art practice through readings and studio projects in performance and installation. Provides students with opportunities to deepen understanding of conceptual art, nontraditional media practices, and collaborative practice in visual arts. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Studio

AVT 280: Introduction to New Media Arts. 4 credits.
Investigates ways in which contemporary artists employ tools in response to social, political and cultural conditions. Students create meaningful works of art that demonstrate conceptual and contextual awareness plus technical ability. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 104, or permission of instructor.
Schedule Type: Studio

300 Level Courses

AVT 300: Artsbus Attendance. 0 credits.
Students travel to New York or other destinations aboard the AVT Artsbus to attend faculty-selected exhibitions. Notes: AVT majors must satisfactorily complete course once for each semester they are enrolled as majors, up to five times. Repeatable up to three times per semester. Offered by School of Art (p. 784). May not be repeated for credit.

Schedule Type: Laboratory

AVT 301: Visual Voices Colloquium. 1 credit.
Students attend AVT Visual Voices lecture series during the semester and complete assignments related to the topics covered. Notes: AVT majors must accumulate at least 3 credits in this colloquium to graduate. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 8 credits.

Schedule Type: Lecture

AVT 305: Creative Processes. 3 credits.
Study of the creative process in general, with emphasis on the inspiration, working methods, and final creations of various artists. Students explore their own creative processes through journal keeping, collaborative exercises, and projects. Offered by School of Art (p. 784). May not be repeated for credit.

Schedule Type: Lecture

AVT 307: Aesthetics. 3 credits.
Interdisciplinary course examines broad range of contemporary art and culture to engage an expansive conception of aesthetic experience. Students engage with historical and contemporary aesthetic theories, build heightened aesthetic sensibility, and explore their personal aesthetic. Offered by School of Art (p. 784). May not be repeated for credit.

Schedule Type: Lecture

AVT 309: Art as Social Action. 3 credits.
Interdisciplinary exploration of work by citizen-artists whose art-making engages the social world. Students learn about the history of socially engaged art-making and experiment with individual and collaborative projects addressing social issues. Offered by School of Art (p. 784). May not be repeated for credit.

Schedule Type: Lecture

AVT 311: Graphic Design Methods and Principles. 3 credits.
Emphasis on developing design solutions requiring demographic, historical, and/or cultural research. Course strengthens design and typography skills, introduces conceptual problem solving, audience considerations, and broad-based tools designers use to develop effective visual communication solutions. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 215\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Studio

AVT 313: Editorial Design. 3 credits.
Development and production of long-form design projects (magazines, newspapers, catalogs, and other serial and/or multipage publications). Emphasis on narrative, consistency, structure, clarity. Addresses information design issues and reinforces conceptual skills and integration of imagery and text. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: D or higher in AVT 311 or permission of instructor.

Registration Restrictions:
Required Prerequisite: AVT 311\textsuperscript{D}.
\textsuperscript{D} Requires minimum grade of D.

Schedule Type: Studio

AVT 318: History of Graphic Design. 3 credits.
A survey of design history. Looks at print and web design as both a reaction to and shaper of the broader culture (including other fine applied arts) through the study of major movements and designers. Offered by School of Art (p. 784). May not be repeated for credit.

Schedule Type: Lecture

AVT 323: Drawing II. 3 credits.
Students develop observational, sketching, and rendering skills. Introduction to a range of materials, methods, formal concepts, drawing in series, and critique vocabulary. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 222\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Studio

AVT 324: Figure Drawing. 3 credits.
Drawing with an emphasis on the observational study of the human body. Human anatomy and proportion are examined through a series of methodological approaches, including gesture, contour, mass, and modeling. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 222\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Studio

AVT 326: Nontraditional Approaches to Drawing. 3 credits.
Encourages students to challenge some traditional approaches to drawing by creating innovative works that combine familiar drawing techniques with a variety of materials, approaches, and unusual formats. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 222 or permission of instructor.

Schedule Type: Studio

AVT 327: Illustration. 3 credits.
This course is intended to provide an overview of illustration as a visual communication medium. Sharing the tools and techniques of gallery artists and the communicative goals of graphic designers, illustrators work across media to make concepts understandable and powerful in the service of editorial, informational or persuasive goals. Students will
begin to discover individually unique methods of problem solving by developing a personal visual vocabulary and relating it to historical and contemporary trends of art, design and illustration. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 222 or permission of instructor.

**Schedule Type:** Studio

**AVT 328: Mixed Media.** 3 credits.
Students investigate the contemporary innovations and disciplinary cross-pollination which have revolutionized and expanded the boundaries of traditional fine arts. Projects incorporate text, sound, computer generated imagery, collaboration and installation. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**
- **Required Prerequisite:** AVT 104°C.
  - C Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 333: Painting II.** 3 credits.
Focuses on the development of formal and technical skills, with an emphasis on paint application, color interaction, and support building and preparation. Introduces concepts, methodologies, and approaches relevant to contemporary painting. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**
- **Required Prerequisite:** AVT 232°C.
  - C Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 336: Experimental Painting.** 3 credits.
Using contemporary painting practices as starting place, students explore a variety of experimental and conceptual approaches to painting. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 232 or permission of instructor.

**Schedule Type:** Studio

**AVT 337: Figurative Painting.** 3 credits.
Working primarily with live models, students explore the human form as the main subject for a variety of visual and expressive inquiries. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 232, or permission of instructor.

**Schedule Type:** Studio

**AVT 343: Printmaking II.** 3 credits.
An introduction to relief, screenprint, and intaglio printing; including the study of historical antecedents and their relevancy to contemporary printmaking. Students learn reductive and additive techniques in preparing printing surfaces. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**
- **Required Prerequisite:** AVT 243°C.
  - C Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 345: Paper/Print/Book as Language.** 3 credits.
Introduces the artist's book as both physical structure and creative association of words and images. Students learn techniques of bookmaking, binding, and traditional and digital printmaking to produce an artist-made book with narrative and sequential elements. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 180, or permission of instructor.

**Schedule Type:** Studio

**AVT 353: Darkroom Photography II.** 3 credits.
Continuation of Fundamentals of Photography with further investigation into the aesthetics of photography through experimentation with new camera formats, films, papers, developers and development of a photographic portfolio. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**
- **Required Prerequisites:** AVT 252°C or 254°C.
  - C Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 354: Digital Photography II.** 3 credits.
A computer-intensive class in which students create digital images from the viewpoint of a photographic artist. Emphasis on digital photo techniques, including making digital negatives, concept development, and visual aesthetics. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 180, or permission of instructor.

**Registration Restrictions:**
- **Required Prerequisite:** AVT 253°C.
  - C Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 355: Color Photo Methods.** 3 credits.
Introduces basic concepts, theories, histories, contemporary materials, and processes of color photography with focus on creative photographic expression and technique. Combines lecture, studio, and darkroom time to expand students’ photographic repertoire through work with both film and digital materials. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 353 or 356 or permission of the instructor.

**Schedule Type:** Studio

**AVT 356: Photo Studio Techniques.** 3 credits.
Introduces Theory, concepts and applications of photographic studio lighting. Emphasis on the ability to control and manipulate light in
a photographic lighting studio environment using large format film cameras. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 353 or AVT 354, or permission of instructor.

**Schedule Type:** Studio

**AVT 359: Photography Seminar.** 3 credits. A combined studio and lecture course investigating photography’s history, critical theory, philosophy, and practice. Lectures, discussions, readings, and projects focus on a medium that has enormously influenced art and culture. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 353 or permission of the instructor.

**Schedule Type:** Lecture

**AVT 363: Sculpture II.** 3 credits. Expands on the principles and processes introduced in Sculpture I, developing a higher level of technical competence and critical sophistication. Notes: Lectures, independent student research, and gallery and museum visits required. Vigorous critiques. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisite:** AVT 262

**Notes:** Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 370: Entrepreneurship in the Arts.** 3 credits. Combined lecture and studio course in developing entrepreneurial skills in arts. Special focus on developing communication skills and planning strategies, as well as on nurturing skills that enable students to creatively solve problems and think about opportunities. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Lecture

**AVT 371: Visual Perception and the Arts.** 3 credits. Review of major approaches to the study of visual perception. Topics include analysis of picture perception, visual thinking, the relationship between symbolic and non-symbolic thinking and representation, and how pathologies of vision affect art production. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Lecture

**AVT 372: Hip Hop Culture.** 3 credits. Examines hip hop as an art form within a continuum of cultural expression. Explores multilayered social, political, and aesthetic aspects of hip hop, historical causes and precedents, and contemporary derivatives and implications. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Lecture

**AVT 373: Performance Studio.** 3 credits. Studio course focused on theory and practice of collaborative performance art. Detailed analysis of creation and production processes from interdisciplinary perspective in conjunction with practical training in multimedia technologies, body sculpture, and theater of images. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 272, or permission of instructor.

**Schedule Type:** Studio

**AVT 374: Sound Art I.** 3 credits. Introduction to the physics, phenomenology, and production of sound as an expressive medium. Using analog and digital tools, students will explore constructing with sound. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 180, or 280, or permission of instructor.

**Schedule Type:** Studio

**AVT 376: Cybersound.** 3 credits. Explores and develops strategies for using computer software for sound design, synthesis, editing, and live performance. Required of students in Cyberpunk and Cyberculture. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Lecture

**AVT 377: Thinking Through Animation.** 3 credits. Introduces conceptual, contextual, technical, and aesthetic practices of two-dimensional experimental animation. Students learn to animate hand-drawn and computer-generated images. Students work to create an imaginative and meaningful short animation with sound. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Lecture

**AVT 380: Live Movies.** 3 credits. Advanced performance studio emphasizing cinematic forms and multimedia technologies. Also covers sound design, scenic design and materials, production planning, and interdisciplinary approaches to narrative and content in performance. Notes: Students collaborate on production projects. Offered by School of Art (p. 784). May not be repeated for credit.

**Schedule Type:** Studio

**AVT 382: 2D Experimental Animation.** 3 credits. Introduces conceptual, contextual, technical, and aesthetic practices of two-dimensional experimental animation. Students learn to animate hand-drawn and computer-generated images. Students work to create an imaginative and meaningful short animation with sound. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 280, or permission of instructor.

**Schedule Type:** Studio
AVT 383: 3D Experimental Animation. 3 credits.
Students create socially relevant 3D scenes with scaled objects, surface textures, lights, and shadows. These scenes serve as environments for short, thought-provoking animations. Emphasis on idea development, critical examination of animation practices, and visual aesthetics. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 280 or permission of instructor.

Schedule Type: Studio

AVT 385: EcoArt. 3 credits.
Develop collaborative projects that explore art and visual culture, the environment, and sustainability. Students are given access to the School of Art Permaculture Studio as a "green" work space for developing course projects. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 8 credits.

Mason Core: Arts, Encore:Sustainability, Synthesis, Encore:Well-Being (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Studio

AVT 390: Video Art. 3 credits.
Integrates study of contemporary art theory, montage theory, and artistic practices with application to new media and technology. Special focus on visual culture and video art, sound design, and the sociopolitical implications of media. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 280 or permission of instructor.

Schedule Type: Studio

AVT 392: Gallery Practices. 3 credits.
Introduction to practices of the contemporary art gallery including curatorship, exhibition planning and installation, care and proper handling of artwork, technology in the gallery, collaborating with outside curators, documentation, budget, publicity, and educational and docent activities. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: 3 credits of AVT or ARTH, or junior standing, or Permission of Instructor.

Schedule Type: Studio

AVT 393: Field Experience in the Arts. 1-6 credits.
Introductory working and learning experience with an organization or individual in the arts or as a teaching assistant. Students must complete 45 hours of work at the internship site for each credit. Note: Departmental permission required to register. Notes: Placement documentation to include 45 hours of work per credit. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Junior standing and permission of instructor and academic advisor.

Schedule Type: Internship

AVT 394: Honors Seminar. 1 credit.
Offers highly motivated students opportunities to interact with art world professionals through field trips, research, critiques, and creative assignments. Notes: Students accrue credits toward graduation with AVT honors. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 8 credits.

Recommended Prerequisite: Open only to qualified AVT honors students by invitation.

Schedule Type: Seminar

AVT 395: Writing for Artists. 3 credits.
Practical writing seminar in which students practice typical writing needs of creative professionals; including artist's statements, grant proposals, and reviews; while also exploring ways in which artists have used writing, books, and language in art making. Offered by School of Art (p. 784). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: ENGH 302\(^C\) or ENGL 302\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

400 Level Courses

AVT 407: Advanced Aesthetics. 3 credits.
Advanced examination of aesthetic concepts and theories, focusing on issues pertinent to artmaking. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 307\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Seminar

AVT 410: Experiential Design History. 3 credits.
This hybrid lecture/studio course provides a historical perspective of the evolution of graphic design and examines graphic design's contribution to culture through writing and design projects. The course will have both lecture and studio content, providing 'hands-on' experiential opportunities in traditional graphic techniques. Offered by School of Art (p. 784). May not be repeated for credit. Equivalent to AVT 418.

Schedule Type: Lecture

AVT 411: Motion Design. 3 credits.
Motion Design introduces the theories, techniques and practices of motion design and the integration of design, image, sound, video and animation. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: AVT 217\(^C\) and 311\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Seminar

AVT 412: Advanced Typography. 3 credits.
An advanced exploration of type, design and the graphic organization of visual information. Emphasis is on the aesthetic and technical execution of type, design and the graphic organization of visual information. Emphasis is on the aesthetic and technical execution
of typographic hierarchy in visual communications. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisite: AVT 313\(^\text{C}\).  
\(^\text{C}\) Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 413: Professional Design Practices.** 3 credits.  
Addresses the nature of the professional graphic designer in terms of career development and self-marketing, visual presentations of design work, preparation of written materials and interview techniques. Special emphasis will be given to the development of a design business, as well as freelance and pro-bono design work. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisites: AVT 313\(^\text{C}\) and 414\(^\text{C}\).  
\(^\text{C}\) Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 414: Corporate Design and Branding.** 3 credits.  
Fundamentals of branding and identity design. Topics include logo development, product packaging, marketing and advertising collaterals, web branding, and broadcast advertising development. Special attention is given to the creation of a graphics standards guide. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisites: (AVT 252\(^\text{C}\) or 253\(^\text{C}\)) and (AVT 311\(^\text{C}\) and 395\(^\text{C}\)).  
\(^\text{C}\) Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 415: Web Design and Usability.** 3 credits.  
Introduces students to web design, usability, and the use of popular applications for static, interactive, and motion-based web development. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisites: (AVT 217\(^\text{C}\) and 311\(^\text{C}\)\(^\text{D}\)) and (AVT 313\(^\text{C}\) or 414\(^\text{C}\)).  
\(^\text{C}\) Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 416: Advertising Design.** 3 credits.  
Provides insight and practice in the creative design process behind effective and memorable advertising. Emphasis on the design and presentation of a series of portfolio-ready advertising campaigns for actual client use. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisite: AVT 414\(^\text{C}\).  
\(^\text{C}\) Requires minimum grade of C.

Enrollment limited to students in the BFA Art and Visual Technology program.

**Schedule Type:** Studio

**AVT 417: Package Design.** 3 credits.  
Provides a focused studio experience to conceptualize and design multiple applications for contemporary package design. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisite: AVT 414\(^\text{C}\).  
\(^\text{C}\) Requires minimum grade of C.

Enrollment is limited to students with a concentration in Graphic Design.

**Schedule Type:** Studio

**AVT 419: Topics in Graphic Design.** 1-6 credits.  
Rotating subjects give students a deep look into and appreciation of a specific topic in design practice. Notes: Topics and credit vary with instructor. May be repeated when taken under different topics. Offered by School of Art (p. 784). May be repeated within the term.

**Registration Restrictions:**  
Required Prerequisites: AVT 311\(^\text{C}\) and (AVT 313\(^\text{C}\) or 414\(^\text{C}\)).  
\(^\text{C}\) Requires minimum grade of C.

**Schedule Type:** Lecture

**AVT 420: Advanced Web Design.** 3 credits.  
Building on the principles and skills gained in AVT 415, this course delves deeper into web-related concepts and techniques. Students will gain advanced knowledge in evolving web technology, preparing them for professional entry into the web design field. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisite: AVT 415\(^\text{C}\).  
\(^\text{C}\) Requires minimum grade of C.

Enrollment limited to students in the BFA Art and Visual Technology program.

**Schedule Type:** Studio

**AVT 422: Drawing III.** 3 credits.  
Builds on intermediate drawing skills, emphasizing individual exploration and expressive techniques. Along with rigorous observational study, students work from a variety of sources to develop a broad understanding of visual solutions within contemporary art practice. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisite: AVT 323\(^\text{C}\).  
\(^\text{C}\) Requires minimum grade of C.

**Schedule Type:** Studio

**AVT 423: Drawing IV.** 3 credits.  
Students learn and practice advanced drawing skills and techniques in a variety of media and formats. Emphasis on development of content, personal sources, techniques, presentation strategies, and methods of analysis through critique. Offered by School of Art (p. 784). May not be repeated for credit.
AVT 442: Painting III. 3 credits.
Intermediate course with an emphasis on developing personal content, concepts, painting strategies, and a practical understanding of contemporary ideas in painting. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 432C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 443: Advanced Painting I. 3 credits.
Students produce a body of print media work reflecting their interests, including the broader context of social, cultural, and contemporary issues. Students engage in collaborative studio practices and independent projects to integrate multiple visual technologies. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 432C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 444: Professional Practices. 3 credits.
This course prepares studio art majors for their professional careers. Each student will select a facet of interest to develop assets for a professional portfolio. Emphasis will be placed on developing your professional brand and accompanying materials such as portfolio, websites, CVs etc. with critiques focusing on the individual's process. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Completion of 60 credits, including 12 credits of upper-level studio coursework.

Schedule Type: Lecture

AVT 445: Alternative Photo Processes. 3 credits.
Introduction to 19th century and nontraditional photographic processes including cyanotype, van dyke, gum bichromate, liquid emulsion, and image transfer. Exploration and discussion of photography's influences, application, and use in other mediums. Offered by School of Art (p. 784). May not be repeated for credit.

Schedule Type: Studio
AVT 455: Digital Printing Techniques. 3 credits. Continuation of 354 Digital Photo Methods with further examination into digital techniques, personal expression and digital printing. Course emphasis is on the fine art and craft of the digital print and portfolio development. Notes: Continuation of AVT 354 Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 354, or permission of instructor.

Schedule Type: Studio

AVT 457: Documentary Photography. 3 credits. Introduces documentary photography: techniques, history, choices, and ideas necessary to create meaningful photo essays that incorporate a personal, committed, in-depth approach to seeing and depicting lives and situations. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 353 or permission of instructor.

Schedule Type: Studio

AVT 458: Advanced Studio Lighting. 3 credits. The advanced study of photographic studio lighting concepts using electronic strobes and power packs with emphasis placed on constructing studio materials, metering techniques, staging complex sets, and on-location photography. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 356C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 462: Sculpture III. 3 credits. Advanced studio course for continued individual, conceptual, and critical development in sculpture. Biweekly seminar, independent research, museum and gallery visits, vigorous individual and group critiques, required documentation, and portfolio preparation supporting studio projects. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 363C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 463: Sculpture IV. 3 credits. Intensive studio course for advanced sculpture students to further individual, conceptual, and critical development. Students produce a body of work based on technical exploration, critical discussion, reading, and writing. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 462C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 464: Sculpture V. 3 credits. Advanced studio course for rigorous and independent production of sculpture. Weekly topical seminar, vigorous critiques, museum and gallery visits, professional documentation, and research resulting in a body of work to be exhibited. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 463C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 465: Sculpture VI. 3 credits. Students work rigorously and independently, gaining insights into personal process and direction through one-on-one critical dialogue with faculty and formal group critiques. Emphasizes individual decision making and personal initiative. Notes: Continuation of advanced work in AVT 465. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 464C.
C Requires minimum grade of C.

Schedule Type: Studio

AVT 472: Critical Theory in the Visual Arts. 3 credits. Examination of currents in theory and criticism that inform contemporary practice and critical analysis in the visual arts. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: ARTH 374C.
C Requires minimum grade of C.

Schedule Type: Lecture


Recommended Prerequisite: AVT 373 or Permission of Instructor.

Schedule Type: Studio

AVT 474: Sound Art II. 3 credits. Extends a working knowledge of the materiality of sound into an in-depth exploration of creation in the sonic realm. May include synthesis, circuit-bending, use of field recordings and other samples, and live performance. Offered by School of Art (p. 784). May not be repeated for credit.

Schedule Type: Studio

AVT 482: Advanced Image Making. 3 credits. In-depth look at the processes and mechanisms used to generate, reconstruct, and/or create new media images. Students are required to create a series of contextually related images and to further develop their critical analysis abilities. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 280, or permission of instructor.

Schedule Type: Studio

AVT 483: RS: Art and Interactivity. 3 credits. Provides a context for art making as an interactive and participatory experience while critically examining the ways in which technologies
may aid and also inhibit engagement with the social and political world. Offered by School of Art (p. 784). May not be repeated for credit.

Specialized Designation: Research/Scholarship Intensive

Schedule Type: Studio

AVT 487: Advanced Topics: New Media Art. 3 credits.
Provides a context for exploring current developments in new media art practice in and outside the studio. Specific course content adapts and responds to ongoing movements in new media art and contemporary culture. Offered by School of Art (p. 784). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: AVT 280 plus one 3XX-level New Art Course, or permission of instructor.

Schedule Type: Studio

AVT 489: Internship in Art and Visual Technology. 1-6 credits.
Unpaid professional-level work experience in a professional organization or with an individual artist, related to the student's concentration and career plans. Students must complete 45 hours of work at the internship site for each credit. Note: departmental permission required to register. Notes: Placement documentation to include 45 hours of work per credit. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Senior standing, completion of 12 concentration credits, and permission of instructor.

Schedule Type: Internship

AVT 491: Independent Study in Art and Visual Technology. 1-6 credits.
Opportunity for development of advanced skills and concepts in a field of interest. Study proposal must be approved by instructor prior to registration. Students must complete 45 hours of work at the internship site for each credit. Notes: Project documentation to include 45 hours of work per credit. Offered by School of Art (p. 784). May be repeated within the term for a maximum 24 credits.

Recommended Prerequisite: Senior standing, completion of 12 concentration credits, and permission of instructor.

Schedule Type: Independent Study

AVT 493: Teaching Visual Thinking Through Media, PK-12. 3 credits.
Investigates range and appropriateness of media and materials that encourage creative expression in the art classroom for PK-12 students, and expands the artist-teacher's visual repertoire. Incorporates art history, criticism, and aesthetics, as well as language arts and other content areas that challenge students' artistic growth and human development. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 495C.
C Requires minimum grade of C.

Schedule Type: Lecture

AVT 494: Strategies in Art Room: PK-12. 3 credits.
The study of various media, skills and concepts adapted for PK-12 curriculum. Includes instructor demonstrations, prototypes, practicum, and class presentations. Participants will learn appropriate instructional strategies for implementation. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: AVT 495C.
C Requires minimum grade of C.

Schedule Type: Lecture

AVT 495: Introduction to Art Teaching and Learning. 3 credits.
Explores art-teaching profession through readings, discussion, hands-on activities, and visits to diverse area public schools. Students discover a variety of ways that art is taught and evaluated to meet multiple educational needs of today's PK-12 students. Notes: Prior to enrollment, students must complete art education inquiry form. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Junior standing, and completion of at least 20 credits of AVT coursework with a C or higher; or permission of art education advisor.

Registration Restrictions:
Required Prerequisites: (ENGH 302C and AVT 307C).
C Requires minimum grade of C.

Schedule Type: Seminar

AVT 496: Special Topics. 1-4 credits.
Explores topical studies in AVT including theoretical and critical aspects of art or studio production. Notes: Topics and credit vary with instructor. May be repeated when taken under different topics. Offered by School of Art (p. 784). May be repeated within the degree.

Schedule Type: Studio

AVT 497: Senior Project. 3 credits.
Capstone course in which students develop and present a cohesive body of work along with written materials and documentation. Students participate in critiques with visiting artists or AVT faculty and in workshops supporting professional goals. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Capstone, Synthesis (p. 135)

Recommended Prerequisite: Senior Art and Visual Technology major, completion of 12 concentration credits, and completion or concurrent enrollment in all required Mason Core courses.

Schedule Type: Studio

AVT 498: Senior Design Project. 3 credits.
Capstone course in which students develop and present a design project exploring the possibilities of personal or professional expression. Students participate in critiques with visiting artists or AVT faculty and in workshops supporting professional goals. Offered by School of Art (p. 784). May not be repeated for credit.

Mason Core: Capstone, Synthesis (p. 135)

Recommended Prerequisite: Senior Art and Visual Technology major.

Registration Restrictions:
Required Prerequisites: AVT 311C, 313C and 414C.
C Requires minimum grade of C.

Schedule Type: Studio
500 Level Courses

AVT 507: Advanced Aesthetics. 3 credits.
Graduate seminar in aesthetic concepts and theories, focusing on issues pertinent to artmaking. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MFA program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

AVT 519: Special Topics in Graphic Design. 1-6 credits.
Exploration of topical studies in graphic design, including theoretical and critical aspects of studio production. Offered by School of Art (p. 784). May be repeated within the term for a maximum 13 credits.

**Recommended Prerequisite:** Admission to AVT graduate program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

AVT 522: Drawing V. 4 credits.
Drawing on an advanced level, emphasizing individual decision-making and personal initiative. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the AVT graduate program, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

AVT 523: Drawing VI. 4 credits.
Drawing on an advanced level, emphasizing individual decision-making and personal initiative. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the AVT graduate program, AVT 522, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

AVT 595: Introduction to Art Teaching and Learning. 3 credits.
Explores art-teaching profession through readings, discussion, hands-on activities, visits to diverse area public schools and action research. Students analyze ways that art is taught and evaluated to meet multiple educational needs of today's PK-12 students. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MAT Program or permission of the art education advisor or director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

AVT 596: Independent Study. 1-6 credits.
Independent reading and research on specific project under department faculty member's direction. Notes: Written reports required. Offered by School of Art (p. 784). May be repeated within the term.

**Recommended Prerequisite:** Admission to AVT graduate program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

AVT 599: Special Topics in Art and Visual Technology. 1-6 credits.
Exploration of topical studies in AVT, including theoretical and critical aspects of art or studio production. Notes: Topics and credit vary with instructor. May be repeated when taken under different topics. Offered by School of Art (p. 784). May be repeated within the term.

**Recommended Prerequisite:** Admission to the AVT graduate program, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

### 600 Level Courses

**AVT 600: Research Methodologies.** 3 credits.
Graduate seminar focusing on development of independent research project in student's area of emphasis. Explores principal methods of researching and documenting art and arts practice. Along with traditional methods of library research, emphasizes new processes of examination and investigation through the use of computer-aided research systems. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a major in Art Education, Art and Visual Technology, Graphic Design or Visual and Performing Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**AVT 605: Issues and Research in Art Education.** 3 credits.
Readings and projects explore historical and contemporary ideas, issues, philosophies, pedagogy, and research in art education. Investigates teachers' use of research-oriented questions and data to explore classroom issues and improve teaching and learning. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MAT graduate program and permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a major in Art Education, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**AVT 606: Creativity and Cognition in the Arts and Media.** 3 credits.
Focuses on research on cognition, development, learning, and creativity in the visual arts and media in formal and informal educational settings. Offered by School of Art (p. 784). May not be repeated for credit. Equivalent to EDEP 601.

**Registration Restrictions:**
Enrollment limited to students with a major in Art Education, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**AVT 610: Graduate Seminar.** 2 credits.
Students present their work or the work of contemporary artists for discussion and peer and faculty critiques. Special focus on developing public communication and presentation skills on contemporary issues in the arts. Notes: Seminar course required of all AVT graduate students four times during course of study. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 8 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Art Education, Art and Visual Technology, Graphic Design or Visual and Performing Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**AVT 611: Graduate Design Seminar.** 1 credit.
A laboratory for the exploration of contemporary design theory and practice through writing and design making, this class will have rotating topical content. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Art and Visual Technology, Graphic Design or Visual and Performing Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**AVT 612: Independent Project Research.** 1 credit.
Provides the development and research phase in preparation for AVT 794: Independent Design Project, the capstone course in the Graphic Design masters program. Students will prepare their written final project proposal for presentation to the AVT GD Graduate Faculty Committee. Notes: To be completed prior to enrolling in AVT 794: Independent Design Project. Offered by School of Art (p. 784). May be repeated within the degree.

**Recommended Prerequisite:** completion of 30 graduate credits

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment limited to students in the MA Graphic Design program.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study
AVT 613: Experiential Design History. 3 credits.
This hybrid lecture/studio course provides a historical perspective of the
evolution of graphic design and examines graphic design’s contribution
to culture through writing and design projects. The course will have both
lecture and studio content, providing hands-on experiential opportunities
in traditional graphic techniques. Offered by School of Art (p. 784). May
not be repeated for credit.
Recommended Prerequisite: Admission to the AVT graduate program or
permission of the instructor.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.
Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

AVT 614: Brand Identity Design. 4 credits.
This is an advanced design course with an emphasis on brand identity
development. Topics include logo development, product packaging,
marketing and advertising collaterals, web branding, and broadcast
advertising development. Special attention is given to the creation of a
graphic standards guide. Offered by School of Art (p. 784). May not be
repeated for credit.
Recommended Prerequisite: Admission to the AVT graduate program or
permission of instructor.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.
Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

AVT 615: Technology for Art Teachers. 3 credits.
Addresses use of technology in PK-12 art classroom. Focuses on
research, presentation and instruction, and image creation. Students
develop technology-enhanced teaching units for different grade
debut and explore related issues, including copyright, plagiarism, and
appropriation. Offered by School of Art (p. 784). May not be repeated for
credit.
Recommended Prerequisite: Admission to the Art Education
concentration ASTL and/or permission of art education director.
Registration Restrictions:
Enrollment limited to students with a class of Graduate, Non Degree or
Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.
Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Studio

AVT 616: Advanced Art and Interactivity. 4 credits.
Studio, lecture course investigating art as networked activity. Particular
attention focused on Internet as context for creation, distribution, and
patronage of art. Offered by School of Art (p. 784). May not be repeated
for credit.
Recommended Prerequisite: Admission to AVT graduate program.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.
Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Studio

AVT 617: Advanced Typography. 4 credits.
Students will produce a body of work exploring the opportunities and
limitations of typographical design. Offered by School of Art (p. 784). May
not be repeated for credit.
Recommended Prerequisite: Admission to graphic design MA (or MFA)
program, AVT graduate program or permission of the instructor.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.
Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Studio

AVT 618: Visual Communication Theories. 2 credits.
Advanced graduate seminar focusing on key theories and themes that
have informed 20th and 21st century design practice. Explores theory
and criticism in a variety of contexts, from popular to scholarly, and
considers the role of designers as thinkers and writers. Offered by School
of Art (p. 784). May not be repeated for credit.
Recommended Prerequisite: Admission to MFA program, or permission
of instructor.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.
Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

AVT 619: Advanced Web Design. 4 credits.
Develops skills for the application of information, interaction, usability,
and visual design for web site developments. Students gain in-depth
knowledge of user behaviors and broader context of social, cultural, and
contemporary issues in web communication. Students learn professional
design processes and integrate multiple web developing technologies.
Offered by School of Art (p. 784). May not be repeated for credit.
Recommended Prerequisite: Admission to Graphic Design MA program or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 620: *Theory, Criticism, and the Arts.* 3 credits.
Cross-disciplinary graduate seminar focusing on key theories and themes that have informed 20th- and 21st-century arts practice. Explores theory and criticism in a variety of contexts, from popular to scholarly, and considers the role of artists as thinkers and writers. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Art Education, Art and Visual Technology, Graphic Design or Visual and Performing Arts.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

AVT 621: *Art Writing Seminar.* 3 credits.
Includes criticism, the artist statement, manifestos, and language as visual art. Offered by School of Art (p. 784). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students in the MFA Art Visual Technology or MFA Visual and Performing Arts programs.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

AVT 622: *Advanced Drawing.* 4 credits.
Advanced directed research in drawing with continued development of individual aesthetic. Study of historical and philosophical precedents integral. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 632: *Graduate Painting I.* 4 credits.
Entering students are expected to be competent painters, with technical proficiency, a disciplined process, and a directed personal vision. Students work rigorously and independently toward the understanding and mastery of techniques, methods, and concepts relevant to formal expression of personal content. Students expected to participate in critical discourse with supervising faculty. Achievement measured by faculty review board at mid-semester and term's end. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 633: *Graduate Painting II.* 4 credits.
Building on research and practices established in Graduate Painting I, students continue to develop strategies for the expression of personal vision and style. Progress tracked and assessed through periodic one-on-one critical discussions with supervising faculty. Achievement measured by faculty review board at mid-semester and term's end. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 632, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 634: *Advanced Graduate Painting I.* 4 credits.
Working independently on a cohesive body of work, students must demonstrate a thorough understanding and mastery of techniques, methods, and concepts relevant to their own practices, and be able to discuss their work within the context of historical and contemporary art practices. Progress tracked and assessed through periodic one-on-one critical discussions with supervising faculty. Achievement measured by faculty review board at mid-semester and term's end. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 633, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Studio

**AVT 635:** Advanced Graduate Painting II. 4 credits.

Advanced independent studio production. Progress tracked and assessed through periodic critical discussions with supervising faculty. Achievement measured by faculty review board at mid-semester and end of term. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 634, or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**AVT 641:** Graduate Graphic Design I. 4 credits.

Working independently on a cohesive body of work, students must demonstrate a thorough understanding and mastery of techniques, methods, and concepts relevant to their own practices, and be able to discuss their work within the context of historical and contemporary design practices. Progress tracked and assessed through periodic one-on-one critical discussions with supervising faculty. Achievement measured by faculty review board at term’s end. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MFA program.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**AVT 642:** Graduate Printmaking I. 4 credits.

Directed research and practice in printmaking focuses on individualized development of content and technique. Explores intellectual and expressive aspects of printmaking process. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the AVT graduate program, AVT 643, or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Studio

**AVT 643:** Graduate Printmaking II. 4 credits.

Directed research and practice in printmaking focuses on individualized development of content and technique. Explores intellectual and expressive aspects of printmaking process. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 642, or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Studio

**AVT 644:** Advanced Graduate Printmaking I. 4 credits.

Intensive course of creative exploration in print media that furthers students’ independence through production of individualized body of work reflecting interests within the broader contexts of contemporary social, technological, and cultural issues. Students also engage in collaborative studio practices to integrate visual technologies in their work. These may include digital imaging, drawing, graphic design, painting, performance, photography, and sculpture. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the AVT graduate program, AVT 643, or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Studio

**AVT 645:** Advanced Graduate Printmaking II. 4 credits.

Intensive studio course that furthers student independence through production of a body of work reflecting a broad context of social, cultural and contemporary issues. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MFA program, and AVT 644.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Independent Study

AVT 646: Graduate Graphic Design II. 4 credits.
Continuing to work independently on a cohesive body of work, students must demonstrate a thorough understanding and mastery of techniques, methods, and concepts relevant to their own practices, and be able to discuss their work within the context of historical and contemporary art and design practices. Progress tracked and assessed through periodic one-on-one critical discussions with supervising faculty. Achievement measured by faculty review board at term’s end. (This is the second course in a two-course sequence.) Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to MFA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students in a Non-Degree Undergraduate level.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

AVT 647: Advanced Graduate Graphic Design I. 4 credits.
Working independently on a cohesive body of work, students must demonstrate a thorough understanding and mastery of techniques, methods, and concepts relevant to their own practices, and be able to discuss their work within the context of historical and contemporary design practices. Progress tracked and assessed through periodic one-on-one critical discussions with supervising faculty. Achievement measured by faculty review board at term’s end. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to MFA program, and AVT 646

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students in a Non-Degree Undergraduate level.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

AVT 648: Advanced Graphic Design II. 4 credits.
Continuing to work independently on a cohesive body of work, students must demonstrate a thorough understanding and mastery of techniques, methods, and concepts relevant to their own practices, and be able to discuss their work within the context of historical and contemporary art and design practices. Progress tracked and assessed through periodic one-on-one critical discussions with supervising faculty. Achievement measured by faculty review board at term’s end. (This is the second course in a two course sequence.) Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to MFA program, and AVT 647.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

AVT 652: Graduate Photography I. 4 credits.
Critical theory and directed practice in photography focusing on development of a personal voice and working method through intellectual activity and creative work. Emphasizes ability to explore concepts, develop skills, and evolve as a communicator of ideas and photographic artist. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 653: Graduate Photography II. 4 credits.
An intensive critique class concentrating on the development of creative work with emphasis on articulating responses to others’ work, the cultural climate, and issues involved in one’s own work as it progresses. Notes: Continuation of Graduate Photography I. Weekly classes share equal time with critical theory and hands-on studio work. Includes readings, visiting artists and lecturers, and field trips. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 654: Advanced Graduate Photography I. 4 credits.
Intensive critique class concentrating on the development of creative work with emphasis on articulating responses to others’ work, the cultural climate, and issues involved in one’s own work as it progresses. Notes: Advanced graduate photography course. Weekly classes share equal time with critical theory and hands-on studio work. Includes readings, visiting artists and lecturers, and field trips. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, AVT 653, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 655: Advanced Graduate Photography II. 4 credits.
AVT 655, Advanced Graduate Photography II, Advanced independent studio production. Progress tracked and assessed through periodic critical discussions with supervising faculty. Achievement measured by faculty review board at mid-semester and end of term. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 652, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 662: Graduate Sculpture I. 4 credits.
Intensive studio course that furthers student independence through production of a body of work reflecting interests, including a broader context of social, cultural, and contemporary issues. Emphasizes self-evaluation, critical discussion, reading, and writing. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 663: Graduate Sculpture II. 4 credits.
Intensive studio course that furthers student independence through production of a body of work reflecting interests, including a broader context of social, cultural, and contemporary issues. Emphasizes self-evaluation, critical discussion, reading, and writing. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 662, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 664: Advanced Graduate Sculpture I. 4 credits.
Emphasizes individual creative production and development, with periodic exposure of student’s work and ideas to the critical attention of the AVT teaching faculty and other graduate students. Notes: Writing and reading components. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, AVT 663, or Permission of Instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 665: Advanced Graduate Sculpture II. 4 credits.
Advanced independent studio production. Progress tracked and assessed through periodic critical discussions with supervising faculty. Achievement measured by faculty review board at mid-semester and end of term. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: AVT 664 or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 667: Two-Dimensional Art Making: Form, Theme, and Context. 3 credits.
Through studio work and research on basic and innovative drawing strategies, students explore expressive visual qualities, composition, and color. Students develop professional portfolios that incorporate meaningful themes and contexts for developing visual literacy in PK-12. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the MAT in Art Education program and permission of instructor based on a portfolio review.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 668: Three-Dimensional Art Making Across Cultures. 3 credits.
Explores the diversity of art forms in world cultures and work of traditional and contemporary artists. Students learn basic three-dimensional art-making techniques, including ceramics and fibers, and
learn to design three-dimensional art instruction for PK-12 levels. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MAT program or Art Education Concentration ASTL and/or permission of the art education director

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**AVT 669:** *Four Dimensional Art Making: Technology and New Media.* 4 credits.
Develops teacher skills for the application of advanced technology for the PK-12 art program and examines the changing nature and uses of technology for expanding visual literacy through pedagogical strategies. Offered by School of Art (p. 784). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**AVT 670:** *Teaching Practicum.* 1 credit.
Supervised classroom teaching practicum in Mason's undergraduate program or community college program. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** Admission to the AVT graduate program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**AVT 672:** *Performance Studio I.* 4 credits.
Introductory studio course looking at performance as a visual art practice and focusing on time, space and the body. Emphasizes artist as performer. Students study the work of performance practitioners, make short performance pieces, document and exhibit their work, and go to galleries and performances locally and in New York. Notes: Substantial research project required. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to AVT graduate program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**AVT 673:** *Advanced Performance Studio.* 4 credits.
Advanced laboratory for creating and producing performance art. Emphasizes new technologies and their applications, multimedia scriptwriting and storyboarding, and the creation of audiovisual performance. Students work independently and also contribute to collaborative production. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 672 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**AVT 674:** *Graduate Sound Art.* 4 credits.
Assuming basic competency in digital audio production and within the theory of sounded experience, students will be assisted in the incorporation of sonic material into their graduate research projects. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the AVT graduate program, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**AVT 676:** *Interface and CD-ROM Design.* 5 credits.
Combined lecture and studio course in multimedia interface and CD-ROM design. Focuses on exporting traditional visual and aural artistic aesthetic to the computer environment within a multimedia context. Assigned class readings augmented and supported by presentations of various digital interfaces and CD-ROM examples. Discusses commercial, entertainment, and educational titles, as well as CD-ROM experimental art works. Studio time divided between AVT labs and area multimedia facilities. Students conceive, design, and develop two CD-ROM or kiosk interfaces due at midterm, and complete a dual platform CD-ROM project due at semester end. Offered by School of Art (p. 784). May not be repeated for credit.
Recommended Prerequisite: Admission to the AVT graduate program or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 682: Experimental 2D Animation. 4 credits.
Designed to broaden range of visually expressive, time-based media from cell animation and stop motion animation to rotoscoping and two-dimensional digital animation. Emphasizes idea generation, concept development, and visual aesthetics. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 684: Advanced Image Making. 4 credits.
Overview of two-dimensional computer-imaging applications in the arts, including painting, printmaking, mixed media, illustration, video, and animation. Lectures combine technical and aesthetic material, including image processing for artists and color reproduction. Emphasis on developing advanced studio portfolio. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to AVT Graduate Program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 685: Video Art. 4 credits.
Explores video as medium that is transforming art and is transformed by art. Emphasizes developing an approach to personal narrative, creative skills, and construction of meaning, as well as on acquiring technical skills. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 686: Experimental 3D Animation. 4 credits.
Teaches how to create realistic, three-dimensional scenes with scaled objects, surface textures, lights, and shadows. Emphasizes idea generation, concept development, visual aesthetics, and technical abilities. Students required to render a portfolio of high-resolution images. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to AVT Graduate Program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 687: Advanced Topics: New Media. 4 credits.
Advanced course in digital media, including layer compositing, digital video editing, rotoscoping, and cell animation. Emphasizes integrating traditional techniques with software applications; and publishing projects to CD-ROM, DV tape, DVD, and Internet. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to AVT program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

AVT 688: Hybrid Animation. 4 credits.
Study of digital two-dimensional and three-dimensional animation practices. Introduces lighting, camera movement, object motion, timing, and texture mapping as students plan and produce a short animation. Emphasizes idea generation, concept development, visual aesthetics, and technical abilities. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Studio

**AVT 691: Elementary Art Education.** 3 credits. Concepts and methods in early childhood and elementary art education. Notes: Students spend three hours per week in class and one hour per week in required field experience in public schools and other educational settings. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MAT program and permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**AVT 692: Secondary Art Education.** 3 credits. Concepts and methods in secondary art education. Notes: Students spend three hours per week in class, and one hour per week in required field experience in the public schools and other educational settings. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** AVT 691, or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**AVT 694: Advanced Studies in Teaching Critical Response to Art, PK-12.** 3 credits. Synthesizing knowledge and understandings gained in ASTL program, seminar focuses on innovative curriculum design, mastery of effective instructional strategies, and developing leadership potential for the field of visual art education. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Completion of all ASTL Art Education Concentration courses.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**AVT 695: Internship in Art Education (Student Teaching).** 5 credits. Full-time internship in which students teach in elementary and secondary schools with guidance from cooperating mentor teachers. College supervisors make periodic site visits to observe, assess, and evaluate progress. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Completion of all other MAT program requirements.

**Recommended Corequisite:** AVT 696.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**AVT 696: Internship in Art Education Seminar.** 1 credit. Weekly professional seminar focused on needs and concerns of student teachers. Covers issues as they emerge in practice, and concludes with an "Art of Teaching Art" exhibit of work by students of preservice teachers. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Corequisite:** AVT 695.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**AVT 697: Advanced Strategies and Curricular Innovations in the Visual Arts.** 3 credits. Develops visual literacy and critical thinking skills by examining diverse theoretical models and applying strategies to expand knowledge about art and artifacts in the PK-12 classroom and museum. Offered by School of Art (p. 784). May not be repeated for credit.

**Recommended Prerequisite:** Completion of all ASTL Art Education Concentration courses.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar
AVT 698: Independent Study/Directed Readings. 1-3 credits.
Offered by School of Art (p. 784). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to the MAT or Art Education Concentration (ASTL) and permission of art education director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

700 Level Courses

AVT 794: Graphic Design Project. 4 credits.
The capstone course in the graphic design Master of Arts degree. Provides for the independent development, design, production and presentation of a graduate-level design project guided by faculty and design professionals. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT Graphic Design graduate program and completion of 30 graduate credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

AVT 796: Directed Reading. 1 credit.
The development of independent research into the historical precedents, theoretical underpinnings, cultural forms, and idea territories pertinent to student’s individual studio practice. Individualized section under the direction of division member. Notes: One of three courses comprising the MFA comprehensive experience for AVT students. Offered by School of Art (p. 784). May not be repeated for credit.

Recommended Prerequisite: Admission to the AVT graduate program or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

AVT 798: Directed Project and Exhibition. 1-6 credits.
The construction and presentation of a professional-quality public exhibition. Course includes significant independent studio production of a comprehensive body of work, leading to the MFA Thesis Exhibition. Exhibition must demonstrate student’s mastery of studio craft and concept. Individualized section under the direction of division member. Notes: One of three courses comprising the MFA comprehensive experience for AVT students. Offered by School of Art (p. 784). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Admission to the AVT graduate program or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

AVT 799: Thesis. 1-3 credits.
The written thesis informs, documents, and enhances the MFA thesis exhibition, which is the student’s primary creative research activity. The content of the written thesis may vary in accordance with artistic discipline and final exhibition. Individualized section under the direction of division member. Notes: One of three courses comprising the MFA comprehensive experience for AVT students. Offered by School of Art (p. 784). May be repeated within the degree.

Recommended Prerequisite: Admission to the AVT graduate program or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

Arts Management (AMGT)

400 Level Courses

AMGT 402: Professional Development. 1 credit.
Seminar course that involves the development of workplace frameworks for success. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Junior standing, admission to the arts administration minor, or permission of instructor.

Schedule Type: Lecture

AMGT 405: Seminar in Arts Management. 3 credits.
Focuses on not-for-profit visual and performing arts organizations. Topics covered include the evolution of the field, the internal culture and structure, external influences, governance, planning, human resources, marketing, fundraising, financial management, economic impact, and other topics. Students will be introduced to a wide range of arts organizations, working arts administrators, and institutional models through field trips, guest lectures, readings, and institutional data. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Junior standing, admission to arts administration minor, or permission of instructor.

Schedule Type: Lecture

AMGT 410: Arts Advocacy and Community. 3 credits.
This course is an overview of advocacy and community engagement as practiced by the arts manager, artist, and educator. Students will learn to identify the need for community engagement and to develop successful techniques to implement outreach. Other topics will include accessibility, diversity, volunteerism, and governance. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Junior standing or permission of program director.

Schedule Type: Lecture
**AMGT 471: Introduction to Grant Writing.** 1 credit.
Course focuses on developing the skills necessary for successful grant applications for arts organizations. Study of relevant funding sources, awareness of available research materials, ability to construct coherent proposals, and defining fund-raising strategy for an arts organization. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Junior standing, admission to the arts administration minor, or permission of the instructor.

**Schedule Type:** Lecture

**AMGT 472: Technology in the Arts.** 1 credit.
The one constant in life is change. In today’s world, both technology and arts organizations are changing. This course will give a broad overview of the technologies commonly used in entrepreneurial, small, and large arts organizations and examines the intersection of technology, management, and the arts. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Junior standing.

**Schedule Type:** Lecture

**AMGT 489: Internship in Arts Management.** 1-4 credits.
Apprenticeship, internship, or project with organization or individual in the arts. Must be prearranged with the minor coordinator before enrollment. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** Junior Standing, completion of 6 credits of courses in area of residency, AMGT 305, or permission of instructor.

**Schedule Type:** Internship

**500 Level Courses**

**AMGT 504: Professional Development Arts Management.** 1 credit.
Combines experimental facets happening within the creative community and the development of an increasing awareness of self. Professional development is not only for the manager, but also for those who work for that manager. It is collaborative, ideally incorporating an evaluative stage. Topics addressed include professional development, consultation, coaching, communities of practice, lesson study, mentoring, reflective supervision and technical assistance. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**AMGT 512: Grant Writing in the Arts.** 1 credit.
Places components of grant writing process within broader context of nonprofit management. Introduction to perspectives of grant seeker and maker. The grant writing process: research, proposal writing, terminology, oral and written techniques, and specific focus. Discover resources and compelling writing skills pertaining to proposal and letters of intent. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**AMGT 513: Technology in the Arts.** 1 credit.
The one constant in life is change. In today’s world, both technology and arts organizations are changing. This course will give a board overview of the technologies commonly used in entrepreneurial, small, and large arts organizations and examines the intersection of technology, management, and the arts. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**AMGT 519: Special Topics in Arts Management.** 1-6 credits.
Provides opportunity to explore special and timely topics in arts management including theoretical and applied areas. Topics and credit vary, may be repeated for up to 12 credits taken under different topics.
Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

### 600 Level Courses

**AMGT 601: Fund Raising/Development I.** 3 credits.
Overview for students seeking general knowledge, as well as introductory course for those who will complete the fund-raising concentration.
Teaches role of fund raising as management function and part of overall strategic intention of arts organizations, presenting fund raising as a multifaceted, team-based process. Analyzes tools and techniques for effective fund raising. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**AMGT 602: Seminar in Arts Management.** 3 credits.
Develops tools and techniques necessary for successful pursuit of a management career in visual and performing arts. Introduces wide range of arts organizations, working arts administrators, and institutional models through guest lectures, readings, field trips, and analysis of institutional data. Students gain understanding of organizational structures and functions, as well as models for general management. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Corequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to English Language, Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**AMGT 603: Arts and Society.** 3 credits.
Examines role of visual and performing arts, with emphasis on historic traditions and trends that have most directly influenced contemporary American practice. Consideration is given to the functions of art in society in addressing questions: What constitutes good or bad art? What is the value of art? What encouragements or impediments does our society offer to the creative artist or arts institution? Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**AMGT 604: Public Relations and Marketing Strategies for the Arts I.** 3 credits.
Teaches strategic way of thinking about audience, community, and markets. Structured into four modules, beginning with fundamentals of strategic planning. Students learn about external and internal environments and the interplay among them; discuss marketing fundamentals pertaining to arts audiences; and are introduced to fundamentals of applied marketing media and advertising fundamentals. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**AMGT 606: Governance and Leadership.** 3 credits.
Board development including oversight and management of a board, as well as understanding board functions. Board relationships, including volunteers, are essential through all of the stages of a management career. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**AMGT 609: Performing Arts Management.** 3 credits.
Bridging strategic planning and marketing; audience development; financial management; and board and volunteer management with issues of scheduling, ticketing and sales, mission integration and strategic challenges of new facilities, and growth and operations of existing ones. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**AMGT 610: Visual Arts Management.** 3 credits.
Covers the many facets of visual art gallery management, from practical considerations of daily operations to the broader examination of gallery's role in art education, criticism, and art market. Topics such as exhibition coordination and installation, contracts, artist representation, fine art insurance, exhibition policies, budgets, and marketing are covered, along with the responsibility of educating a diverse public. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**AMGT 620: Legal Aspects in Arts Management.** 3 credits.
Overview of practical legal issues that will be encountered by arts managers of both for-profit and not-for-profit arts organizations, including contracts, copyrights, licensing, and for-profit and non-profit incorporation. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**AMGT 640: Programming and Project Arts Management.** 3 credits.
Provides both a theoretical framework for thinking about and assessing the value of various programming options and practical examples of the potential partners and resources available for program and project implementation. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**AMGT 704: Finance and Budgeting for Arts I.** 3 credits.
Introduces budget and finance as fundamentals of the budget process, specifically tailored to needs of arts organizations. Provides overview of accounting as tool to manage and control arts organizations. Involves laboratory component for teaching software application frequently encountered in fiscal operation of arts organizations. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Arts Management program or permission of program director.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**AMGT 705: Finance and Budgeting for Arts II.** 2 credits.
Introduces budgeting, planning, and finance as fundamentals of the strategic planning process and management control, specifically tailored to the needs of arts organizations. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** AMGT 704

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**AMGT 706: Festivals and Special Events.** 3 credits.
Technical aspects of events and festival management. Topics may include cultural understanding, tourism, sponsorship, fund raising and development, logistics of scheduling and contracts, and the relationship to larger venues, marketing and sales, and budgeting. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.
Recommended Prerequisite: Admission to Arts Management program or permission of program director.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

AMGT 710: Arts Policy. 3 credits.
Reviews current state of the sector, familiarizing students with most common rationales for public support of the arts and respective roles of federal, state, and local governments and private policy actors. Examines dilemmas that arts organizations face in balancing need for government support and artistic integrity with push and pull of the market. Compares U.S. policies to other developed countries. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: AMGT 602B and 603B.
B- Requires minimum grade of B-

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

AMGT 711: Directed Readings and Project. 1-6 credits.
Opportunity to engage in a more intensive study or project in arts management. Students partner with faculty member for intensive readings and project in strategy and planning in the arts, fundraising and development, entrepreneurial project work, arts marketing, arts policy and law, or other specialized areas pertinent to arts administration. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to Arts Management program or permission of program director.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

AMGT 740: Internal Internship. 2 credits.
Builds on apprenticeship as a core means of teaching applied concepts of arts management. Augments use of Center of the Arts and active arts environment, both performing and visual, as a learning laboratory. Builds on practical learning and provides internal training as preparation for external internship. Minimum 42 hours/credit. Required for developing practical application. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Admission to Arts Management program or permission of program director. 9-credit standing.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

AMGT 742: Internship I. 3 credits.
Provides a specific work environment to build on skills developed in the classroom and integrates work experience with specific academic exercises. Minimum 42 hours/credit. Required for developing practical application. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Admission to Arts Management program, 15 credit standing; or permission of program director.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

AMGT 752: Arts Entrepreneurship. 3,6 credits.
Lecture course in discovering and developing entrepreneurial skills in the arts. Students will conceive, develop, and present a for-profit or not-for-profit business plan and strategy, which will include model(s), market overview, management structure, along with revenue streams, acquisition strategy, and technical and information technology strategies. Advanced course focuses on developing financial planning skills, funding strategies, marketing and arts sales. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to Arts Management program or permission of program director; AMGT 704.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

AMGT 790: External Internship. 1-4 credits.
Designed to follow internal internship. Provides a specific work environment to build on skills developed in the classroom and integrates work experience with specific academic exercises. Students advised to pursue a three-pronged approach toward specialization: electives; internal internship in the same area as concentrated electives; and external internship consistent with specialized course work and internal internship. Minimum 42 hours/credit. Required for developing practical application. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 4 credits.

Recommended Prerequisite: Admission to Arts Management program, 15 credit standing or permission of program director.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

AMGT 792: Internship II. 3 credits.
Provides a specific work environment to build on skills developed in the classroom and integrates work experience with specific academic exercises. Elective. Minimum 42 hours/credit. Required for developing practical application. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.
Recommended Prerequisite: Admission to Arts Management program, 15 credit standing; or permission of program director.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

AMGT 795: Capstone in Arts Management. 1 credit.
Required in order to complete the MA AMGT degree. Provides students with the opportunity to deepen, expand, and demonstrate mastery of one area of arts management expertise. Builds on work undertaken in a completed AMGT course or internship. Faculty will provide guidance and approve capstone topics. The capstone is a required one-credit course. Students may register for the capstone after having completed all core course requirements for the MA AMGT degree. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 2 credits.

Recommended Prerequisite: All core course requirements for the MA AMGT degree.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**Assistive Technology (EDAT)**

**400 Level Courses**

**EDAT 410: Introduction to Assistive Technology.** 3 credits.
Provides an understanding of assistive technology and application in instructional programs, career tasks, and life skills for individuals with disabilities. Presentation and exploration experiences enable students to better use assistive technology in education, work, community, and home environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDIT 410.

Schedule Type: Lecture

**EDAT 421: Augmentative Communication.** 3 credits.
Provides an overview of augmentative and alternative communication tools for use by individuals with speech and communication disabilities. Exploration experiences enable students to locate, use and train others on the range of AAC technologies available. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**EDAT 422: Assistive Technology for Individuals with Sensory Impairments.** 3 credits.
Provides an overview of specific technology and resources available to enhance and improve the ability of individuals who are visually impaired/blind or hearing-impaired/deaf. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDIT 412.

Schedule Type: Lecture

**EDAT 423: Accessibility and Input Modifications.** 3 credits.
Provides an overview of accessibility strategies and input modifications designed for use by individuals with disabilities. Exploration experiences enable students to locate, use and train others on the range of technologies available as well as design opportunities for constructing unique devices. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**500 Level Courses**

**EDAT 510: Introduction to Assistive Technology.** 3 credits.
Provides an understanding of assistive technology and application in instructional programs, career tasks, and life skills for individuals with disabilities. Presentation and exploration experiences enable students to better use assistive technology in education, work, community, and home environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDIT 510, EDSE 510.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EDAT 521: Augmentative Communication.** 3 credits.
Provides an overview of augmentative and alternative communication tools for use by individuals with speech and communication disabilities. Exploration experiences enable students to locate, use and train others on the range of AAC technologies available. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EDAT 522: Assistive Technology for Individuals with Sensory Impairments.** 3 credits.
Provides an overview of specific technology and resources available to enhance and improve the ability of individuals who are visually impaired/blind or hearing-impaired/deaf. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

EDAT 523: Accessibility and Input Modifications. 3 credits.
Provides an overview of accessibility strategies and input modifications designed for use by individuals with disabilities. Exploration experiences enable students to locate, use and train others on the range of technologies available as well as design opportunities for constructing unique devices. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 524: Universal Design for Learning. 3 credits.
Describes the foundations and principles of Universal Design for Learning (UDL). Focuses on teaching students with various disabilities including those with learning disabilities from preschool to postsecondary education implementing technology-based and other UDL strategies. Applies UDL principles to the design of accessible instructional materials. Students have the opportunity to develop and implement UDL lesson plans. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 525: Software and Mobile Applications for Individuals with Disabilities. 3 credits.
Provides overview with software, mobile applications, and accessibility features. Identifies design features to meet individual’s special needs; provides hands-one experiences with the range of software and mobile applications that incorporate evidence-based strategies for individuals with disabilities across environments, settings and the life span. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 527: Assistive Technology for Independent Living and Employment. 3 credits.
Provides an overview of assistive technology accommodations and public policy related to independent living for individuals with disabilities throughout their life span. Focuses on assistive technologies that support daily living tasks and workplace accommodations to improve the performance of daily living and work activities for individuals with disabilities. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 530: Assistive Technology for Independent Living. 3 credits.
Provides an overview of activities of daily living (ADLS) for individuals who have disabilities and the elderly. ADLs include but are not limited to assistive technologies that support dressing, feeding, hygiene, housework and safety. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 531: Assistive Technology in the Workplace. 3 credits.
Provides an overview of workplace accommodations, functional barriers commonly experienced in the workplace, assistive technology, ergonomic strategies, and universal design approaches to improve performance of work activities for individuals with disabilities, including but not limited to mobility, dexterity, sensory, communication, and cognitive impairments. Field experience may be required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 597: Special Topics in Assistive Technology. 1-6 credits.
Provides advanced study on selected topic or emerging issue in assistive technology. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 599: Independent Study in Assistive Technology. 1-6 credits.
Studies assistive technology research, theory, or practice under direction of faculty member. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 610: Designing Adapted Environments. 3 credits.
Provides an overview of environmental adaptations for individuals with disabilities to increase their access to community, workplace, and school activities. Covers legal issues within the ADA for adapting environments and addresses programmatic and physical access issues. Notes: Field Experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDAT 510.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDAT 649: Assistive Technology Assessment. 3 credits.
Provides an overview of AT consideration and assessment procedures with emphasis on generated assessment plan and written report. Review and administer existing assistive technology (AT) evaluation instruments. Notes: Field Experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDAT 510.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Astronomy (ASTR)

100 Level Courses

ASTR 103: Astronomy. 3 credits.
Introduction to origin of life, Earth, planets and sun, stars, galaxies, quasars, nature of space radiation, and general theory of relativity. Note: ASTR 103 with ASTR 112 or ASTR 114 can be used to fulfill a 4-credit lab science requirement. Not for physics majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Natural Science Overview (p. 135)

Schedule Type: Lecture

ASTR 111: Introductory Astronomy: The Solar System. 3 credits.
Topics include history of astronomy, evolution of the solar system, properties of planets, scientific method, critical thinking, nature of light, and principles of telescope design. Notes: ASTR 111 and 112 can be used to fulfill a 4-credit lab science requirement; not for physics majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory

ASTR 112: Introductory Astronomy Lab: The Solar System. 1 credit.
Laboratory course associated with ASTR 111. Notes: ASTR 111 and 112 can be used to fulfill a 4-credit lab science requirement; not for physics majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory

ASTR 113: Introductory Astronomy: Stars, Galaxies, and the Universe. 3 credits.
Topics include electromagnetic radiation, stellar evolution, interstellar medium, galaxies, cosmology, scientific method, and critical thinking. Notes: ASTR 113 and 114 can be used to fulfill a 4-credit lab science requirement; not for physics majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory

ASTR 114: Introductory Astronomy Lab: Stars, Galaxies, and the Universe. 1 credit.
Laboratory course associated with ASTR 113. Notes: ASTR 113 and 114 can be used to fulfill a 4-credit lab science requirement; not for physics majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory

ASTR 115: Finding New Worlds. 4 credits.
Topics include the search for planets outside the solar system, and new developments in the theory of solar system formation with an emphasis on student-led investigation using public data sources. Notes: ASTR 115 can be used to fulfill a 4-credit lab science requirement; not for physics
majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Schedule Type:** Laboratory, Lecture

### 200 Level Courses

**ASTR 210: Introduction to Astrophysics.** 3 credits.
Introduction to astrophysics for scientists. Topics include astronomical measurement, celestial mechanics, electromagnetic radiation, stellar structure and evolution, the interstellar medium, galaxies, and a selection of topics at the forefront of astrophysics including space physics, exoplanets, galaxies, and cosmology. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Corequisite:** C or higher in PHYS 262.

**Registration Restrictions:**
- **Required Prerequisite:** PHYS 160C.
- May be taken concurrently.
- C Requires minimum grade of C.

**Schedule Type:** Lecture

### 300 Level Courses

**ASTR 301: Astrobiology.** 3 credits.
Physical science perspective on origin and evolution of life on Earth and how life, in turn, has significantly influenced Earth's evolution. Topics include origin of Earth, mechanisms and sites for origin of life, co-evolution of life and Earth's atmosphere, habitability of planets, and the search for extraterrestrial life. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** MATH 108 or 113.

**Schedule Type:** Lecture

**ASTR 302: Foundations of Cosmological Thought.** 3 credits.
Examines scientific, historical, and philosophical foundations and development of cosmological thought from antiquity to the present. Emphasizes qualitative understanding of the development of cosmology concluding with the present concept of origin and evolution of universe. Notes: No advanced background in mathematics or natural sciences required. This course does not satisfy the PHYS elective requirement. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science Overview (p. 135)

**Schedule Type:** Lecture

**ASTR 328: Stars and Interstellar Medium.** 3 credits.
Stellar structure and evolution; radiative transfer; the interstellar medium. The course includes computational work. Previous programming experience is not required, as it will be developed in the course, but it is helpful. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 328.

**Recommended Prerequisite:** ASTR 210, PHYS 262.

**Schedule Type:** Lecture

**ASTR 390: Topics in Astronomy.** 1-4 credits.
Selected topics not covered in fixed-content courses. May be repeated for credit with permission of department if topics are different. Notes: May not be included for credit by physics majors in the 45 credits of physics courses required for BS degree, or in 31 credits of physics courses required for BA degree. Offered by Physics & Astronomy (p. 724). May be repeated within the term for a maximum 9 credits.

**Schedule Type:** Lecture

### 400 Level Courses

**ASTR 401: Computer Simulation in Astronomy.** 3 credits.
Techniques and methods to simulate astronomical phenomena using a computer. Examples taken from a wide variety of astronomical phenomena, including radiation transfer in astrophysical objects, self-gravitating systems, hydrodynamics, and stellar models. No advanced background in mathematics or natural sciences required. Notes: Emphasizes hands-on projects. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** ASTR 210.

**Schedule Type:** Lecture

**ASTR 402: RS: Methods of Observational Astronomy.** 4 credits.
An introduction to the observational, statistical, and computational techniques used by observational astronomers. The course covers some of the basic skills needed to pursue a career in astronomy and is designed around preparing for and executing an observational research project. Fulfills writing intensive requirement in the major. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Specialized Designation:** Research/Scholarship Intensive, Writing Intensive in the Major

**Recommended Prerequisite:** ASTR 210.

**Schedule Type:** Laboratory, Lecture

**ASTR 403: Planetary Sciences.** 3 credits.
Introduction to the physics and chemistry of planets and their natural satellites, asteroids, and comets. Topics include history of the solar system; origin and evolution of planets, their internal structure and atmospheres; and analytical techniques used in remote and in situ study. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** ASTR 210, PHYS 262.

**Schedule Type:** Lecture

**ASTR 404: Galaxies and Cosmology.** 3 credits.
The structure of the Milky Way as the basis for our knowledge of galaxies; the properties of galaxies from our local neighborhood out to the youngest galaxies in the far distant universe; observational and theoretical approaches to the structure and evolution of galaxies; the basics of cosmology and the formation of structure in the universe. Computational tools introduced in ASTR 328 are developed further. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** ASTR 328.

**Schedule Type:** Lecture

**ASTR 405: Honors Thesis in Astronomy I.** 3 credits.
Project chosen and completed under the guidance of a faculty member, resulting in a written thesis. An oral progress report is required for
ASTR 405. Offered by Physics & Astronomy. May not be repeated for credit.

**Recommended Prerequisite:** 21 credit hours in Physics and Astronomy and acceptance into the astronomy honors program.

**Schedule Type:** Lecture

ASTR 406: *Honors Thesis in Astronomy II.* 3 credits.
Project chosen and completed under the guidance of a faculty member, resulting in a written thesis. An oral progress report is required for ASTR 406. Offered by Physics & Astronomy. May not be repeated for credit.

**Recommended Prerequisite:** ASTR 405 and 21 credit hours in Physics and Astronomy and acceptance into the astronomy honors program.

**Schedule Type:** Lecture

ASTR 408: *Senior Research.* 3 credits.
Independent work under guidance of faculty member on research project in experimental, observational, or theoretical astronomy. Notes: Students may not receive more than 6 credits of ASTR 408 and 409. Written report on project required. May be taken twice with department permission. Offered by Physics & Astronomy. May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 15 hours of ASTR courses.

**Schedule Type:** Research

ASTR 409: *Astronomy Internship.* 3 credits.
On-the-job experience for astronomy majors in industry or government laboratories, including summer research programs. Students work in observational, experimental, or theoretical astronomy, and prepare written report at end of internship. Notes: See department for other requirements and application procedure prior to enrollment. Students may not receive more than 6 credits of ASTR 408 and 409. Offered by Physics & Astronomy. May not be repeated for credit.

**Recommended Prerequisite:** 75 credit hours, 15 ASTR credits.

**Schedule Type:** Internship

**500 Level Courses**

**ASTR 532: Phys Interplanetary Med.** 3 credits.
Offered by Physics & Astronomy. May not be repeated for credit.

**Recommended Prerequisite:** PHYS 303, 305, 308; MATH 214.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ASTR 590: Selected Topics in Astronomy and Astrophysics.** 1-6 credits.
Advanced topics from recent theoretical or observational developments and their applications. Satisfies needs of professional community to keep abreast of current developments. Offered by Physics & Astronomy. May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**ASTR 602: Methods of Observational Astronomy.** 4 credits.
An introduction to the observational, statistical, and computational techniques used by observational astronomers. The course covers some of the basic skills needed to pursue a career in astronomy and is designed around preparing for and executing an observational research project. Offered by Physics & Astronomy. May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

**ASTR 603: Planetary Sciences.** 3 credits.
Offered by Physics & Astronomy. May not be repeated for credit.

**Recommended Prerequisite:** MATH 213 and PHYS 262

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ASTR 604: Galaxies and Cosmology.** 3 credits.
The structure of the Milky Way as the basis for our knowledge of galaxies; the properties of galaxies from our local neighborhood out to the youngest galaxies in the far distant universe; observational and theoretical approaches to the structure and evolution of galaxies; the basics of cosmology and the formation of structure in the universe. Offered by Physics & Astronomy. May not be repeated for credit.

**Recommended Prerequisite:** ASTR 328 and MATH 214.

**Recommended Corequisite:** PHYS 308.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ASTR 660: Plasma Physics for Space and Astrophysics. 3 credits.
Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 660.

Recommended Prerequisite: PHYS 305

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ASTR 680: Physics of Interstellar Media. 3 credits.
Physical processes in the interstellar media. Topics include the production and transfer of radiation, ionization and recombination, atomic and molecular excitation, dust physics, gas heating and cooling, and star formation. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHYS 402 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

ASTR 730: Stellar Astrophysics. 3 credits.
Survey of contemporary astrophysics. Topics include physical concepts, stellar spectra, Hertzsprung-Russell diagram, stellar atmospheres, stellar structure, interstellar matter, stellar evolution, high-energy phenomena, hydrodynamical processes in astrophysics, accretion disk formation, and shock formation. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CSI 661.

Recommended Prerequisite: MATH 214, PHYS 303, 305, 308.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ASTR 764: Computational Astrophysics. 3 credits.
Covers statistical mechanics concepts important in astrophysics. Presents unified approach to particle acceleration and interaction theory based on analytical and numerical analysis of Boltzmann and Liouville equations. Discusses computational methods relevant to particle transport problems, with emphasis on Fokker-Planck and Monte Carlo solution techniques. Applications from space sciences include studies of cosmic ray acceleration, photon comptonization, particle transport in the near-Earth environment, energy transport in stellar atmospheres, and self-gravitating system dynamics. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CSI 764.

Recommended Prerequisite: ASTR 530, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ASTR 765: High-Energy and Accretion Astrophysics. 3 credits.
Overview of the field of atomic and nuclear physics, including nuclear reactions of use to high-energy astrophysics. Discusses radiation processes in cosmic plasmas emphasizing quantum mechanical calculations; stellar evolution and nucleosynthesis; computational models of stellar evolution; binary stars and accretion disks; numerical models of the structure of accretion disks; compact stars, white dwarfs, neutron stars, and black holes; acceleration processes and cosmic rays; interstellar medium and propagation of cosmic rays; high-energy processes in the center of galaxies; and ground- and space-based techniques and observations. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CSI 765.

Recommended Prerequisite: PHYS 502 and 513, and ASTR 530; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ASTR 790: Topics in Astronomy and Astrophysics. 1-6 credits.
Topics from recent theoretical or observational developments and applications not covered in fixed-content astronomy and astrophysics courses. Notes: Satisfies need of professional community to keep abreast of current developments. Offered by Physics & Astronomy (p. 724). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ASTR 796: Directed Reading and Research. 1-12 credits.
Reading and research on a specific topic in astronomy, astrophysics, or related field under direction of faculty member. Offered by Physics & Astronomy (p. 724). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Admission to masters program and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Research

ASTR 798: Research Project. 3 credits.
Research project chosen and completed under guidance of graduate faculty member resulting in an acceptable technical report. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: Nine graduate credits or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

ASTR 799: Master’s Thesis. 1-6 credits.
Research project chosen and completed under guidance of graduate faculty member resulting in acceptable technical report and oral defense acceptable to three-faculty-member thesis committee. Offered by Physics & Astronomy (p. 724). May be repeated within the degree.

Recommended Prerequisite: 9 graduate credits and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

900 Level Courses

ASTR 998: Doctoral Dissertation Proposal. 1-12 credits.
Covers development of a research proposal under the guidance of a dissertation director and the doctoral committee. The proposal forms the basis for the doctoral dissertation. Note: No more than 24 credits in ASTR/PHYS 998 and ASTR/PHYS 999 may be applied toward satisfying doctoral degree requirements in the physics PhD program. Out of the 24, no more than 12 credits of ASTR/PHYS 998 may be applied. Offered by Physics & Astronomy (p. 724). May be repeated within the degree.

Recommended Prerequisite: Admission to the Physics doctoral program, and permission of advisor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

ASTR 999: Doctoral Dissertation. 1-12 credits.
Doctoral research performed under direction of dissertation director. Notes: No more than 24 credits in ASTR/PHYS 998 and ASTR/PHYS 999 may be applied toward satisfying doctoral degree requirements in the physics PhD program. Offered by Physics & Astronomy (p. 724). May be repeated within the degree.

Recommended Prerequisite: Admission to doctoral candidacy in Physics PhD program and permission of advisor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Athletic Training Education Program (ATEP)

100 Level Courses

ATEP 120: First Aid and Emergency Care. 2 credits.
Covers emergency management procedures for various injuries and sudden illnesses, including 1- and 2-person CPR, and use of an Automated External Defibrillator (AED) for cardiac emergencies and basic first aid techniques; certification in first aid and CPR. Offered by Recreation, Health & Tourism (p. 211). Limited to two attempts.

Schedule Type: Lecture

ATEP 150: Introduction to Athletic Training and Preventative Care Techniques. 3 credits.
Introduces the profession of athletic training and the basic principles of preventative care commonly used in the profession. Topics will include athletic training facility organization and procedures; protective sports equipment; construction of protective devices; and application of protective taping, braces, wrapping, and protective pads. Areas to be studied include the role of the athletic trainer in sports medicine, mechanisms of athletic injuries, tissue response to injury, blood-borne pathogens, introductory techniques of the assessment and evaluation of athletic injuries and emergency procedures. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

200 Level Courses

ATEP 201: Medical and Scientific Terminology. 3 credits.
Foundations of scientific and medical vocabulary including prefixes, suffixes and stems used to form compound words. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

ATEP 203: Prevention, Recognition, and Management of Athletic and Fitness Related Injuries. 3 credits.
Provides coaches and fitness professionals with theory on the prevention, recognition, and management of injuries and conditions that occur in athletic competition and recreational fitness activities. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

ATEP 205: Cultural Competence. 3 credits.
Explores cultural competence and its integration for effective professional practice. Includes communication styles, daily living practices, common sensitivities, self-awareness, and historical cultural implications in multicultural environments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

ATEP 250: Physical Assessment of the Lower Body. 3 credits.
An analysis of the principles of physical assessment of the lower body. Notes: Formal acceptance to the professional phase of the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Grade of C or higher in ATEP 150, ATEP 180, BIOL 124, BIOL 125, HEAL 110, and ATEP 300.
Recommended Corequisite: ATEP 255, ATEP 256

**Schedule Type:** Lecture

**ATEP 255:** *Clinical Techniques I: Physical Assessment of the Lower Body.* 3 credits.
An analysis of physical assessment clinical techniques of the lower body (including the lower extremity and abdomen). Notes: Formal acceptance to the professional phase of the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** Grade of C or higher in ATEP 150, ATEP 180, BIOL 124, BIOL 125, HEAL 110, and ATEP 300.

**Recommended Corequisite:** ATEP 250, ATEP 256

**Schedule Type:** Laboratory

**ATEP 256:** *Practicum I: Physical Assessment of the Lower Body.* 3 credits.
A clinical practicum field experience under the direct supervision of a preceptor with emphasis on physical assessment of the lower body. Notes: Formal acceptance to the professional phase of the ATEP; Current Emergency Cardiac Care (ECC) Certification. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** Grade of C or higher in ATEP 150, ATEP 180, BIOL 124, BIOL 125, HEAL 110, and ATEP 300.

**Recommended Corequisite:** ATEP 250, ATEP 256

**Schedule Type:** Internship

**ATEP 260:** *Physical Assessment of the Upper Body.* 3 credits.
An analysis of the principles of physical assessment of the upper body. Notes: Formal acceptance to professional phase of the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** Grade of C or higher in ATEP 150, ATEP 180, ATEP 250, ATEP 255, ATEP 256, ATEP 300, BIOL 124, BIOL 125, HEAL 110, HEAL 230.

**Recommended Corequisite:** ATEP 265, ATEP 266.

**Schedule Type:** Lecture

**ATEP 265:** *Clinical Techniques II: Physical Assessment of the Upper Body.* 3 credits.
An analysis of physical assessment clinical techniques of the upper body (including the upper extremity, head, and neck). Notes: Formal acceptance to the professional phase of the ATEP Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** Grade of C or higher in ATEP 150, ATEP 180, ATEP 250, ATEP 255, ATEP 256, ATEP 300, BIOL 124, BIOL 125, HEAL 110, HEAL 230.

**Recommended Corequisite:** ATEP 260, ATEP 266

**Schedule Type:** Laboratory

**ATEP 266:** *Practicum II: Physical Assessment of the Upper Body.* 3 credits.
A clinical practicum field experience under the direct supervision of a preceptor with emphasis on physical assessment of the upper body. Notes: Formal acceptance to the professional phase of the ATEP; Emergency Cardiac Care (ECC) Certification Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 260, ATEP 265

**Schedule Type:** Internship

**ATEP 270:** *General Medical Conditions and Pharmacology in Physically Active Populations.* 3 credits.
An examination of assessment and management techniques of general medical conditions and pharmacological principles in physically active populations. Notes: Formal acceptance to the professional phase of the ATEP Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** Grade of C or higher in ATEP 300; BIOL 124, BIOL 125.

**Schedule Type:** Lecture

**300 Level Courses**

**ATEP 300:** *Functional Anatomy.* 3 credits.
Increase students’ knowledge and exposure to the structural and functional components of human anatomy including musculoskeletal origins, insertions, actions and innervations. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to KINE 300.

**Recommended Prerequisite:** C or higher in BIOL 124 and BIOL 125.

**Schedule Type:** Laboratory, Lecture

**ATEP 310:** *Advanced Functional Anatomy.* 3 credits.
Investigates the musculoskeletal anatomy including innervation, vascular anatomy, and function of the neck, trunk and limbs. Synthesizes anatomy physiology, and human movement as it relates to injury; case studies are used to enhance the understanding of human anatomy and interpret movement impairments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 320.

**Registration Restrictions:**
**Required Prerequisites:** ATEP 300<sup>C</sup> and KINE 310<sup>C</sup>.
<sup>C</sup> Requires minimum grade of C.

**Schedule Type:** Lecture

**ATEP 320:** *Therapeutic Interventions Foundations.* 3 credits.
Explores foundational knowledge and skills necessary for the safe, effective, and evidence-based application of therapeutic interventions. Investigates physiologic response to injury and healing, physiologic cause of pain, physiologic response of tissue to therapeutic intervention including modalities and exercise. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 310.

**Registration Restrictions:**
**Required Prerequisites:** ATEP 325<sup>C</sup>, KINE 310<sup>C</sup> and 320<sup>C</sup>.
<sup>C</sup> Requires minimum grade of C.

**Schedule Type:** Lecture
ATEP 325: Athletic Training Foundations. 3 credits.
Investigates the knowledge, skill and professional foundations of
the athletic training. Emphasizes is placed on the role of the athletic
trainer as a member of the health care system by decision-making
through evidence-based practice and foundational skills including fitting
protective equipment and devices, and prophylactic preventative taping.
Admission to the professional phase of the ATEP. Offered by Recreation,
Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: ATEP 120\(^C\), 150\(^C\), 201\(^C\), 300\(^C\), BIO 124\(^C\), 125\(^C\) and HEAL 230\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

ATEP 330: Emergency Procedures for Athletic Trainers. 3 credits.
Investigates the scientific and philosophical foundations of pre-hospital
treatment emergency care principles pertinent to athletic trainers. Develops
knowledge, critical thinking and problem solving skills necessary to
correctly apply emergency care principles and associated skills in a
variety of clinical and professional settings. Admission to the professional
phase of ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 340, 345, 351, 354.

Registration Restrictions:
Required Prerequisites: ATEP 310\(^C\), 320\(^C\) and KINE 450\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

ATEP 340: Lower Body Physical Assessment. 3 credits.
Analyzes principles of lower body physical assessment. Investigates
mechanisms of injury, the evaluation process, and testing leading to
diagnosis. Admission to the professional phase of the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 330, ATEP 340, ATEP 351, ATEP 354.

Registration Restrictions:
Required Prerequisites: KINE 450\(^C\), ATEP 310\(^C\) and 320\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

ATEP 345: Athletic Training Clinical Techniques 1. 3 credits.
Applies principles of lower body, thoracic and lumbar spine physical
assessment. develops evaluation skills including special testing leading
to diagnosis. Admission to the professional phase of ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 330, ATEP 340, ATEP 351, ATEP 354.

Registration Restrictions:
Required Prerequisites: KINE 450\(^C\), ATEP 310\(^C\) and 320\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Laboratory

ATEP 350: Therapeutic Interventions I. 3 credits.
Integrates the use of therapeutic modalities and rehabilitation
in the treatment of injuries and conditions including indications,
contraindications, physiological effects, special programs, and resistance
methods used with therapeutic modalities and prevention/rehabilitation
methods. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Grade of C or higher in ATEP 150, 180,
250, 255, 256, 260, 265, 266, 270, 300; BIO 124, 125; HEAL 110, 230;
KINE 310.

Recommended Corequisite: ATEP 355 and 356.

Schedule Type: Lecture

ATEP 351: Lower Body Therapeutic Interventions. 3 credits.
Develops, implements, and evaluates treatment plans using therapeutic
modalities and rehabilitation interventions in the treatment of lower
body injuries and conditions. Establishes an evidence-based approach
to therapeutic interventions use in patient treatment. Admission to the professional phase of the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 330, ATEP 340, ATEP 345, ATEP 354.

Registration Restrictions:
Required Prerequisites: KINE 450\(^C\), ATEP 310\(^C\) and 320\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

ATEP 354: Athletic Training Clinical Techniques 2. 3 credits.
Applies therapeutic interventions for the lower body in a laboratory
setting. Develops rehabilitation treatment plans and skills necessary to
carry out patient care. Admission to the professional phase of the ATEP.
Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 330, ATEP 340, ATEP 345, ATEP 351.

Registration Restrictions:
Required Prerequisites: KINE 450\(^C\), ATEP 310\(^C\) and 320\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Laboratory

ATEP 355: Clinical Techniques 3: Therapeutic Interventions I. 3 credits.
An examination of the scientific theory and standard operating
procedures necessary for the safe application of therapeutic modalities
in a physically active patient population. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Grade of C or higher in ATEP 150, 180,
250, 255, 256, 260, 265, 266, 270, 300; BIO 124, 125; HEAL 110, 230;
KINE 310.

Recommended Corequisite: ATEP 350 and 356.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in
Athletic Training.

Schedule Type: Laboratory

ATEP 356: Practicum III: Therapeutic Modalities. 3 credits.
A clinical practicum field experience under the direct supervision of
a preceptor with emphasis on therapeutic modalities. Notes: Formal
Acceptance into the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
Recommended Prerequisite: Grade of C or higher in ATEP 150, 180, 250, 255, 256, 260, 265, 266, 270, 300 BIOL 124, 125; HEAL 110, 230; KINE 310.

Recommended Corequisite: ATEP 350, 355.

Schedule Type: Internship

ATEP 360: Therapeutic Interventions 2. 3 credits.
Integrated approach to the use of therapeutic modalities and rehabilitation in the treatment of injuries and conditions. Special consideration to specific body regions including a focus on the development, implementation, and evaluation of treatment plans. Notes: Formal acceptance into the professional phase of the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Grade of C or higher in ATEP 150, 180, 250, 255, 256, 260, 265, 266, 270, 300; BIOL 124, 125; HEAL 110, 230; KINE 310.

Recommended Corequisite: ATEP 350, 355.

Registration Restrictions: Enrollment is limited to students with a major, minor, or concentration in Athletic Training.

Schedule Type: Lecture

ATEP 361: Upper Body Therapeutic Interventions. 3 credits.
Utilizes an integrated approach to therapeutic interventions including modalities and rehabilitation in the treatment of upper body, head and neck injuries and conditions. Includes development, implementation, and evaluation of treatment plans for upper body, head and neck injuries. Admission to the professional phase of the ATEP. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 365, 367, ATEP 370, ATEP 375.

Registration Restrictions: Required Prerequisites: ATEP 351C, 354C, 330C, 340C and 345C. Requires minimum grade of C.

Schedule Type: Laboratory

ATEP 365: Athletic Training Clinical Techniques 4. 3 credits.
Applies therapeutic interventions for the upper body, head and neck in a laboratory setting. Develops rehabilitation treatment plans and skills necessary to carry out patient care. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 361, ATEP 365, ATEP 367, ATEP 375.

Registration Restrictions: Required Prerequisites: ATEP 330C, 340C, 345C, 351C and 354C. Requires minimum grade of C.

Schedule Type: Laboratory

ATEP 367: Athletic Training Practicum 1. 2 credits.
Emphasizes physical assessment and therapeutic interventions of the lower body in a clinical immersion practicum field experience under the direct supervision of a preceptor for 150 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 361, ATEP 365, ATEP 370, ATEP 375.

Registration Restrictions: Required Prerequisites: ATEP 330C, 340C, 345C, 351C and 354C. Requires minimum grade of C.

Schedule Type: Internship

ATEP 370: Upper Body Physical Assessment. 3 credits.
Analyzes the principles of upper body physical assessment. Investigates mechanisms of injury, the evaluation process, and testing leading to diagnosis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 361, ATEP 365, ATEP 367, ATEP 375.

Registration Restrictions: Required Prerequisites: ATEP 330C, 340C, 345C, 351C and 354C. Requires minimum grade of C.

Schedule Type: Lecture

ATEP 375: Athletic Training Clinical Techniques 3. 3 credits.
Applies principles of upper body, head and neck physical assessment. Develops evaluation skills including special testing leading to diagnosis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 361, ATEP 365, ATEP 367, ATEP 370.

Registration Restrictions: Required Prerequisites: ATEP 330C, 340C, 345C, 351C and 354C. Requires minimum grade of C.

Schedule Type: Laboratory

400 Level Courses

ATEP 400: Pathopharmacology. 3 credits.
Examines the assessment and management techniques of general medical conditions and pharmacological principles and interventions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions: Required Prerequisites: ATEP 300C and KINE 310C. Requires minimum grade of C.

Schedule Type: Lecture

ATEP 441: Senior Seminar in Athletic Training. 3 credits.
Capstone educational experience focusing on current topics in the Athletic Training Profession and career development issues. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Mason Core: Capstone (p. 135)
Recommended Prerequisite: Grade of C or higher in ATEP 150, 180, 250, 255, 256, 260, 265, 266, 270, 300, 350, 355, 356, 360, 365, 366; BIOL 124, 125; HEAL 110, 230; KINE 300, 360.

Schedule Type: Internship

ATEP 450: Administration and Management in Athletic Training. 3 credits. Focuses on the professional management and administrative issues in athletic training including the planning, designing, development, organization, implementation, direction, and evaluation of a health care program. Discusses current issues in athletic training related to professional conduct and practice. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Students with a class of Freshman or Sophomore may not enroll.

Schedule Type: Lecture

ATEP 456: Practicum 5 Professional Integration. 6 credits. A clinical practicum field experience under the direct supervision of a preceptor with emphasis on professional skill integration. Notes: Formal acceptance into the professional phase of the ATEP; Current Emergency Cardiac Care (ECC) Certification. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Grade of C or higher in ATEP 150, 180, 250, 255, 256, 260, 265, 266, 270, 300, 350, 355, 356, 360, 365, 366; BIOL 124, 125; HEAL 110, 230; KINE 310, 360.

Recommended Corequisite: ATEP 450.

Schedule Type: Internship

ATEP 457: Athletic Training Practicum 2. 1 credit. Emphasizes physical assessment and therapeutic interventions of the upper body with non-sport populations and assessment of general medical conditions in a clinical practicum field experience under the direct supervision of a preceptor for 75 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to ATEP 354.

Recommended Corequisite: ATEP 450.

Registration Restrictions:
Required Prerequisites: ATEP 361C, 365C, 367C, 370C, 375C and 400C.
C Requires minimum grade of C.

Schedule Type: Internship

ATEP 460: Pediatric Sports Medicine. 3 credits. Examines evidence-based practices for injury prevention, sport safety, emergency preparedness, and risk management within youth and scholastic sport. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 470, 476.

Registration Restrictions:
Required Prerequisites: ATEP 300C and KINE 310C.
C Requires minimum grade of C.

Schedule Type: Lecture

ATEP 466: Athletic Training Practicum 3. 2 credits. Emphasizes injury prevention administration physical assessment and therapeutic intervention during athletics preseason in a clinical practicum field experience under the direct supervision of a preceptor for 150 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: ATEP 361C, 365C, 367C, 370C, 375C and 400C.
C Requires minimum grade of C.

Schedule Type: Internship

ATEP 470: Post Rehabilitative Therapeutic Interventions. 2 credits. Examines current topics of musculoskeletal injury prevention and intervention. Investigates injury epidemiology, pain and nutritional theories. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 476.

Schedule Type: Lecture

ATEP 476: Athletic Training Practicum 4. 4 credits. Emphasizes physical assessment and therapeutic interventions of the upper body in a clinical practicum field experience under the direct supervision of a preceptor for 300 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 470.

Registration Restrictions:
Required Prerequisites: ATEP 450C, 457C and 466C.
C Requires minimum grade of C.

Schedule Type: Internship

ATEP 480: Athletic Training Research. 3 credits. Examines methods for critically evaluating clinical research techniques and interventions to improve patient outcomes specific to the practice of athletic training. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 486.

Registration Restrictions:
Required Prerequisites: ATEP 460C, 470C and 476C.
C Requires minimum grade of C.

Schedule Type: Lecture

ATEP 486: Athletic Training Practicum 5. 6 credits. Emphasizes professional skill integration with a clinical practicum field experience under the direct supervision of a preceptor for 400 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 480.

Registration Restrictions:
Required Prerequisites: ATEP 460C, 470C and 476C.
C Requires minimum grade of C.
ATEP 499: Independent Study in Athletic Training. 1-6 credits.
Study of a topic area in athletic training research, theory, or practice under direction of a faculty member. May be repeated, but not more than 6 total credits may be earned. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree.

Schedule Type: Independent Study

500 Level Courses

ATEP 510: Advanced Functional Anatomy. 3 credits.
Investigates the musculoskeletal anatomy including innervation, vascular anatomy, and function of the neck, trunk and limbs. Synthesizes anatomy, physiology, and human movement as it relates to injury; case studies are used to enhance the understanding of human anatomy and interpret movement impairments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Basic human anatomy and physiology and functional anatomy knowledge.

Recommended Corequisite: ATEP 520 and 525.

Schedule Type: Lecture

ATEP 520: Therapeutic Interventions Foundations. 3 credits.
Explores foundational knowledge and skills necessary for the safe, effective, and evidenced-based application of therapeutic interventions. Investigates physiologic response to injury and healing, physiologic cause of pain, physiologic response of tissue to therapeutic intervention including modalities and exercise. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Basic human anatomy and physiology and functional anatomy knowledge.

Recommended Corequisite: ATEP 510 and 525.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ATEP 530: Emergency Procedures for Athletic Trainers. 3 credits.
Investigates the scientific and philosophical foundations of pre-hospital emergency care principles pertinent to athletic trainers. Develops knowledge, critical thinking and problem solving skills necessary to correctly apply emergency care principles and associated skills in a variety of clinical and professional settings. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 540, 545, 550, 555.

Schedule Type: Lecture

ATEP 530: Emergency Procedures for Athletic Trainers. 3 credits.
Investigates the scientific and philosophical foundations of pre-hospital emergency care principles pertinent to athletic trainers. Develops knowledge, critical thinking and problem solving skills necessary to correctly apply emergency care principles and associated skills in a variety of clinical and professional settings. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 540, 545, 550, 555.

Schedule Type: Lecture

ATEP 540: Lower Body Physical Assessment. 3 credits.
Analyzes principles of lower body physical assessment. Investigates mechanisms of injury, the evaluation process, and testing leading to diagnosis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 530, 545, 550, 555.

Schedule Type: Lecture

ATEP 540: Lower Body Physical Assessment. 3 credits.
Analyzes principles of lower body physical assessment. Investigates mechanisms of injury, the evaluation process, and testing leading to diagnosis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 530, 545, 550, 555.

Schedule Type: Lecture

ATEP 550: Athletic Training Foundations. 3 credits.
Investigates the knowledge, skill and professional foundations of the athletic training. Emphasizes is placed on the role of the athletic trainer as a member of the health care system by decision-making through evidence-based practice and foundational skills including fitting protective equipment and devices, and prophylactic preventative taping.

Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 510 and 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
ATEP 545: Athletic Training Clinical Techniques 1. 3 credits. 
Applies principles of lower body, thoracic and lumbar spine physical assessment. Develops evaluation skills including special testing leading to diagnosis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 530, 540, 550, 555.

**Registration Restrictions:**
- **Required Prerequisites:** ATEP 510\textsuperscript{B} and 520\textsuperscript{B}.
  \textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

ATEP 550: Lower Body Therapeutic Interventions. 3 credits. 
Develops, implements, and evaluates treatment plans using therapeutic modalities and rehabilitation interventions in the treatment of lower body injuries and conditions. Establishes an evidence-based approach to therapeutic interventions use in patient treatment. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 530, 540, 545, 555.

**Registration Restrictions:**
- **Required Prerequisites:** ATEP 510\textsuperscript{B} and 520\textsuperscript{B}.
  \textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ATEP 555: Athletic Training Clinical Techniques 2. 3 credits. 
Applies therapeutic interventions for the lower body in a laboratory setting. Develops rehabilitation treatment plans and skills necessary to carry out patient care. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 530, 540, 545, 555.

**Registration Restrictions:**
- **Required Prerequisites:** ATEP 510\textsuperscript{B} and 520\textsuperscript{B}.
  \textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ATEP 560: Upper Body Therapeutic Interventions. 3 credits. 
Utilizes an integrated approach to therapeutic interventions including modalities and rehabilitation in the treatment of upper body, head and neck injuries and conditions. Includes development, implementation, and evaluation of treatment plans for upper body, head and neck injuries. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 565, 566, 570, 575, 600.

**Registration Restrictions:**
- **Required Prerequisites:** ATEP 530\textsuperscript{B}, 540\textsuperscript{B}, 545\textsuperscript{B}, 550\textsuperscript{B} and 555\textsuperscript{B}.
  \textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

ATEP 565: Athletic Training Clinical Techniques 4. 3 credits. 
Applies therapeutic interventions for the upper body, head and neck in a laboratory setting. Develops rehabilitation treatment plans and skills necessary to carry out patient care. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 560, 566, 570, 575, 600.

**Registration Restrictions:**
- **Required Prerequisites:** ATEP 530\textsuperscript{B}, 540\textsuperscript{B}, 545\textsuperscript{B}, 550\textsuperscript{B} and 555\textsuperscript{B}.
  \textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

ATEP 566: Athletic Training Practicum 1. 2 credits. 
Emphasizes clinical examination and acute care of injuries during a clinical immersion practicum field experience under the direct supervision of a preceptor for 150 to 200 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Corequisite:** ATEP 560, ATEP 565, ATEP 570, ATEP 575, 600.

**Registration Restrictions:**
**Required Prerequisites:** ATEP 530B, 540B, 545B, 550B, and 555B.

- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**ATEP 570:** Upper Body Physical Assessment. 3 credits.

- Analyzes principles of upper body physical assessment. Investigates mechanisms of injury, the evaluation process, and testing leading to diagnosis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

- Recommended Corequisite: ATEP 560, 565, 566, 575, 600.

**Registration Restrictions:**

- **Required Prerequisites:** ATEP 530B, 540B, 545B, 550B, and 555B.

- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ATEP 575:** Athletic Training Clinical Techniques 3. 3 credits.

- Applies principles of upper body, head and neck physical assessment. Develops evaluation skills including special testing, leading to diagnosis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

- Recommended Corequisite: ATEP 560, 565, 566, 570, 600.

**Registration Restrictions:**

- **Required Prerequisites:** ATEP 530B, 540B, 545B, 550B, and 555B.

- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Athletic Training.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**600 Level Courses**

**ATEP 600:** Pathopharmacology. 3 credits.

- Examines the assessment and management techniques of general medical conditions and pharmacological principles and interventions.

- Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

- **Recommended Prerequisite:** Basic human anatomy and physiology and Functional Anatomy knowledge needed.

**Registration Restrictions:**

- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ATEP 650:** Administration and Management in Athletic Training. 3 credits.

- Focuses on the professional management and administrative issues in athletic training including the planning, designing, development, organization, implementation, direction, and evaluation of a health care program. Discusses current issues in athletic training related to professional conduct and practice. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

- **Recommended Corequisite:** ATEP 565.

**Registration Restrictions:**

- **Required Prerequisites:** ATEP 560B, 565B, 566B, 570B, and 575B.

- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ATEP 656:** Athletic Training Practicum 2. 1 credit.

- Emphasizes therapeutic interventions with non-sport populations during a clinical practicum field experience under the direct supervision of a preceptor for 75 to 125 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

- **Recommended Corequisite:** ATEP 650.

**Registration Restrictions:**

- **Required Prerequisites:** ATEP 560B, 565B, 566B, 570B, and 575B.

- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**ATEP 660:** Pediatric Sports Medicine. 3 credits.

- Examines evidence-based practices for injury prevention, sport safety, emergency preparedness, and risk management within youth and
ATEP 667: Athletic Training Practicum 3. 2 credits.
Emphasizes injury prevention, healthcare administration, clinical evaluation during and athletics pre-season clinical practicum field experience under the direct supervision of a preceptor for 150 to 200 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: ATEP 650B, 656B.
B- Requires minimum grade of B-.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ATEP 670: Post Rehabilitative Therapeutic Interventions. 2 credits.
Explores current topics of musculoskeletal injury prevention and intervention. Investigates injury epidemiology, pain and nutritional theories. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 660, 676.

Registration Restrictions:
Required Prerequisites: ATEP 650B, 656B and 667B.
B- Requires minimum grade of B-.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

ATEP 680: Athletic Training Research. 3 credits.
Examines methods for critically evaluating clinical research techniques and interventions to improve patient outcomes specific to the practice of athletic training. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 686.

Registration Restrictions:
Required Prerequisites: ATEP 660B, 670B and 676B.
B- Requires minimum grade of B-.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ATEP 686: Athletic Training Practicum 5. 6 credits.
Emphasizes professional development, evidence-based practice and integration of knowledge, skills and clinical decision-making during a clinical practicum field experience under the direct supervision of a preceptor for 400 to 600 hours. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Corequisite: ATEP 680.

Registration Restrictions:
Required Prerequisites: ATEP 660B, 670B and 676B.
B- Requires minimum grade of B-.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship
Bachelor of Individualized Study (BIS)

300 Level Courses

**BIS 300: Understanding Interdisciplinary Studies.** 3 credits.
Focuses on literature and issues relevant to interdisciplinary and multidisciplinary studies and the BIS program. Students explore selected topics, develop and gather feedback on individualized concentration proposals, and review BIS program requirements. Notes: Open only to pre-BIS students and BIS majors. Offered by Bachelor Individualized Study (p. 529). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Individualized Study or Undeclared.

**Schedule Type:** Lecture

**BIS 390: The Research Process.** 3 credits.
Focuses on skills to develop a research project, find and organize relevant information, examine and critique evidence, establish criteria, and create plan to complete senior project. Notes: Open only to pre-BIS students and BIS majors. Students cannot receive credit for both BIS 390 and 391. Offered by Bachelor Individualized Study (p. 529). May not be repeated for credit. Equivalent to BIS 391.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** BIS 300 and grade of 2.0 or above in ENGL 302/ENGH 302.

**Schedule Type:** Lecture

**BIS 391: The Research Process for Honors.** 3 credits.
Focuses on skills to develop an honors-level research project, find and organize relevant information, examine and critique evidence, establish criteria, and create plan to complete Honors Senior Research Project (BIS 490). Approved research proposal required prior to registration in BIS 490. Notes: Students cannot receive credit for both BIS 390 and 391. Offered by Bachelor Individualized Study (p. 529). May not be repeated for credit.

**Recommended Prerequisite:** Acceptance to pursue honors in the major.

**Schedule Type:** Lecture

400 Level Courses

**BIS 489: Directed Readings and Research.** 1-3 credits.
Readings and research on a topic directly relevant to student's core concentration. Notes: Open only to pre-BIS students and BIS majors. Individualized sections by arrangement. Guided by instructor with expertise. Topics must be approved by instructor and BIS director prior to enrollment. Offered by Bachelor Individualized Study (p. 529). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Open only to degree students in the Bachelor of Individualized Study Program.

**Schedule Type:** Independent Study

**BIS 490: RS: Senior Project.** 3 credits.
Project or thesis on a topic directly relevant to student’s concentration. Guided by student’s faculty advisor and 490 instructor. Notes: Open only to BIS majors. Individualized sections for BIS honors. Capstone course in BIS core concentration. Research proposals must be approved by faculty mentor, executive committee, and BIS director prior to enrollment. Offered by Bachelor Individualized Study (p. 529). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** BIS 390.

**Recommended Corequisite:** BIS 491.

**Registration Restrictions:**
Enrollment limited to students in the BIS Individualized Study program.

**Schedule Type:** Independent Study

**BIS 491: Senior Project Presentation.** 1 credit.
Focuses on preparation and delivery of a formal presentation of student’s BIS 490 project. Includes review of basic presentation techniques. Notes: Open only to BIS majors. Offered by Bachelor Individualized Study (p. 529). May not be repeated for credit.

**Specialized Designation:** Research Associated

**Recommended Prerequisite:** BIS 390.

**Recommended Corequisite:** BIS 490.

**Registration Restrictions:**
Enrollment limited to students with a major in Individualized Study.

**Schedule Type:** Lecture

**BIS 495: Career Practicum.** 1-6 credits.
Supervised experience in application of specified area. Offered by Bachelor Individualized Study (p. 529). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Permission of instructor or BIS Director.

**Schedule Type:** Internship
Bachelor's of Applied Science (BAS)

300 Level Courses

BAS 300: Building Professional Competencies. 3 credits.
This course serves as an orientation to the BAS degree program. Current strengths are assessed and future planning is highlighted. Core competency areas related to personal effectiveness and academic/workplace success are stressed. Introduction to the university online learning system and other available resources useful for degree completion are also emphasized. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students in a Bachelor of Applied Science degree.

Schedule Type: Seminar

400 Level Courses

BAS 490: Introduction to Research Methods. 3 credits.
This course introduces students to fundamental research methods and processes. Students will explore their research interests and identify one topic as well as learn to set up research questions, review literature, and define appropriate methods for data collection. This course intends to prepare students for their practicum study in BAS 491. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Student must have completed 85 credits prior to taking this course.

Registration Restrictions:
Enrollment limited to students with a class of Senior Plus or Senior.

Enrollment limited to students with a major in Applied Science.

Enrollment limited to students in the BAS Applied Science program.

Schedule Type: Lecture

BAS 491: Applied Sciences Capstone. 3 credits.
Students participate in an approved fieldwork study program and complete a research project as identified in BAS 490 Introduction to Research Methods. The Capstone project involves choosing and researching a workplace problem; designing, implementing and evaluating a specific plan of action; and formally presenting the project once completed. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Registration Restrictions:
Required Prerequisite: BAS 490C.
C Requires minimum grade of C.

Enrollment limited to students with a major in Applied Science.

Schedule Type: Internship

Biodefense (BIOD)

600 Level Courses

BIOD 604: Emerging Infectious Diseases I: Bacteria and Toxins. 3 credits.
Covers the microbiology, pathogenesis, clinical effects, and epidemiology of bacteria and toxins that pose threats to global health or can be utilized as biological weapons. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOD 605: Emerging Infectious Diseases II: Viral Agents. 3 credits.
Covers the microbiology, pathogenesis, clinical effects, and epidemiology of viruses that pose threats to global health or can be utilized as biological weapons. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOD 607: Introduction to Biodefense/Threat Analysis III: Toxins. 3 credits.
Discusses the threat of toxins as biological weapons. Special focus on microbiological toxins, including botulinum toxin, and biochemical action of toxins. Comparison to chemical weapons and debate about classification as such. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOD 609: Biodefense Strategy. 3 credits.
Introduces students to the biodefense and biosecurity strategies and policies of the United States, other nations, and international organizations. Evaluates the effectiveness of these policies in strengthening defenses, improving intelligence, increasing oversight, enhancing nonproliferation, and reinforcing norms. Examines the interaction of biodefense and biosecurity with homeland, national, and international security. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: BIOD 604 and 605, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOD 610: Advanced Topics in Global Health Security.** 1-4 credits. Different topics, depending on instructor’s specialty. Topics include ethical, legal, scientific, security, political, and/or policy aspects of global health security, emphasizing current problems and research. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 18 credits.

**Recommended Prerequisite:** BIOD 604 and 605 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOD 620: Global Health Security Policy.** 3 credits. Explores issues emerging from the interaction of health and security that represent novel challenges to policy makers confronting a rapidly changing international landscape. Examines the origin and evolution of the concept of health security. Analyzes strategic impact of infectious disease outbreaks, global health security case studies, global health governance, and formulation and implementation of U.S. global health security policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and BIOD 605; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOD 621: Ethics and International Security.** 3 credits. Challenges students to wrestle with dilemmas raised by the desire to behave ethically in an international system in which consensus about ethical matters is absent. Students will develop, apply, and justify their own perspective on an ethical problem related to international security using ethical theory and social science research. Ethical issues related to nuclear, biological, and chemical weapons that confront researchers, policy makers, and practitioners will be addressed. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOD 622: Negotiating in the International Arena.** 3 credits. Provides students with the concepts and tools for analyzing complex negotiation processes and introduces them to the challenges facing international negotiators. Students will read about the frameworks and perspectives that have guided the scholarly research on negotiation, as well as the latest findings from that research; analyze complex cases of actual negotiations in the security, trade, and environmental areas; and negotiate key issues on the agendas of nations and international organizations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOD 705: Intelligence: Theory and Practice.** 3 credits. Theory and practice of intelligence, including the intelligence cycle, organization of the intelligence community, and the origins and impact of recent reforms. Examines the capabilities and limitations of the different collection disciplines, analytic methodologies and pathologies, and the relationship between intelligence and policy. Analyzes challenges posed by collecting and analyzing intelligence on weapons of mass destruction programs conducted by states and terrorists. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and 605 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOD 706: Nuclear, Biological, and Chemical Weapons Policy and Security.** 3 credits. Explores the causes, conduct, and consequences of the proliferation of nuclear, biological, and chemical weapons. Covers the historical, technological, normative, and strategic factors that have promoted and restrained the spread of these weapons. Addresses the motives for states to develop these weapons and the debate over the security implications of nuclear, biological, and chemical weapon proliferation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.
Compliance with international treaties, and implementing biosecurity and homeland security, quarantine authority and enforcement, ensuring security, legal aspects of public-private cooperation in biodefense. Topics include the origins of the Department of Homeland Security, the role of the military in homeland security, trade-offs between privacy and security, legal aspects of public-private cooperation in biodefense and homeland security, quarantine authority and enforcement, ensuring compliance with international treaties, and implementing biosecurity regulations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and 605 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOD 709: Nonproliferation and Arms Control. 3 credits.**
Examines the array of national and international measures used to slow, halt, and reverse the spread of nuclear, biological, chemical, and missile weapons. Explores the theory and practice of proliferation to provide insights into the supply and demand aspects of proliferation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and 605 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOD 710: Health Security Preparedness. 3 credits.**
Examines national and international public health and medical preparedness for and response to natural disasters, terrorist acts, and disease outbreaks. Explores organizational and policy architecture, implementation challenges, and strategies for preventing, detecting, and mitigating these threats. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and 605 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOD 722: Examining Terrorist Groups. 3 credits.**
Introduction to terrorism including the history and evolution of terrorism, case studies of key terrorist groups, the current nature of the terrorist threat and counterterrorism strategies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and 605 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOD 726: Food Security. 3 credits.**
Analyzes threats to food security globally including those related to climate change and environmental degradation; animal and plant diseases; access to clean water; agricultural terrorism; and antimicrobial resistance. Explores the national and global health, economic, social, and ethical impacts of these disruptive forces. Examines strategies for enhancing the security of the global food production and supply systems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and BIOD 605; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOD 751: Biosurveillance. 3 credits.**
Provides an understanding of the capabilities required to provide reliable early warning of disease outbreaks and identify their etiological agents. Assesses strengths and limitations of physicians, laboratories, epidemiologists, aerosol sensors, and syndromic surveillance systems. Considers the challenges posed by the integration and analysis of the information collected by these sources. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** BIOD 604 and BIOD 605; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Schedule Type: Lecture

BIOD 752: The Role of the Military in Homeland Security. 3 credits.
Analyzes the role that the armed forces play in homeland security, including historical and legal developments, the role of the National Guard, capabilities for crisis and consequence management, and case studies of military assistance to civilian authorities in response to riots, terrorist incidents, and natural disasters. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: BIOD 604 and 605; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOD 760: National Security Technology and Policy. 3 credits.
Introduces students to the intersection of science, technology, and policy in national security. Will examine the players in the formation of science policy; the roles they play; how the types, uncertainties, and availability of data affect science policy debates; and how science policy decisions are made. Topics to be covered include weapons of mass destruction, nonlethal weapons, nanotechnology, bioengineering, energy security, and pandemic influenza. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: BIOD 604 and 605; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate, Non-Degree or Washington Consortium level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOD 762: Biotechnology and Society. 3 credits.
Examines the growing role of biotechnology in modern society, including benefits to human and animal health, industrial applications, and potential for misuse. Analyzes key variables influencing the revolution in biotechnology and impact in both developed and developing countries. Explores the political, economic, social, legal, security, and ethical implications of advances in life sciences and biotechnology. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: BIOD 604 and 605 or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOD 766: Development of Vaccines and Therapeutics. 3 credits.
Analyzes the process of developing new medical countermeasures against biological weapons and emerging infectious diseases such as SARS and pandemic influenza. Special attention is paid to the scientific, technical, political, regulatory, and economic obstacles to developing new vaccines and therapeutics. Examines the causes and potential solutions of public and private sector failures. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: BIOD 604 and 605 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

BIOD 780: Master’s Supervised Internship. 1-6 credits.
Internship under supervision of qualified professional in biodefense at a government agency, consulting firm, industrial firm, or other acceptable agency. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Permission of program director or advisor.

Registration Restrictions:
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

BIOD 790: Global Health Security Capstone. 3 credits.
Provides students with the opportunity to hone their research, writing, collaboration, and presentation skills through completion of a capstone project that synthesizes the theoretical and subject matter knowledge students have gained in the program. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

BIOD 793: Directed Studies in Biodefense. 1-3 credits.
Individualized study of topics not otherwise available in graduate program. May involve reading assignments, tutorials, lectures, papers, presentations, or lab or field study, determined in consultation with instructor. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Permission of instructor and program director.

Registration Restrictions:
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**BIOD 798:** *Master's Research Project in Biodefense.* 3 credits.
Research project related to student's concentration under supervision of faculty advisor. Student produces substantial and original contribution to the field of biodefense on the model of an article in a scholarly journal. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** 24 credits in BIOD and permission of project director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**800 Level Courses**

**BIOD 810:** *Advanced Seminar in Biodefense.* 3 credits.
Explores issues of contemporary and emerging concern in biodefense and biosecurity. Topics may include legal, ethical, scientific, economic, and political aspects of biodefense and biosecurity. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** BIOD 604 and 605 or permission of adviser.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**BIOD 890:** *Doctoral Supervised Internship.* 1-6 credits.
Internship under supervision of qualified biodefense professional at government agency, consulting firm, industrial firm, or other acceptable agency. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Permission of program director or advisor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate level students.

**Schedule Type:** Internship

**BIOD 899:** *Directed Research in Biodefense.* 1-12 credits.
Research on a pertinent topic in biodefense; scope and subject determined by instructor. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Approval of program director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

**900 Level Courses**

**BIOD 996:** *Doctoral Reading and Research.* 1-9 credits.
Independent reading and research on specific biodefense topic under faculty member's direction. Specific arrangements for designing scope and area of study to be determined in consultation with instructor. May involve literature searches and review, workshops, tutorials, or other formats. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

**BIOD 998:** *Doctoral Dissertation Proposal.* 1-12 credits.
Development of a research proposal, which forms the basis for doctoral dissertation under guidance of dissertation director committee. Notes: Only 12 credits may be applied to the degree. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree.

**Registration Restrictions:**
Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**BIOD 999:** *Doctoral Dissertation.* 1-12 credits.
Doctoral dissertation research under direction of dissertation chair. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree.

**Recommended Prerequisite:** BIOD 998.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to students with a major in Biodefense, Biological Threat and Defense or Microbial Biodefense.

Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**Bioengineering (BENG)**

**100 Level Courses**

**BENG 101:** *Introduction to Bioengineering.* 3 credits.
Surveys the field of bioengineering and the global impact of technology innovation in solving problems in biology and medicine with an emphasis on engineering tools and concepts. Introduces mathematical modeling and analysis of bioengineering problems through the use of standard software packages for simulation. Other topics include: prototyping and design, ethics and regulatory affairs, and history and career paths in Bioengineering. Offered by Bioengineering (p. 970). Limited to two attempts.
Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

200 Level Courses

BENG 220: Physical Bases of Biomedical Systems. 3 credits.
Introduces the physical basis of biomedical systems and signals.
Demonstrates basic concepts of systems and signals theory, and shows their derivation from the biophysical concepts such as mechanics, fluid mechanics, pharmacokinetics and molecular biophysics which underlie the signals in living systems. Aims at providing the student with the mathematical and physical understanding to quantitatively describe biological systems. Offered by Bioengineering (p. 970). Limited to two attempts. Equivalent to ECE 220.

Registration Restrictions:
Required Prerequisites: (BENG 101C, MATH 203C and PHYS 160C) and (MATH 214C or 216C).
May be taken concurrently.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

300 Level Courses

BENG 301: Bioengineering Measurements. 3 credits.
Introduces the basic concepts and tools for making biomedical measurements, describes instrumentation design and analysis considerations, and discusses several practical applications. Offered by Bioengineering (p. 970). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: BENG 380C, 320C and 313C.
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Bioengineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

BENG 302: Bioengineering Measurements Lab. 1 credit.
Provides hands-on experience with sensors and instrumentation relevant to the analysis of living systems and related processes. Biomedical measurements include electrocardiograms, electromyograms, spirometry, pulse oximetry, and glucose monitoring. Offered by Bioengineering (p. 970). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: BENG 301C.
May be taken concurrently.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

BENG 304: Modeling and Control of Physiological Systems. 3 credits.
Introduces a systems-level understanding of biomedical systems. Emphasis on mathematical modeling of dynamic systems, including the role of feedback. Analogies between electrical and mechanical systems will be discussed. Examples covered will include multiple scales ranging from cells to organ systems. Offered by Bioengineering (p. 970). Limited to two attempts.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: MATH 214C and PHYS 260C and (BENG 320C or SYST 320C) and BENG 313C.
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Bioengineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

BENG 313: Physiology for Engineers. 3 credits.
Provides a broad introduction to the subject of human physiology, focusing on learning the subject matter from an engineering viewpoint. Emphasis on organs and physiological systems where engineering has a significant role. Offered by Bioengineering (p. 970). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (BENG 101C) and (MATH 114B or 116B) and (BIOL 213C).
C Requires minimum grade of C.
B- Requires minimum grade of B-.

Enrollment is limited to students with a major, minor, or concentration in Bioengineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

BENG 320: Bioengineering Signals and Systems. 3 credits.
Introduces the conversion of analog signals to digital ones and methods for using digitally processed signals in biomedical applications. Offered by Bioengineering (p. 970). Limited to two attempts. Equivalent to ECE 320.

Registration Restrictions:
Required Prerequisites: BENG 101C, 220C and MATH 214B-.
C Requires minimum grade of C.
B- Requires minimum grade of B-.

Enrollment is limited to students with a major, minor, or concentration in Bioengineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

BENG 322: Health Data Challenges. 3 credits.
Covers methodology and tools used to work with health data structures supporting organizations’ needs for reliable data that are captured, stored, processed, integrated, and prepared for further querying, decision making, data mining and knowledge discovery for a variety of clinical and organizational purposes. Data security and privacy, data standards, data interoperability, health information exchange, and big data analytics are discussed. Offered by Bioengineering (p. 970). Limited to two attempts. Equivalent to IT 322.

Registration Restrictions:
**Required Prerequisites:** IT 214<sup>C</sup> and (STAT 250<sup>C</sup> or 344<sup>C</sup>).  
<sup>C</sup> Requires minimum grade of C.  
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**BENG 341:** *Introduction to Biomaterials.* 3 credits.  
To provide a fundamental understanding of current, state of the art, and future directions of biomaterials. Offered by Bioengineering (p. 970). Limited to two attempts.  
**Specialized Designation:** Scholarly Inquiry  
**Registration Restrictions:**  
**Required Prerequisites:** (CHEM 251<sup>C</sup> or 211<sup>C</sup>) and (MATH 113<sup>C</sup>) and (BIOL 213<sup>C</sup>).  
<sup>C</sup> Requires minimum grade of C.  
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**BENG 380:** *Introduction to Circuits and Electronics.* 3 credits.  
Builds on simple circuit concepts introduced in PHYS 260. Includes circuit analysis using superposition, equivalent circuits and transient analysis of RL, RC and RLC circuits; sinusoidal excitations, AC steady state analysis; frequency response; operational amplifiers; semiconductor devices such as diodes, field effect and bipolar transistors; and digital logic circuits. (Not intended for those majoring in electrical or computer engineering.) Offered by Bioengineering (p. 970). Limited to two attempts.  
**Registration Restrictions:**  
**Required Prerequisites:** (PHYS 260<sup>C</sup> and MATH 214<sup>B</sup>) and BENG 320<sup>C</sup>.  
<sup>1</sup> May be taken concurrently.  
<sup>C</sup> Requires minimum grade of C.  
<sup>B</sup> Requires minimum grade of B-.  
Enrollment is limited to students with a major, minor, or concentration in Bioengineering.  
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture, Recitation

**BENG 381:** *Circuits and Electronics Lab.* 1 credit.  
Lab associated with BENG 380. Provides laboratory experience in basic electronics emphasizing issues and considerations that are paramount for biomedical instrumentation. Not intended for those majoring in electrical or computer engineering. Offers: Not intended for those majoring in electrical or computer engineering. Offered by Bioengineering (p. 970). Limited to two attempts.  
**Registration Restrictions:**  
**Required Prerequisites:** PHYS 261<sup>C</sup> and BENG 380<sup>C</sup>.  
<sup>1</sup> May be taken concurrently.  
<sup>C</sup> Requires minimum grade of C.  
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Laboratory

**BENG 390:** *Engineering Design and Fabrication.* 3 credits.  
Project based course where students will design projects containing analog and digital components as well as mechanical parts. Students will simulate, build, and test their projects. Offered by Bioengineering (p. 970). Limited to two attempts. Equivalent to ECE 390.  
**Registration Restrictions:**  
**Required Prerequisites:** (BENG 380<sup>C</sup>, ECE 280<sup>C</sup> or 285<sup>C</sup>).  
<sup>C</sup> Requires minimum grade of C.  
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**BENG 392:** *Engineering Design Studio.* 1 credit.  
Identification and feasibility study of advance engineering problems. Application of path, physics and engineering methods to challenging projects. Preliminary design, modeling, simulation and prototyping of projects. Notes: This course should be taken preceding ECE/BENG 492. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 2 credits. Equivalent to ECE 392.

**Recommended Prerequisite:** 75 hours of completed coursework applicable to EE, CpE, or BIOE degree and permission of instructor.

**Schedule Type:** Lecture

**BENG 395:** *RS: Mentored Research in Bioengineering.* 1-3 credits.  
Introduces the scientific research process through "hands on" experience: students are matched with faculty mentors who are actively involved in Bioengineering-related research. Requires no less than 60 hours per semester working with mentors. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Research/Scholarship Intensive  
**Recommended Prerequisite:** At least 60 credit hours applicable to the Bioengineering program.

**Registration Restrictions:**  
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Independent Study

### 400 Level Courses

**BENG 406:** *Introduction to Biomechanics.* 3 credits.  
This course introduces the fundamental principles of musculoskeletal biomechanics, computational simulation of movement, and OpenSim simulator. Topics include functions and models of the musculoskeletal structures, mathematical description of motion, kinetics, and simulation of movement using OpenSim. Offered by Bioengineering (p. 970). Limited to two attempts.  
**Registration Restrictions:**  
**Required Prerequisites:** (PHYS 160<sup>C</sup>) or 243<sup>C</sup>) and MATH 203<sup>C</sup> and 214<sup>C</sup>  
and (BENG 220<sup>C</sup>, SYST 220<sup>C</sup> or ECE 220<sup>C</sup>) and BENG 313<sup>C</sup>.  
<sup>C</sup> Requires minimum grade of C.  
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**BENG 420:** *Bioinformatics for Engineers.* 3 credits.  
This course introduces the fundamental techniques and tools for analyzing biomedical data, important for many biomedical engineering problems. Topics include regression, classification, clustering,
dimensionality reduction, data representation, pattern matching and algorithm performance evaluation. This innovative course will leverage hybrid learning through a combination of lectures, on-line content, and individual and group projects involving hands-on analysis. Offered by Bioengineering (p. 970). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: BENG 320\textsuperscript{C}, SYST 320\textsuperscript{C} or ECE 320\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may \textbf{not} enroll.

Schedule Type: Lecture

BENG 421: Introduction to Tissue Engineering. 3 credits.
Designed to provide exposure to the concepts of cell/tissue functions and behavior and strategies to manipulate their responses, biomaterials to construct scaffolds, modern techniques of artificial organ development and wound healing and most importantly, the utilization of engineering principles for biomedical applications. Offered by Bioengineering (p. 970). May not be repeated for credit.

Recommended Prerequisite: BENG 220.

Registration Restrictions:
Students with the terminated from VSE major attribute may \textbf{not} enroll.

Schedule Type: Lecture

BENG 437: Medical Image Processing. 3 credits.
Covers the basic concepts of image processing in the context of medical applications. It focuses on the basics of image enhancement in the spatial domain, image enhancement in the frequency domain, image restoration, morphological image processing, image registration and segmentation feature extraction and classification. Offered by Bioengineering (p. 970). Limited to two attempts.

Recommended Prerequisite: BENG 320.

Registration Restrictions:
Students with the terminated from VSE major attribute may \textbf{not} enroll.

Schedule Type: Lecture

BENG 441: Nanotechnology in Health. 3 credits.
Introduces fundamental principles of a wide range of nanoscale biomaterials and their applications in medicine and engineering. Offered by Bioengineering (p. 970). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (BIOL 213\textsuperscript{C} and PHYS 160\textsuperscript{C}) and (CHEM 251\textsuperscript{C} or 211\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may \textbf{not} enroll.

Schedule Type: Lecture

BENG 451: Translation and Entrepreneurship in Bioengineering. 3 credits.
This course focuses on teaching the process of translational research and on creating both a medical device and a company vision. Emphasis is made on creating a robust medical device prototype based on a deep understanding of the disease. Regulatory and reimbursement processes are also addressed in detail. This course will draw upon lectures and different guest speakers. Offered by Bioengineering (p. 970). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (BIOL 213\textsuperscript{C}) and (CHEM 251\textsuperscript{C} or 211\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may \textbf{not} enroll.

Schedule Type: Lecture

BENG 491: Bioengineering Senior Seminar I. 1 credit.
Covers the variety of responsibilities of bioengineers to society. Topics include ethics, regulation, research, industry, entrepreneurship, and cost issues. Professional approaches to job searching and effective technical communication will also be discussed. Speakers include faculty, invited guests from industry and government, as well as students. Notes: Students cannot receive credit for BENG 491 and ECE 491. Offered by Bioengineering (p. 970). Limited to two attempts. Equivalent to ECE 491.

Registration Restrictions:
Enrollment limited to students with a class of Senior Plus or Senior.

Students with the terminated from VSE major attribute may \textbf{not} enroll.

Schedule Type: Seminar

BENG 492: Senior Advanced Design Project I. 2 credits.
Conception of senior design project in bioengineering and determination of feasibility of proposed project. Work includes developing preliminary design and implementation plan. Notes: Students cannot receive credit for both BENG 492 and ECE 492. Offered by Bioengineering (p. 970). Limited to two attempts.

Mason Core: Capstone, Synthesis (p. 135)

Specialized Designation: Research Associated

Recommended Prerequisite: 90 credit hours applicable to the Bioengineering Program.

Registration Restrictions:
Required Prerequisites: (COMM 100\textsuperscript{C} or 101\textsuperscript{C}) and ENGH 302\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may \textbf{not} enroll.

Schedule Type: Lecture

BENG 493: RS: Senior Advanced Design Project II. 2 credits.
Implementation of project for which preliminary work was done in BENG 492. Project includes designing and constructing hardware, writing required software, conducting experiments or studies, and testing complete system. Requires oral and written reports during project and at completion. Notes: Implementation of project for which preliminary work was done in BENG 492. Offered by Bioengineering (p. 970). Limited to two attempts.

Mason Core: Capstone, Synthesis (p. 135)

Specialized Designation: Research/Scholarship Intensive

Registration Restrictions:
Required Prerequisite: BENG 492\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.
BENG 501: Bioengineering Research Methods. 3 credits.
Examines approaches for scientific research with emphasis on bioengineering. Topics include biophysical origins of bioengineering measures, tools and technology for bioengineering data collection, basic principles of experimental design and statistical analyses, and interpretation of scientific results. Special attention will be given to ethical issues associated with the collection, use, and dissemination of data. Offered by Bioengineering (p. 970). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy. Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

BENG 537: Introduction to Medical Image Processing. 3 credits.
Topics include overview of medical imaging systems, image representation and formats, basic filtering operations, feature detection, and introduction to image segmentation. Projects will focus on biomedical image applications. Offered by Bioengineering (p. 970). May not be repeated for credit.

Recommended Prerequisite: BENG 320 or permission of instructor.

Schedule Type: Lecture

BENG 538: Medical Imaging. 3 credits.
Introduction to the physical, mathematical and engineering foundations of modern medical imaging systems, medical image processing and analysis methods. Introduces engineering students to clinical applications of medical imaging. Emphasis on diagnostic ultrasound and magnetic resonance imaging methods; several other modalities are also covered. Provides overview of recent developments and future trends in the field of medical imaging, discusses some of the challenges and controversies, and involves hands-on experience applying the methods learnt in class to real-world problems. Offered by Bioengineering (p. 970). May not be repeated for credit. Equivalent to ECE 538.

Recommended Prerequisite: ECE 320 or equivalent; PHYS 262 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

BENG 541: Biomaterials. 3 credits.
Covers the principles of biomaterials and biological interactions with materials, including an overview of biomaterials characterization, design and testing. Specific topics include the use of polymers, ceramics and metallics in biomaterials, drug delivery applications, tissue engineering from an orthopedic and vascular perspective, biocompatibility, acute and chronic biological response to implanted material, and in vitro and in vivo disciplines required. Offered by Bioengineering (p. 970). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

BENG 525: Neural Engineering. 3 credits.
Provides an overview of topics in Neural Engineering. Topics covered range from sensory and motor prosthetic devices, stimulation of biological tissue, bioelectrodes and characterization techniques, brain-machine interfaces, and engineered devices to ameliorate neurodisorders. Prior knowledge in electrical or computer engineering
testing of biomaterials. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 213 (or equivalent), CHEM 251 (or equivalent).

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 550: Advanced Biomechanics.** 3 credits.
Introduces the fundamental concepts of musculoskeletal biomechanics, and how to apply mechanical principles to quantitatively describe and analyze movement. Topics include properties, functions, and models of the musculoskeletal structures, 3D kinematics, locomotion, and instrumentation systems applied in musculoskeletal biomechanics and movement analysis. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 551: Translational Bioengineering.** 3 credits.
Demonstrates the process for the creation of both medical device prototypes and medical device companies. Focuses on designing and building a robust medical device prototype and writing a business plan. Also addresses cost of healthcare, reimbursement, regulatory processes, intellectual property, and marketing and sales aspects. Course will feature lectures, videos, and guest speakers who are successful medical device entrepreneurs. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 590: Selected Topics in Bioengineering.** 3 credits.
Addresses selected topics from recent developments in various Bioengineering disciplines. Content may vary each semester depending on instructor and students’ interests. Offered by Bioengineering (p. 970). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 636: Advanced Biomedical Signal Processing.** 3 credits.
Provides an overview of advanced topics in biomedical signal processing with an emphasis on practical applications. Topics include introduction to physiological origins of biomedical signals, stochastic and adaptive signal processing, spectral estimation, signal modeling and analysis of nonstationary signals. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Recommended Prerequisite:** ECE 535 or equivalent; ECE 528 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 641: Advanced Nanotechnology in Health.** 3 credits.
Addresses recent developments in various Bioengineering disciplines. Content may vary each semester depending on instructor and students’ interests. Offered by Bioengineering (p. 970). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** ECE 541, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BENG 699:** Advanced Topics in Bioengineering. 3 credits.
Advanced topics of current interest in bioengineering. Topics chosen so they do not duplicate other courses in department. Active participation encouraged in form of writing and presenting papers in research areas. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**700 Level Courses**

**BENG 725:** Computational Motor Control. 3 credits.
Uses approaches from robotics, control theory, and neuroscience to understand biological motor systems. Contents include modeling muscles, reflexes and neural systems to understand how the central nervous system plans and controls movement of the eyes and limbs. The theoretical control problem is compared to known neuronal properties of the motor system and diseases of the motor system affecting movement control. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 738:** Advanced Medical Image Processing. 3 credits.
Advanced Medical Image Processing covers advanced processing techniques used in modern medical imaging. The course aims at developing an understanding of the mathematical background, principles and application of techniques such as segmentation, registration, morphometry, general linear modeling, principal and independent component analysis. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Recommended Prerequisite:** BENG 320 (or equivalent), ECE 537 (or equivalent).

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 745:** Biomedical Systems and Microdevices. 3 credits.
Bio-micro-electro-mechanical systems (BioMEMS) provide a robust approach to mimic in vivo microenvironments within controlled in vitro settings. This course introduces students to the highly interdisciplinary field of Lab-on-a-Chip technologies with emphasis on its advanced applications in biological and biomedical engineering. In addition to the microfabrication processes, a variety of analytical techniques routinely used in biomedical research will also be covered. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 750:** Modeling and Simulation of Human Movement. 3 credits.
Introduces the development and simulation of data-driven 3D neuromusculoskeletal models to quantitatively study human movement in health and disease. Topics include reconstructing 3D models from imaging data, estimating kinematics from motion data, simulating movement incorporating multimodality data, and analyzing muscle and joint forces. Students use computational biomechanics software. The course consists of lectures, article presentations, modeling assignments and a project. Offered by Bioengineering (p. 970). May not be repeated for credit.

**Recommended Prerequisite:** BENG 550 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**BENG 758:** Independent Reading and Research in Bioengineering. 1-6 credits.
Independent study in Bioengineering under the supervision of a faculty member, resulting in an acceptable technical report or presentation. This course may be repeated once for a total of 12 credit hours towards a graduate degree in Bioengineering. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Thesis
**800 Level Courses**

BENG 800: *Bioengineering Colloquium.* 0 credits.
Students are required to attend colloquia including talks by distinguished speakers, faculty candidates, and Mason faculty. Notes: Required attendance and participation in a minimum of 3 seminars per semester. Offered by Bioengineering (p. 970). May be repeated within the degree.

**Recommended Prerequisite:** Admission to PhD Bioengineering program.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

BENG 820: *Seminar in Neuroengineering.* 3 credits.
Selective analysis and discussion of topics in neuroengineering in areas of current research interest. Topics may include brain machine interfaces, advanced materials for implantable devices, computational neuroscience, neuronal biosensors and assays, and neuromorphetics. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to PhD Bioengineering program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

BENG 830: *Seminar in Biomedical Imaging.* 3 credits.
Selective analysis and discussion of topics in biomedical imaging in areas of current research interest. Topics may include techniques and analyses for ultrasound, magnetic resonance imaging (MRI), functional MRI, nuclear imaging, computer assisted tomography, positron emission tomography, and emergent approaches to imaging for health and disease. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to PhD Bioengineering program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

BENG 840: *Seminar in Nano-scale Bioengineering.* 3 credits.
Selective analysis and discussion of topics in nano-scale bioengineering in areas of current research interest. Topics may include nanoengineered materials, nanoscale devices and systems, and novel nano-scale fabrication and modeling approaches with application to biomedicine. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to PhD Bioengineering program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

BENG 850: *Seminar in Biomechanics.* 3 credits.
Selective analysis and discussion of topics in biomechanics in areas of current research interest. Topics may include computational and physiological modeling for biomechanics, multiscale representation of biomechanical systems, data fusion techniques for biomechanics, and application of quantitative biomechanics for diagnostics or medical intervention. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to PhD Bioengineering program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

**900 Level Courses**

BENG 998: *Doctoral Dissertation Proposal.* 1-12 credits.
Work on research proposal that forms basis for doctoral dissertation. May be repeated as needed. Notes: No more than 24 credits of BENG 998 and 999 may be applied to doctoral degree requirements. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Admission to PhD Bioengineering program.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Dissertation

BENG 999: *Doctoral Dissertation.* 1-12 credits.
Formal record of commitment to doctoral dissertation research under direction of faculty member in bioengineering. May be repeated as needed. Notes: Once enrolled in 999, students must maintain continuous registration in 999 each semester until graduation, excluding summers. Students who defend in the summer must be registered for at least 1 credit of 999 in the summer. Offered by Bioengineering (p. 970). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Admission to PhD Bioengineering program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Dissertation
Bioinformatics (BINF)

300 Level Courses

BINF 334: Perl for Bioinformatics. 3 credits.
Introduction into Perl programming language. Topics include data representation, control structures, file input/output, subroutines, regular expressions, debugging, relational databases. Emphasizes bioinformatics applications including DNA sequence analysis, parsing FASTA and GenBank files, processing BLAST output files, SQL or equivalent query language. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Knowledge of programming language or CS 112 or equivalent.

**Schedule Type:** Lecture

BINF 354: Foundations in Mathematical Biology. 3 credits.
Interdisciplinary introduction to life sciences for physicists, chemists, engineers, and mathematicians. Combines knowledge from natural sciences, social and behavioral sciences, quantitative reasoning, and information technology. Covers selected topics in ecology, physiology, biochemistry, and behavior. May include biochemical reaction kinetics, Hodgkin-Huxley model for cellular electrical activity, continuous and discrete population interactions, and neural network models of learning. Techniques utilized include ordinary differential equations, difference equations, algebraic equations, and computer simulations. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** Completion or concurrent enrollment in all other required Mason Core courses (must include a chemistry course); MATH 114 or equivalent.

**Schedule Type:** Lecture

400 Level Courses

BINF 401: Bioinformatics and Computational Biology I. 3 credits.
Covers the following topics and related methodology: protein sequence, structure prediction, and modeling methods; nucleic acid sequence and structure prediction; gene structure prediction in prokaryotes and eukaryotes; elements of system biology. Students will learn programming approaches to solve bioinformatics problems. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 213, BIOL 214 and CDS 130 with a grade of C or better, or its equivalent, or permission of instructor.

**Schedule Type:** Lecture

BINF 402: Bioinformatics and Computational Biology II. 3 credits.
Continuation of BINF401 and studies in-depth several algorithms and methods used in bioinformatics and computational biology. Students will learn sequence alignment and assembly algorithms, hidden Markov models, classification and prediction methods, genome annotation. These techniques will then be applied to current bioinformatics problems. Programming assignments are incorporated in the course program. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BINF 401.

**Schedule Type:** Lecture

BINF 403: Bioinformatics and Computational Biology Lab I. 1 credit.
Laboratories will introduce students to bioinformatics tools designed to answer research problems in the topics covered in lectures, such as sequence alignment, sequence pattern recognition, structural conformation modeling, phylogenetic analysis methods and image comparisons. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Corequisite:** BINF 401.

**Schedule Type:** Laboratory

BINF 404: Bioinformatics and Computational Biology Lab II. 1 credit.
Laboratories will introduce students to research bioinformatics tools relevant to lecture topics such as: the correspondence of measured fragments to parent biomolecules, inference methods for gene and protein networks, predicting system outputs given specified inputs. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Corequisite:** BINF 402

**Schedule Type:** Laboratory

BINF 450: Bioinformatics for Life Sciences. 4 credits.
Teaches students how to understand the basis of and use of bioinformatics software in database searching, sequence analysis, gene identification, genomics, protein structure and phylogeny. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 213, and either BIOL 482 or CHEM 463 or BIOL 483.

**Schedule Type:** Lecture

BINF 470: Molecular Biophysics. 3 credits.
Offers a broad introduction into molecular biophysics. Demonstrates that the application of methods of physics provides a unique opportunity to tackle complex biological problems. Designed for physics or chemistry majors; also useful for biology majors interested in bioinformatics and computational biology. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to PHYS 370.

**Recommended Prerequisite:** PHYS 307 or CHEM 331, or permission of instructor.

**Schedule Type:** Lecture

BINF 490: Independent Senior Research in Bioinformatics and Computational Biology. 3 credits.
Course offers individual research in bioinformatics and computational biology under the guidance of faculty member. Written report required upon course completion. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor.

**Schedule Type:** Research

BINF 491: Senior Thesis in Bioinformatics. 1 credit.
A project is chosen and completed under the guidance of a Bioinformatics Department faculty member. Notes: An oral progress report with a poster at the fall semester Bioinformatics Student Research
Day is required. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Corequisite:** BINF 401.

**Schedule Type:** Research

**BINF 492: Senior Thesis in Bioinformatics.** 1 credit.
A project is chosen and completed under the guidance of a Bioinformatics Department faculty member. Notes: A written thesis in standard format is required. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Corequisite:** BINF 402.

**Schedule Type:** Research

### 500 Level Courses

**BINF 530: Introduction to Bioinformatics Methods.** 3 credits.
Introduction to methods and tools for pairwise sequence comparison, multiple sequence alignment, phylogenetic analysis, protein structure prediction and comparison, database similarity searches, and discovery of conserved patterns in protein sequence and structures. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Graduate, Non-Degree or Undergraduate level students may **not** enroll.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BINF 531: Molecular Cell Biology for Bioinformatics.** 3 credits.
Intensive review of biochemistry, molecular biology, and cell biology necessary to begin research in bioinformatics. Topics include protein biochemistry, nucleic acids biochemistry, DNA replication transcription, and translation, recombinant DNA technology, genomics, molecular structure of genes and chromosomes, and expression and control. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate 300 and 400 level courses in biochemistry or cell biology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BINF 550: Introduction to Bioinformatics Database Design.** 3 credits.
Students will acquire skills needed to exploit public biological databases, and establish and maintain personal databases that support their own research. Skills include learning underlying data models and the basics of DBMS and SQL. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Introductory computer programming course, or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

### 600 Level Courses

**BINF 630: Bioinformatics Methods.** 3 credits.
Introduction to methods and tools for pairwise sequence comparison, multiple sequence alignment, phylogenetic analysis, protein structure prediction and comparison, database similarity searches, and discovery of conserved patterns in protein sequence and structures. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BINF 631: Molecular Cell Biology for Bioinformatics.** 3 credits.
Intensive review of biochemistry, molecular biology, and cell biology necessary to begin research in bioinformatics. Topics include protein biochemistry, nucleic acids biochemistry, DNA replication transcription, and translation, recombinant DNA technology, genomics, molecular structure of genes and chromosomes, and gene expression and control. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate background in biochemistry, or cell biology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BINF 633: Molecular Biotechnology.** 3 credits.
Introduction to the theory and practice of molecular biotechnology, with emphasis on the application of tools in today's society. Includes study of recombinant DNA technology, genomics, and bioinformatics as applied to commercially important products. Lectures reflect more recent advances and applications in the commercial aspects of biology. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Registration Restrictions:**
BINF 634: Bioinformatics Programming. 3 credits.
Data representation, control structures, file input/output, subroutines, regular expressions, debugging, introduction to relational databases. Emphasizes bioinformatics applications including DNA sequence analysis, parsing FASTA and GenBank files, processing BLAST output files, SQL, or equivalent query language. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 635: Microarray Methodology and Analysis. 3 credits.
Theory and practice of genome analysis including genetics, biochemistry, and tools for analyzing global gene expression, and detection and quantification of genes and gene products. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: BINF 633 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 636: Forensic DNA Sciences. 3 credits.
Intensive introduction to parameters affecting data QC and analysis, including factors arising from biochemistry, chemistry, genetics, statistics, instrumentation, and software. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to FRSC 560.

Recommended Prerequisite: CSI 603 and 604 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 639: Introduction to Biometrics. 3 credits.
Introduction to methods for measuring humans. Topics include face, speaker, fingerprint, and shoeprint recognition; and handwriting analysis. Students develop computer programs to perform many of these tasks. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: CSI 603 and 604 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 641: Biomolecular Modeling. 3 credits.
Introduction to basic principles and practice of computational biomolecular modeling. Students learn the elements of physical chemistry and molecular biology, which constitute the foundation of molecular modeling. Practical application of biomolecular software and development of related skills are emphasized through online lectures, homework, and course project. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: Students are expected to be familiar with basic concepts of physics, calculus, and biology on undergraduate level.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 650: Introduction to Bioinformatics Database Design. 3 credits.
Students will acquire skills needed to exploit public biological databases and establish and maintain personal databases that support their own research; such skills include learning underlying data models and the basics of DBMS and SQL. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: BINF 634 or equivalent, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 690: Numerical Methods for Bioinformatics. 3 credits.
Computational techniques for solving scientific problems focusing on applications in bioinformatics and computational biology. Students
develop the ability to convert a quantitative problem into computer programs to solve the problem. Emphasizes efficiency and readability of code. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** CS 112, MATH 113 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**BINF 701: Systems Biology.** 3 credits.
Systems biology seeks to understand how a complex biological system functions. This involves the use of computational methods and models to integrate information obtained about these systems through a wide range of methods that span multiple spatial and temporal scales. Current research examples will be used to motivate and demonstrate these approaches. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to BIOS 701.

**Recommended Prerequisite:** Admission to the Ph.D. program in Biosciences or Bioinformatics, CHEM 663 or equivalent.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BINF 702: Biological Data Analysis.** 3 credits.
Trains students in research methodologies for life sciences. Covers the three phases of biological research projects: experimental design, data collection and data analysis. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD program in bioinformatics or biosciences or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BINF 703: Bioinformatics Lab Rotation.** 1 credit.
Short-term introductory research on a specific topic in computational sciences and informatics under direction of faculty member. Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 3 credits.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**BINF 704: Colloquium in Bioinformatics.** 1 credit.
Seminar presentations in a variety of areas of bioinformatics and computational biology by COS faculty, staff, advanced PhD students, and professional visitors. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BINF 705: Research Ethics.** 1 credit.
Examines ethical issues in scientific research, reflecting on purpose and reviewing foundational principles for evaluating ethical issues. Provides skills for survival in scientific research through training in moral reasoning and teaching of responsible conduct. Students learn to apply critical-thinking skills to design, execution, and analysis of experiments and analysis of ethical issues in research, including use of animals and humans, standards in computer community, and research fraud. Guidelines for data ownership, manuscript preparation, and conduct of people in authority may be presented and discussed. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BINF 730: Biological Sequence and Genome Analysis.** 3 credits.
Fundamental methods for analyzing nucleic acid and protein sequences, including pairwise and multiple alignment, database search methods, profile searches, and phylogenetic inference. Development of probabilistic tools, including hidden Markov models and optimization algorithms. Survey of current software tools. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** A course in molecular biology, a course in probability, and ability to program in a high-level language, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BINF 731: Protein Structure Analysis.** 3 credits.
Computational methods for analyzing, classifying, and predicting three-dimensional protein structures. Covers theoretical approaches, techniques, and computational tools for protein structure analysis. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor, or previous courses in molecular biology, biochemistry, and computer programming.
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 732: Genomics. 3 credits. Surveys computational tools and techniques to study whole genomes, and explores biological basis of genome analysis algorithms. Topics include genome mapping, comparative genomics, and functional genomics. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to CSI 732.

Recommended Prerequisite: General biology, programming experience, CSI 700 or equivalent, CSI 731, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 733: Gene Expression Analysis. 3 credits. Analyzes gene expression data. Topics include cluster analysis and visualization of expression data, inference of genetic regulatory networks, and theoretical models of genetic networks. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: Permission of instructor, ability to program in a high-level language and a course in molecular biology; S-Plus or Matlab experience recommended.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 734: Advanced Bioinformatics Programming. 3 credits. Topics include algorithm design, complex data structures, object oriented programming, relational databases, designing modules, and graphics and web programming. Students complete a bioinformatics programming project. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: BINF 634, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 739: Topics in Bioinformatics. 1-3 credits. Selected topics in bioinformatics not covered in fixed-content bioinformatics courses. Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 740: Introduction to Biophysics. 3 credits. Introduces biophysics, focusing on physical and chemical concepts and their relation to rapidly expanding interdisciplinary interfaces among biology, chemistry, and physics. Reveals multiscale nature of biophysics, and includes exploration of macroscopic and microscopic applications. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to PHYS 630.

Recommended Prerequisite: Undergraduate courses in General Physics, Calculus, and Biology.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 741: Introduction to Computer Simulations of Biomolecules. 3 credits. Details computational methods in biomolecular simulations, such as molecular dynamics and Monte Carlo algorithms. Special emphasis given to practical applications. Reviews most recent advances in biomolecular simulations. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: Good programming skills, BINF 690 and 701, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BINF 751: Biochemical and Cellular Systems Modeling. 3 credits. Mathematical and computational methods for analysis of cellular and subcellular processes. Topics may include ion channels, whole cell models, intracellular signaling, biochemical oscillations, pathway modeling, parameter estimation, and sensitivity analysis. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: Calculus and knowledge of a computer programming language; and BINF 690 and 701; or permission of instructor. Course in differential equations is recommended.

Schedule Type: Lecture

BINF 760: Machine Learning for Bioinformatics. 3 credits. Machine learning and data mining methods relevant to application to problems in computational biology. Methods include decision trees, random forests, rule learning methods, support vector machines, neural networks, genetic algorithms, instance-based learning, Bayesian networks, and evaluation metrics for learning systems. Applications include cancer prediction, gene finding, protein function classification, gene regulation network inference, and other recent bioinformatics applications selected from the literature. Notes: In addition to lectures from the instructor, students will present papers from the literature and complete a machine learning project. Offered by School of Systems Biology (p. 748). May not be repeated for credit.
**Recommended Prerequisite:** BINF 630, BINF 631, and BINF 634, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BINF 795:** *Bioinformatics Internship.* 1-3 credits.
Involves off-campus, professional work with approved agencies, institutions, non-profits, or businesses throughout the semester. The internship work must produce one or more products such as: a comprehensive report, a departmental presentation, a research project, or an article. Internship placement and product type must be approved by the student’s faculty advisor. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Internship placement and parameters must be approved by the faculty advisor prior to registration.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**BINF 796:** *Directed Reading and Research.* 1-6 credits.
Reading and research on specific topic in computational sciences and informatics under direction of faculty member. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Research

**BINF 798:** *Research Project.* 3 credits.
Project chosen and completed under guidance of graduate faculty member that results in acceptable technical report. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Twelve graduate credits and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**BINF 799:** *Master's Thesis.* 1-6 credits.
Project chosen and completed under guidance of graduate faculty member that results in acceptable technical report (master's thesis) and oral defense. Offered by School of Systems Biology (p. 748). May be repeated within the degree.

**Recommended Prerequisite:** Admission to doctoral program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**900 Level Courses**

**BINF 996:** *Doctoral Reading and Research.* 1-6 credits.
Reading and research on specific topic in computational sciences and informatics under direction of faculty member. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to doctoral program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.
BINF 998: Doctoral Dissertation Proposal. 1-12 credits.
Covers development of research proposal, which forms basis for doctoral dissertation, under guidance of dissertation director and doctoral committee. Offered by School of Systems Biology (p. 748). May be repeated within the degree.

Recommended Prerequisite: Permission of advisor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

BINF 999: Doctoral Dissertation. 1-12 credits.
Doctoral dissertation research under direction of dissertation director. Notes: No more than 24 credits in BINF 998 and 999 may be applied to doctoral degree requirements. Offered by School of Systems Biology (p. 748). May be repeated within the degree.

Recommended Prerequisite: Admission to doctoral candidacy. Students should contact the department for permission and CRN to register. Please indicate your major and semester in the subject heading.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Biology (BIOL)

100 Level Courses

BIOL 103: Introductory Biology I. 4 credits.
Topics include chemistry of life, cell structure and function, Mendelian genetics, evolution, and diversity of life. Notes: Survey course suitable for any major. May not be taken after BIOL 200-level or above courses have been taken. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 103T, BIOL 105.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory, Lecture

BIOL 104: Introductory Biology II. 4 credits.
Topics include animal (including human) structure, function, homeostatic mechanisms, organ systems, behavior, higher plant systems, and major concepts in ecology. Course requires use of organisms. Notes: Students are strongly urged to take BIOL 103 prior to BIOL 104. Survey course suitable for any major. May not be taken after BIOL 200-level or above courses have been taken. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 104T, BIOL 106.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory, Lecture

Recommended Prerequisite: BIOL 103/104 coordinator and department chair.

Biological Biology II Laboratory. 1 credit.
The structure and function of major organ systems of animals and an examination of the structure and function of plants, emphasizing the higher plants. Notes: Not available to students who have taken BIOL 104 or the equivalent. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 104.

Recommended Prerequisite: Permission of BIOL 103/104 coordinator and department Chair.

Schedule Type: Laboratory

BIOL 124: Human Anatomy and Physiology. 4 credits.
Introduction to structure and function of body's major organ systems. Note: must be taken in sequence. Does not satisfy the natural science requirement in COS or CHSS. Course requires use of organisms. Not available for Biology major credit. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 124.

Registration Restrictions:
Required Prerequisite: BIOL 124C.
C Requires minimum grade of C.

Schedule Type: Laboratory, Lecture

BIOL 125: Human Anatomy and Physiology. 4 credits.
Introduction to structure and function of body's major organ systems. Notes: Does not satisfy the natural science requirement for the BA in COS or CHSS. Not available for Biology major credit. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 124.

Registration Restrictions:
Required Prerequisite: BIOL 124.

Schedule Type: Laboratory, Lecture

BIOL 126: Plants and People. 3 credits.
An introduction to the interaction of plants and people from a biological perspective and the tools to continue life-long critical evaluation of emerging issues in human nutrition, agriculture, medicine, and global environmental change as they relate to plant biology. Designated a Green Leaf Course. Offered by Biology (p. 617). May not be repeated for credit.

Mason Core: Natural Science Overview, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

200 Level Courses

BIOL 213: Cell Structure and Function. 4 credits.
For science majors and preprofessionals in life sciences. Introduction to cell chemistry, metabolism, and genetics. Note: for science majors and pre-professionals in the life sciences. Offered by Biology (p. 617). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Recommended Corequisite: CHEM 211

Schedule Type: Laboratory, Lecture
**BIOL 214: Biostatistics for Biology Majors.** 4 credits.
An introduction to statistics used in the life sciences. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Corequisite:** BIOL 213

**Schedule Type:** Lecture, Recitation

**BIOL 246: Introductory Microbiology.** 3 credits.
Introduction to microbial cell structure, physiology, and pathogenicity. Emphasizes control of microorganisms, host-parasite interactions including immunology, and viral and bacterial pathogens. Note: not available for Biology major credit or to students who have BIOL 213, 302, 305, or 418. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** C or better in BIOL 124 and 125, one year of general biology, or permission of instructor.

**Recommended Corequisite:** BIOL 306.

**Registration Restrictions:** Students cannot enroll who have a major in Biology.

**Schedule Type:** Lecture

**BIOL 295: Summer Research in Biology.** 1-3 credits.
Students enrolled in this course study life science related topics in an approved research environment during the summer. This course may involve one or more of the following: reading peer reviewed literature, conducting a field or laboratory study, attending scientific seminars and workshops, writing an abstract, preparing and presenting a poster, or writing a research paper. Notes: May be taken for 1 to 3 credits and repeated once for a total of 3 credits. Total limit for BIOL 295 is 3 credits toward 44 credits for BS or BA (as long as the number of 100-200 level credits for the biology areas has not been exceeded). Offered by Biology (p. 617). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Permission of instructor and Biology Program Director.

**Schedule Type:** Research

### 300 Level Courses

**BIOL 301: Biology and Society.** 3 credits.
Biological problems facing society including pollution, cloning, emerging diseases, global warming, and overpopulation. Notes: Not available for biology major or minor elective credit. May be repeated if topic is different. Offered by Biology (p. 617). May be repeated within the term.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** BIOL 103 and 60 credits, or permission of instructor.

**Schedule Type:** Lecture

**BIOL 302: Alternative Careers in Biology.** 1 credit.
This course will explore non-traditional careers that utilize a biology degree. Weekly seminars will allow biology undergraduates to discuss and explore the broad-range of career options that utilize a biology degree with professionals in those fields. Notes: Biology majors only. Offered by Biology (p. 617). May not be repeated for credit.

**Schedule Type:** Seminar

**BIOL 303: Animal Biology.** 4 credits.
Emphasizes structure and function of vertebrates, but surveys all animal groups and protozoa. Also covers evolutionary theory, and evolutionary history of major animal groups. Course requires use of organisms. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 310.

**Recommended Prerequisite:** C or better in BIOL 213, or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**BIOL 304: Plant Biology.** 4 credits.
Introduction to study of plants, their structure, development, nutrition, and ecology. Emphasizes flowering plants, but surveys all groups and their phyllogenetic relationships. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 310.

**Recommended Prerequisite:** C or better in BIOL 213, or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**BIOL 305: Biology of Microorganisms.** 3 credits.
Morphology, physiology, and pathogenicity of certain groups of bacteria, fungi, and viruses; stresses host-parasite interactions. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Corequisite:** BIOL 306.

**Registration Restrictions:**

**Required Prerequisites:** (BIOL 213C or BIOL 214C or U213).

Requires minimum grade of C.

Students cannot enroll who have a major in Nursing.

**Schedule Type:** Lecture

**BIOL 306: Biology of Microorganisms Laboratory.** 1 credit.
Laboratory techniques in culturing, staining, and identifying microorganisms. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Corequisite:** BIOL 305 or 246.

**Schedule Type:** Laboratory

**BIOL 308: Foundations of Ecology and Evolution.** 5 credits.
An examination of the principles of ecology, evolution, and the impact of humans on the world around them. Topics will include evolutionary history, biological diversity, and analyzes of interactions among organisms and between organisms and their environment. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 308T, BIOL 328, BIOL 338.

**Specialized Designation:** Scholarly Inquiry, Writing Intensive in the Major

**Recommended Prerequisite:** BIOL 311.

**Registration Restrictions:**

**Required Prerequisites:** (BIOL 213C and 214C) or (EVPP 110C and BIOL 214C).

Requires minimum grade of C.

**Schedule Type:** Laboratory, Lecture
**BIOL 309: Introduction to Oceanography.** 3 credits.
Introduction to chemical, biological, and geological aspects of oceanic environment. May include field trips. Notes: May include field trip. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to GEOL 309.

**Recommended Prerequisite:** Two of the following lab sciences courses are required for a total of 8 credits: [GEOL 101 or 102], [EVPP 110 or 111 or 210], CHEM 211, [BIOL 103 or 213], [PHYS 160 and 161 or 243 and 244].

**Schedule Type:** Lecture

**BIOL 310: Biodiversity.** 3 credits.
Explores the fundamental principles governing organismal biology while introducing the three domains of life: the Archaea, the Bacteria, the Eukaryotes, plus viruses. One off-campus field trip is required. Notes: BIOL 310 has replaced BIOL 303 and 304. Students who have taken BIOL 310 may not receive credit toward the major for BIOL 303 and/or BIOL 304. Offered by Biology (p. 617). May be repeated within the degree for a maximum credits. Equivalent to BIOL 303, BIOL 304.

**Specialized Designation:** Scholarly Inquiry

**Recommended Corequisite:** BIOL 330.

**Registration Restrictions:**
**Required Prerequisite:** (BIOL 213)$^C$.
$^C$ Requires minimum grade of C.

**Schedule Type:** Lecture

**BIOL 311: General Genetics.** 4 credits.
Basic principles of heredity and modern developments in this field. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 214.

**Registration Restrictions:**
**Required Prerequisite:** (BIOL 213)$^C$.
$^C$ Requires minimum grade of C.

**Schedule Type:** Laboratory, Lecture

**BIOL 312: Biostatistics for Bioinformatics.** 4 credits.
Use of probability and descriptive and inferential statistical techniques in interpreting biological data. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 214 and CDS 130 with a grade of C or better, or its equivalent or permission of the instructor.

**Schedule Type:** Laboratory, Lecture

**BIOL 313: Human Genetics for the Social Sciences.** 3 credits.
Emphasizes topics of interest to students in social sciences, but open to any non-biology major. Topics include human genome and its inheritance; nature versus nurture; genetic disease; genetics of sex determination, intelligence, personality, and mental illness; genetic differences within and between populations; and evolution of human beings. Notes: Not available for biology credit. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** One year of Biology and permission of instructor.

**Schedule Type:** Lecture

**BIOL 314: Introduction to Research Design and Analysis.** 4 credits.
Introduction to research design in a wide range of biological disciplines. Lecture will concentrate on how to design experiments with proper controls for statistical analysis, as well as obtaining permits and approvals from appropriate agencies. In recitation students will be given data sets to analyze. Offered by Biology (p. 617). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** BIOL 213, BIOL 214 or 312 or equivalent introductory statistics course, BIOL 311, CHEM 211-212. Completion of Biology core recommended. Must be enrolled in Biology Research Semester.

**Schedule Type:** Lecture, Recitation

**BIOL 318: Conservation Biology.** 3 credits.
Introduction to science used to identify species in need of conservation and techniques to manage and protect organisms. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 318.

**Recommended Prerequisite:** BIOL 308 or BIOL 310, or permission of instructor.

**Schedule Type:** Lecture

**BIOL 320: Comparative Chordate Anatomy.** 4 credits.
Compares anatomy and morphology of major chordate groups. Lab emphasizes shark, mudpuppy, cat, and rabbit. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or BIOL 310 or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**BIOL 322: Developmental Biology.** 3 credits.
Principles of embryonic development and differentiation in animal species at cellular, molecular, tissue, and whole organism levels. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 213 and BIOL 311, or permission of instructor.

**Schedule Type:** Lecture

**BIOL 323: Lab for Developmental Biology.** 1 credit.
This laboratory will explore early developmental processes using classical and modern developmental biology techniques. Students will have the opportunity to propose and carry out a small independent project using zebrafish as a model organism. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 322 or permission of instructor.

**Schedule Type:** Laboratory

**BIOL 326: Animal Physiology.** 3 credits.
General consideration of animal function emphasizing common life problems and methods for solving them. Topics include intercellular communication (nervous and endocrine), metabolism, water and solute balance, and cardiovascular and respiratory physiology. Offered by Biology (p. 617). May not be repeated for credit.
Recommended Prerequisite: BIOL 213 and BIOL 311, or permission of instructor.

Schedule Type: Lecture

**BIOL 328: Insect Biology.** 4 credits.
This is a writing intensive experience and laboratory for transfer students who have previously taken an equivalent course to BIOL 308 that did not meet the writing intensive requirements in the biology major. This course is paired with BIOL 308. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 213 or BIOL 214 with a grade of C or better or permission of instructor.

Recommended Corequisite: BIOL 310.

Schedule Type: Laboratory

**BIOL 330: Biodiversity Lab and Recitation.** 2 credits.
Explores the fundamental principles governing organismal biology while introducing the three domains of life: the Archaea, the Bacteria, the Eukaryotes, plus viruses. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or BIOL 310, or permission of instructor.

Schedule Type: Laboratory, Lecture

**BIOL 331: Invertebrate Zoology.** 4 credits.
Survey of invertebrate phyla, excluding insects, showing morphology, phylogeny, and general biology of these groups. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or BIOL 310, or permission of instructor.

Schedule Type: Laboratory, Lecture

**BIOL 332: Insect Biology.** 4 credits.
Survey of insects including taxonomy, morphology, physiology, behavior, ecology, and economic importance. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or BIOL 310, or permission of instructor.

Schedule Type: Laboratory, Lecture

**BIOL 334: Vertebrate Paleontology.** 4 credits.
Vertebrate Paleontology explores the evolution of vertebrates from the early Paleozoic to Recent. The course will cover the systematics, anatomy, paleogeography, and ecology of extinct vertebrates. Discussions will include fishes, early tetrapods & amniotes, dinosaurs, birds and mammals. Lab portion includes paleontology techniques, analysis, and study of fossil specimens and casts. A weekend field trip is included. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to GEOL 334.

Recommended Prerequisite: Any two courses from the following list: GEOL 101, GEOL 102, BIOL 103, BIOL 104, BIOL 213, BIOL 303 or the permission of the instructor.

Schedule Type: Laboratory, Lecture

**BIOL 335: Forensic Entomology.** 3 credits.
Explores the use of insects and other arthropods in field of forensic science as it pertains to the investigations of human and animal deaths and abuse, food and other product contamination, thefts, the illegal drug trade and unethical entomological practices. The use and presentation of this information from such investigations in court room proceedings will be discussed. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 213 or permission of instructor.

Schedule Type: Lecture

**BIOL 336: Invertebrate Paleontology.** 4 credits.
Classification, evolutionary trends, and distribution of common invertebrate fossils. May include field trips. Notes: May include field trips. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to GEOL 312.

Recommended Prerequisite: Either GEOL 101 and GEOL 102; or BIOL 103 and BIOL 104; or BIOL 213 and BIOL 310.

Schedule Type: Laboratory, Lecture

**BIOL 338: Lab for Fundamentals of Ecology and Evolution.** 2 credits.
This is a writing intensive experience and laboratory for transfer students who have previously taken an equivalent course to BIOL 308 that did not have a lab and did not meet the writing intensive requirements in the biology major. This course is paired with BIOL 308. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: Permission of Biology Program Director and faculty coordinator of BIOL 308.

Schedule Type: Laboratory

**BIOL 344: Plant Diversity and Evolution.** 4 credits.
Investigates the diversity of vascular plants, including angiosperms, their evolutionary relationships, and the bases of their classification and identification. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or BIOL 310, or permission of instructor.

Schedule Type: Laboratory, Lecture

**BIOL 345: Plant Ecology.** 4 credits.
Investigates the interaction of plants with their abiotic and biotic environment, native Virginian plant communities and their causes, and global processes affecting plant distributions over geological time. Notes: Three Saturday or Sunday field trips required. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or BIOL 310, or permission of instructor.

Schedule Type: Laboratory, Lecture

**BIOL 350: Freshwater Ecosystems.** 4 credits.
Studies physical, chemical, and biological processes in lakes, streams, and wetlands. Lectures, field trips, and lab exercises teach physical and chemical aspects of aquatic systems and life cycles, and adaptations of aquatic organisms. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 350.
Recommended Prerequisite: CHEM 211/212 or CHEM 155/156 and BIOL 308.

Schedule Type: Laboratory, Lecture

**BIOL 355:** Ecological Engineering and Ecosystem Restoration. 4 credits.
Provides definition, classification and practice of ecological engineering and ecosystem restoration. Describes general system ecology, ecosystem restoration, and the utilization of natural processes to provide ecosystem services to society and benefits to nature. Provides students with a systems-oriented perspective on environmental studies. Students will study principles in general system ecology and ecological engineering and explore practices in sustainable ecological design by carrying out a hands-on experimental design project with field microcosms/meocosms in a newly established Wetland Mesocosm Compound on the campus. This course will involve a field trip (1-2 days). Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: CHEM 211, BIOL 308 and PHYS 243.

Schedule Type: Laboratory, Lecture

**BIOL 374:** Biogeography: Space, Time, and Life. 3 credits.
A survey of the relationship between the distribution of plants and animals on the earth surface and the physical geography and environmental characteristics. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to GGS 321.

Recommended Prerequisite: One of the following: BIOL 310, GGS 122, GGS 102, or permission of instructor.

Schedule Type: Lecture

**BIOL 377:** Applied Ecology. 3 credits.
Introduction to ecosystem concepts and their applications to natural and managed ecosystems. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 377.

Recommended Prerequisite: Completion of 60 hrs including 8 hrs of BIOL, GEOL or CHEM or permission of instructor.

Schedule Type: Lecture

**BIOL 379:** RS: Ecological Sustainability. 4 credits.
Introduces the concepts and applications of several important topics relating to ecological sustainability. Focuses on the role of soils in maintaining and managing environmental quality. Teaches students how to understand and interpret scientific data presented in various types of literature covering ecological sustainability. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 378.

Mason Core: Capstone (p. 135)

Specialized Designation: Green Leaf Course, Research/Scholarship Intensive

Recommended Prerequisite: BIOL 308 or permission of instructor.

Schedule Type: Laboratory, Lecture

**BIOL 382:** Introduction to Virology. 3 credits.
An introduction to the fundamental nature of viruses, their classification, morphology, chemistry and their role in human disease. Offered by Biology (p. 617). May not be repeated for credit.

Registration Restrictions:

Required Prerequisites: (BIOL 305<sup>C</sup> or L305).<sup>1</sup>

<sup>1</sup> Requires minimum grade of C.

Schedule Type: Lecture

**BIOL 385:** Biotechnology and Genetic Engineering. 3 credits.
Emphasizes theory and applications, including significance and societal implications of biotechnology applied to medicine, agriculture, and environment. Offered by Biology (p. 617). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: BIOL 311<sup>C</sup> or L311.

<sup>1</sup> Requires minimum grade of C.

Schedule Type: Lecture

**400 Level Courses**

**BIOL 401:** Phage Discovery. 3 credits.
Discovery-based undergraduate research course where students purify phage from soil, use a variety of microbiology techniques, annotate phage genomes and use bioinformatics analyses. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 311 or equivalent or permission of Instructor.

Schedule Type: Lecture

**BIOL 402:** Applied and Industrial Microbiology. 3 credits.
Biology of microorganisms of ecological and industrial significance. Includes food production, spoilage and preservation, fermentation technology, waste disposal, water purification, biodeterioration, and decomposition. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 213, BIOL 305 or BIOL 306; CHEM 211, CHEM 212 or permission of instructor.

Schedule Type: Lecture

**BIOL 403:** Techniques in Applied and Industrial Microbiology. 1 credit.
Lab exercises illustrate basic and applied methodologies, including isolation of commercially useful strains. Discusses production and purification of industrial products. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 213, BIOL 305, BIOL 306; CHEM 211, CHEM 212. BIOL 402 (concurent enrollment is permitted) or permission of instructor.

Schedule Type: Laboratory

**BIOL 404:** Medical Microbiology. 3 credits.
Basic principles of infectious diseases caused by bacteria and viruses. Discusses genetics and molecular mechanisms of pathogenicity. Offered by Biology (p. 617). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 305<sup>C</sup> or L305) and (BIOL 306<sup>C</sup> or L306).<sup>1</sup>

<sup>1</sup> Requires minimum grade of C.

Schedule Type: Lecture

**BIOL 405:** Microbial Genetics. 4 credits.
Study of structure and function of bacterial DNA, emphasizing mechanisms of gene transfer, expression and regulation. Introduces DNA
repair, mutation, and life cycles of bacteriophage. Offered by Biology (p. 617). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 305\(^C\) or L305) and (BIOL 306\(^C\) or L306).
\(^C\) Requires minimum grade of C.

Schedule Type: Laboratory, Lecture

BIOL 406: Microbial Physiology and Metabolism. 4 credits.
Study of complexity and diversity of microbial physiology and metabolism with emphasis on bacteria. Nutrition, growth, transport, and anaerobic and catabolic processes are emphasized. Laboratory includes quantification of cellular macromolecules, enzyme purification and kinetics, column chromatography, and bacterial responses to environmental stimuli. Offered by Biology (p. 617). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 305\(^C\) or L305) and (BIOL 306\(^C\) or L306).
\(^C\) Requires minimum grade of C.

Schedule Type: Laboratory, Lecture

BIOL 407: Microbial Diversity. 4 credits.
Studies effect of microorganisms on ecological and medical phenomena. Stresses evolution of microbial species, biochemical cycling, and species interactions. Laboratory stresses use of cultural, biochemical, and phylogenetic methods to study microbial isolation, metabolism, and identification. Offered by Biology (p. 617). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 305\(^C\) or L305) and (BIOL 306\(^C\) or L306).
\(^C\) Requires minimum grade of C.

Schedule Type: Laboratory, Lecture

BIOL 408: Mushrooms, Molds and Society. 3 credits.
Provides a modern, comprehensive knowledge of fungal biology including classification, phylogeny, structure, physiology/metabolism, growth and development, genetics, industrial applications including biotechnology, ecological roles including pathogenic interactions with plants, animals, and man. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 408.

Recommended Prerequisite: BIOL 213 with a grade of C or better.

Schedule Type: Lecture

BIOL 409: Medical Mycology. 3 credits.
Provides the student with current knowledge of both the medical and microbiological aspects of fungal diseases in humans, including the etiologic agents, geographic distribution, epidemiology, transmission, determinants of pathogenicity, laboratory detection, and therapy associated with the major human mycoses. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 409.

Recommended Prerequisite: BIOL 213 with a grade of C or better.

Schedule Type: Lecture

BIOL 410: Advanced General Genetics. 3 credits.
Topics include quantitative genetics, extrachromosomal inheritance, and special techniques such as mutation screening, developmental genetics, cancer genetics, behavior genetics, evolutionary genetics, and ethics of genetic technology. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: C or better in BIOL 311 or permission of instructor.

Schedule Type: Lecture

BIOL 412: Phage Genomics. 3 credits.
Bacteriophages, viruses that infect bacteria, are the most abundant organisms in the biosphere. This course explores the genomes of mycobacteriophages (bacteriophages that infect mycobacteria) using bioinformatics tools. In this course, two mycobacteriophage genomes will be annotated and compared to other sequenced mycobacteriophage genomes. Bioinformatics tools will be used to learn more about bacteriophage protein function, immunity and genome structure. Each student in the course will formulate a comparative genomics question and use learned bioinformatics techniques to answer that question. The results of these experiments will be conveyed in the form of a research paper and oral presentation. This class is designed to give students the opportunity to actively participate in the process of scholarship and research in addition to learning valuable genomic and bioinformatics skills. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 311 or equivalent permission of instructor.

Schedule Type: Research

BIOL 413: Histotechniques. 3 credits.
Introduces theory and methods for the preparation of tissue samples from animal or plant specimens for examination with light or electron microscopy. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 311 and permission of instructor.
May not be combined with BIOL 572 for credit. For Biology majors only. Undergraduate courses in biology and chemistry or permission of instructor.

Schedule Type: Lecture

BIOL 417: Selected Topics in Molecular and Cellular Biology. 1-4 credits.
Study of current topics in molecular and cellular biology. Lecture, laboratory. Notes: Topics vary. Offered by Biology (p. 617). May be repeated within the term for a maximum 8 credits.

Recommended Prerequisite: BIOL 311 or BIOL 482 or permission of instructor.

Schedule Type: Lecture

BIOL 418: Current Topics in Microbiology. 3 credits.
Study of current topics in microbiology. Notes: Topics vary. Offered by Biology (p. 617). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: BIOL 305, 306.

Schedule Type: Lecture

BIOL 420: Vaccines. 3 credits.
Immunology, virology, and microbiology of vaccines. Classical and new generation vaccine practices and strategies. Current and future vaccines. Offered by Biology (p. 617). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 305\(^c\) or L305) and (BIOL 306\(^c\) or L306). \(^c\) Requires minimum grade of C.

Schedule Type: Lecture

BIOL 421: Genetics of Human Diseases. 3 credits.
Emphasizes strategies used for identification of genes involved in human genetic diseases. Both monogenic and complex human genetic diseases, as well as principles of genetic screening and counseling, will be presented. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 311.

Schedule Type: Lecture

BIOL 422: Stem Cell Biology and Regenerative Medicine. 3 credits.
A broad overview of the biological principles governing stem cell populations. The functional roles stem cells play in regulating normal development and contributing to disease-state pathologies. An examination of the therapeutic potential of stem cells through "regenerative medicine." Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 311.

Schedule Type: Lecture

BIOL 423: Biology of Obesity and Weight Loss. 3 credits.
This course covers the causes and consequences of obesity and weight loss, including the general epidemiology and pathology of co-morbid conditions associated with obesity. The relative contributions of genetic and environmental factors influencing weight gain will be covered as well as recent trends in obesity research. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 213 or permission of instructor.

Schedule Type: Lecture

BIOL 425: Human Physiology. 3 credits.
Organ system approach to study of homeostasis, including cardiovascular, respiratory, renal, digestive, endocrine, and nervous system functions. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 213 or permission of instructor.

Schedule Type: Lecture

BIOL 426: Mechanisms of Aging. 3 credits.
A course where students will demonstrate knowledge of cellular and molecular mechanisms which drive the systematic changes that result in aging, and to understand the overall biological processes involved in complex biological systems. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 213 and BIOL 311 or equivalent; or permission of instructor.

Schedule Type: Lecture

BIOL 430: Advanced Human Anatomy and Physiology I. 4 credits.
Organ system approach to studying the structure and function of the human organism and maintenance of homeostasis. Detailed discussion of anatomical structures and their functions of the endocrine, nervous, muscular, skeletal, and integumentary systems following introduction to the cellular and tissue levels of organization. Topics also include selected pathology for each organ system; current therapeutic interventions are addressed. Notes: Biology 124 is not approved for Biology Majors. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: 60 credits.

Registration Restrictions:
Required Prerequisite: BIOL 213\(^c\).
\(^c\) Requires minimum grade of C.

Schedule Type: Laboratory, Lecture

BIOL 431: Advanced Human Anatomy and Physiology II. 4 credits.
Continued study of the structure and function of the human organism and maintenance of homeostasis. Detailed discussion of anatomical structures and their functions of the cardiovascular, lymphatic, respiratory, urinary, digestive and reproductive organ systems. Topics also include selected disorders for each organ system to illustrate disruption of homeostasis. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 310 or permission of instructor.

Schedule Type: Lecture

BIOL 432: Selected Topics in Biology. 1-4 credits.
Lecture or field course in botany. Topic varies with instructor's specialty. May be repeated only with permission of Biology Program Director. Offered by Biology (p. 617). May be repeated within the degree for a maximum 8 credits.

Recommended Prerequisite: Permission of instructor.

Schedule Type: Laboratory, Lecture

BIOL 435: Selected Topics in Biology. 4 credits.
Topics vary with instructor's specialty. May be repeated only with permission of Biology Program Director. Offered by Biology (p. 617). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: BIOL 308 or equivalent or permission of instructor.

Schedule Type: Laboratory, Lecture

BIOL 437: Ornithology. 4 credits.
Study of evolution, systematics, physiology, ecology and behavior of birds, emphasizing field work. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or equivalent or permission of instructor.

Schedule Type: Laboratory, Lecture

BIOL 438: Mammalogy. 4 credits.
Study of evolution, systematics, physiology, ecology and behavior of mammals, emphasizing field work. Offered by Biology (p. 617). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or equivalent or permission of instructor.

Schedule Type: Laboratory, Lecture
BIOL 439: *Herpetology*. 4 credits.
Study of evolution, systematics, physiology, ecology and behavior of reptiles, emphasizing field work. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or equivalent or permission of instructor.

**Schedule Type:** Laboratory, Lecture

BIOL 440: *Field Biology*. 4 credits.
Directed field studies emphasizing ecology and behavior. Topics vary but include design of field manipulations, data collection and analysis, and introduction to organisms of study site. May include field trips. Notes: Students bear cost of required field trips. May be repeated with permission of Biology Program. Total limit of 4 credits. This course does not satisfy requirements of the BA degree or BS degree, which state that students must complete at least one (BA degree) or two (BS degree) upper division courses that include a laboratory. Offered by Biology (p. 617). May be repeated within the degree for a maximum 4 credits. Equivalent to EVPP 440.

**Recommended Prerequisite:** BIOL 308 or BIOL 310 or permission of instructor.

**Schedule Type:** Fieldwork

BIOL 442: *Urban Ecosystems and Processes*. 4 credits.
Overview and introduction of challenges and opportunities that urban environments present to the plants and animals inhabiting cities and the ways that those organisms and entire ecosystems respond. Ecosystem ecology for engineered ecosystems along with reviews on urban metabolism, energy budgets, water cycles, and soil ecology taught. Creating and restoring green infrastructures is discussed. Note: the course will involve students to design and conduct a small-scale green infrastructure experiment/project on the campus. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 442.

**Recommended Prerequisite:** CHEM 211 and CHEM 213 and MATH 113 or equivalent and BIOL 308 and PHYS 243 or permission of instructor.

**Schedule Type:** Laboratory, Lecture

BIOL 443: *Tropical Ecology*. 3 credits.
An introduction to the abiotic and biotic factors that define tropical habitats. The course emphasizes evolution, taxonomic diversity, and plant-animal interactions in terrestrial tropic forests. Offered by Biology (p. 617). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** BIOL 306\(^C\) or 310\(^C\).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

BIOL 444: *Tropical Ecology Laboratory*. 1 credit.
An introduction to field-based scientific research. This course focuses on methods for testing hypotheses related to tropical plant and animal biology. Offered by Biology (p. 617). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** BIOL 308\(^C\) or 310\(^C\).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Laboratory

BIOL 446: *Ecological and Evolutionary Physiology*. 3 credits.
Physiological responses organisms use to survive and reproduce successfully in their ever-changing environments. Responses to temperature, salinity, low oxygen levels and diet will be covered from a phylogenetic and energetic perspective. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or BIOL 310, and BIOL 326 or BIOL 430 and BIOL 431, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Biology.

**Schedule Type:** Lecture

BIOL 449: *Marine Ecology*. 3 credits.
Plants and animals of marine environments and physical and chemical conditions that affect their existence. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 449.

**Recommended Prerequisite:** BIOL 308 or permission of instructor.

**Schedule Type:** Lecture

BIOL 450: *Marine Conservation*. 3 credits.
Provides an overview of threats to the marine environment, and discusses the scientific, socioeconomic, and political issues behind marine conservation. Covers categories of marine pollutants (chemical, biological, and physical contaminants) and their impacts on the marine ecosystem, as well as impacts on humans (health, social, and economic), threats to key marine species (e.g., coral, sharks, turtles, and marine mammals) and initiatives and laws developed to reduce these threats. Scientific and socioeconomic problems that hinder sustainable fisheries management and the science and policy behind the global warming debate are also discussed. The course also provides an overview of marine environmental law and policy issues related to marine conservation policy. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 421.

**Recommended Prerequisite:** BIOL 309 or equivalent, or permission of instructor.

**Schedule Type:** Lecture

BIOL 452: *Immunology*. 3 credits.
Topics include structure and function of immunoglobulins, role of cell-mediated immunity, protective role of immune system, and disease and injury related to malfunctions of immune system. Offered by Biology (p. 617). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** BIOL 311.

**Registration Restrictions:**
**Required Prerequisites:** BIOL 213\(^C\) and (BIOL 305\(^C\) or L305) and (BIOL L306 or 306\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

BIOL 453: *Immunology Laboratory*. 1 credit.
Techniques relevant to BIOL 452, including enzyme-linked immunoabsorbant assay, immunodiffusion, protein electrophoresis, and
immune fixation. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 452 (concurrent enrollment is also permitted).

**Schedule Type:** Laboratory

**BIOL 454:** *Marine Mammal Biology and Conservation.* 3 credits.
Covers the evolution, biology, ecology, and behavior of marine mammals from polar bears and sea otters to whales and dolphins. Marine mammal conservation and policy is also a major component of the course; several, lecture sessions are devoted to the issue of whaling, threats to marine mammal populations, and recent conservation issues such as marine mammals and noise pollution. The course also includes a number of guest lectures from a variety of international marine mammal experts. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 419.

**Recommended Prerequisite:** BIOL 309 or BIOL 449 or equivalent; or permission of instructor.

**Schedule Type:** Lecture

**BIOL 455:** *Marine Mammal Biology and Conservation Field Course.* 1 credit.
Provides laboratory, seminar sessions and field work to accompany BIOL 454-001 - marine mammal biology and conservation. Field work includes several day-long boat trips. May take place in the US or abroad. The two week residential field course takes place in Scotland at the University (of London) Marine Biological Station, which is equipped with boats and laboratories. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 420.

**Recommended Corequisite:** EVPP 419 or 454

**Schedule Type:** Seminar

**BIOL 457:** *Reproductive Strategies.* 3 credits.
Introduction to the research and evolutionary theory of sex and reproduction. Covers topics from the evolution of sex and gender to the evolution of complex reproductive strategies involving behaviors such as mate recognition, courtship displays, territoriality, polygamy, and offspring care. Lectures focus primarily on multi-cellular animals but also include discussions of unicellular prokaryotes and eukaryotes as well as plants. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 307 or 308 and 60 hours.

**Schedule Type:** Lecture

**BIOL 459:** *Fungi and Ecosystems.* 3 credits.
Considers impact of fungi on ecosystems in terms of biogeochemical cycling, primary and secondary production, and regulating community structure and populations of individual species through their activities as symbionts and parasites. Discusses role of fungi in ameliorating pollutants produced by anthropogenic activities. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 559, EVPP 551.

**Recommended Prerequisite:** BIOL 308 or BIOL 310 or permission of instructor.

**Schedule Type:** Lecture

**BIOL 460:** *Infectious Diseases Wildlife.* 3 credits.
During this course, diseases of wildlife will be examined with emphasis on causes and mechanisms, pathobiology, ecology and epidemiology and population significance. We will explore methods of diagnosis, control, prevention and outbreak investigation as they apply to management and conservation of wildlife populations. Also, diseases crossing species barriers will be examined. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 305, EVPP 306, EVPP 460.

**Recommended Prerequisite:** 60 credits and BIOL 308; or EVPP 305 and EVPP 306; or permission of the instructor.

**Schedule Type:** Lecture

**BIOL 465:** *Histology.* 4 credits.
Microscopic structure of animal tissues and organs, with emphasis on vertebrates. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or 310.

**Schedule Type:** Laboratory, Lecture

**BIOL 468:** *Vertebrate Natural History.* 4 credits.
Introduces vertebrates with emphasis on systematic, evolution, life history, behavior and ecology. Laboratory emphasis on identification, taxonomy, and natural history of local vertebrates. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to EVPP 468.

**Recommended Prerequisite:** BIOL 308 or permission of the instructor.

**Schedule Type:** Laboratory, Lecture

**BIOL 470:** *Dinosaur Biology.* 3 credits.
Introduction to the evolution, diversity, and biology of the dinosaurs and their descendants. Emphasis on how current biological knowledge is used to estimate and infer the morphology, physiology and ecology of these extinct animals. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or BIOL 310 or permission of instructor.

**Schedule Type:** Lecture, Recitation

**BIOL 471:** *Evolution.* 3 credits.
Process of evolution emphasizing role of genetics, properties of populations, and population differentiations. Offered by Biology (p. 617). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** (BIOL 308\(^c\)).
\(^c\) Requires minimum grade of C.

**Schedule Type:** Lecture

**BIOL 472:** *Introductory Animal Behavior.* 3 credits.
Study of mechanisms, functions, and evolution of behavior. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or BIOL 310 or permission of instructor.

**Schedule Type:** Lecture

**BIOL 473:** *Introductory Laboratory in Animal Behavior.* 1 credit.
Field or laboratory study in animal behavior with emphasis on mechanisms, functions, and evolution of behavior. Stresses experimental
design and analysis of data. Writing-intensive laboratory. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 472 (concurrent enrollment also permitted).

**Schedule Type:** Laboratory

**BIOL 480: The Diversity of Fishes.** 3 credits.
This course delves into the biology and ecology of fishes. Subjects of this class include fish anatomy, taxonomy, evolution, habitat adaptations, community dynamics, and ecosystem interactions. The course will also touch on human impacts on fishes, and conservation. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 309, BIOL 310, and BIOL 350/EVPP 350.

**Schedule Type:** Lecture

**BIOL 482: Introduction to Molecular Genetics.** 3 credits.
Basic concepts of structure and function of genetic material at molecular level. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 213, BIOL 311 or permission of instructor.

**Schedule Type:** Lecture

**BIOL 483: General Biochemistry.** 4 credits.

**Registration Restrictions:**
**Required Prerequisites:** (BIOL 213\(^c\) and CHEM 313\(^c\)).
\(^c\) Requires minimum grade of C.

**Schedule Type:** Lecture

**BIOL 484: Eukaryotic Cell Biology.** 3 credits.
Structure and function of cell membranes and organelles with regard to cellular transport, sorting, compartmentalization, signaling, motility, and cell division. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 483 or permission of instructor.

**Registration Restrictions:**
**Required Prerequisite:** BIOL 311\(^c\).
\(^c\) Requires minimum grade of C.

**Schedule Type:** Lecture

**BIOL 485: Eukaryotic Cell Biology Laboratory.** 2-3 credits.
Laboratory experiments using cell biology techniques, including microscopy, spectrophotometry, centrifugation, chromatography, and electrophoresis. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to BIOL 585.

**Recommended Corequisite:** BIOL 484 or permission of instructor.

**Schedule Type:** Laboratory

**BIOL 486: Molecular Biology and Biotechnology Laboratory.** 2 credits.
Introduction to theory, techniques, and practices used in modern molecular biotechnology laboratories. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 385 or BIOL 482.

**Schedule Type:** Laboratory

**BIOL 489: Teaching Practicum.** 1-3 credits.
Student gains teaching experience in a lecture, laboratory or field environment under the supervision of a faculty member. Student responsibilities may include a lecturing component, but may also include lab preparation, design of course materials, tutoring and grading. Course may be repeated once. Offered by Biology (p. 617). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** BIOL 213, 311, 60 credit hours and permission of instructor, course coordinator (where applicable) and Program Director.

**Schedule Type:** Internship

**BIOL 492: Senior Seminar.** 1 credit.
Weekly seminar course dealing with recent advances in biology. Topics selected from recent publications in the field. May be repeated for credit. Offered by Biology (p. 617). May be repeated within the degree for a maximum 2 credits.

**Recommended Prerequisite:** BIOL 311 and 90 credit hours, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Biology.

**Schedule Type:** Lecture

**BIOL 493: Honors Research in Biology.** 1-2 credits.
Laboratory of field investigation under guidance of faculty member. Notes: Total limit for BIOL 493, 495 and 497 is 8 credits toward the 44 credit hours required for the Biology BS degree and only 4 credits toward the 32 hours required for the BA degree. Combined 493, 495 and 497 may not exceed 4 credit hours in any one semester. Offered by Biology (p. 617). May be repeated within the degree for a maximum 2 credits.

**Recommended Prerequisite:** Admission to the Biology Honors Program, permission of instructor and Biology Program Director.

**Registration Restrictions:**
Enrollment is limited to students in the College of Science college.

**Schedule Type:** Research

**BIOL 494: Honors Seminar in Biology.** 1 credit.
Weekly seminar course dealing with recent advances in biology. Notes: Topics selected from recent publications in field. Offered by Biology (p. 617). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Acceptance into Biology honors program and permission of instructor.

**Schedule Type:** Seminar
BIOL 495: Directed Studies in Biology. 1-3 credits.
Study of a topic not otherwise available to student. May involve reading assignments, tutorials, lectures, papers, presentations, or field or laboratory study, determined in consultation with instructor. May be taken for 1 to 3 credits and repeated once for a total of 3 credits. Total limit for combination of 495 and 497 is 6 credits toward 44 credits for BS and 4 credits toward 32 credits for BA. This course does not satisfy requirements of the BA degree or BS degree, which state that students must complete at least one (BA degree) or two (BS degree) upper division courses that include a laboratory. Offered by Biology (p. 617). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Permission of instructor and Biology Program Director.

**Schedule Type:** Independent Study

BIOL 497: Special Problems in Biology. 1-4 credits.
Lab or field project leading to written report of research. Research and paper completed under instructor’s guidance. Notes: Total limit for 495 and 497 combined is 6 credits toward the 44 credits required for BS and 4 credits toward 32 credits for BA. This course does not satisfy requirements of the BA degree or BS degree, which state that students must complete at least one (BA degree) or two (BS degree) upper division courses that include a laboratory. Offered by Biology (p. 617). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 60 credits and permission of instructor and chair.

**Schedule Type:** Research

BIOL 498: Research Seminar. 2 credits.
Seminar discussing current scientific literature and literature related to research project undertaken by student as part of the research semester. Note: Must be enrolled in Biology Research Seminar. Registration must be approved by a faculty sponsor and by the Biology Program Director and is limited to students who are enrolled concurrently in BIOL 499. For students in the Biology Honors Program, this course may be used to substitute for one credit of BIOL 494: Honors Seminar in Biology. Offered by Biology (p. 617). May not be repeated for credit.

**Recommended Prerequisite:** 60 credits and permission of instructor and chair.

**Schedule Type:** Research

BIOL 499: RS: Research in Biology. 6-9 credits.
Laboratory or field investigation under faculty guidance. Students will earn 6-9 credits toward the BA or BS degrees in Biology. Note: Must be enrolled in Biology Research Seminar. Registration requires successful application and approval by Biology Program and faculty sponsor. Student receiving 9 credits for 499 will not be allowed to use BIOL 440, BIOL495 and/or 497 neither toward the 32 BIOL hours needed for the BA degree, nor toward the 44 BIOL hours needed for the BS degree. This course will satisfy one upper division laboratory requirement for both the BA and BS degrees in Biology. Offered by Biology (p. 617). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** BIOL 213, BIOL 214 or 312 or equivalent introductory statistics course, BIOL 311, CHEM 211-212. Completion of Biology core recommended.

**Schedule Type:** Laboratory

**500 Level Courses**

**BIOL 501: Microbial Diversity: An Organismal Approach.** 3 credits.
In-depth study of nonpathogenic microbial world, emphasizing detection, enumeration, and classification of microorganisms; their physiological and evolutionary relationships; and biotechnological applications. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 506: Selected Topics in Microbiology.** 1-4 credits.
Topic depends on instructor’s specialty. Notes: May be repeated only with permission of department chair. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** BIOL 305, 306 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 507: Selected Topics in Ecology.** 4 credits.
Topic depends on instructor’s specialty. Notes: May be repeated only with permission of department chair. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** Course in Ecology and permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
**BIOL 508: Selected Topics in Animal Biology.** 1-4 credits.
Topic depends on instructor's specialty. Notes: May be repeated only with permission of department chair. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** BIOL 303 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 509: DNA Analysis of Biological Evidence.** 3 credits.
Historical development of DNA profiling methods, current DNA typing techniques and the ongoing development of new forensic DNA typing methods. Emphasis will be placed on various analytical techniques used in the analysis of forensic evidence. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 311 or permission of instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 510: Forensic DNA Analysis Laboratory.** 1 credit.
Provides hands-on experience with the methodologies of forensic DNA analysis. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 311

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**BIOL 515: Developmental Neurobiology.** 3 credits.
Introduction to developmental neurobiology with overview of embryological development of the nervous system. Topics include neural induction, patterning/cell fate specification, and neural circuit assembly together with modern molecular methods for exploring neural development. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Completion of 60 hours, including PSYC 372 or BIOL 213 and BIOL 303.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 516: Mammalian Neurobiology.** 3 credits.
Functional anatomy of mammal brains emphasizing regional and systems neuroanatomy of humans. Correlates with material from clinical neurology, where possible. Laboratory component includes brain dissections and clinical correlations. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to PSYC 531.

**Recommended Prerequisite:** BIOL 515.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**BIOL 518: Conservation Biology.** 3 credits.
Introduction to science used to identify species in need of conservation and techniques to manage and protect organisms. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 307 and BIOL 311 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 532: Animal Behavior.** 3 credits.
Ecological aspects of animal behavior. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 324 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

BIOL 533: *Selected Topics in Plant Biology*. 1-4 credits.
Topic depends on instructor's specialty. Notes: May be repeated only with permission of department chair. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** Course in plant biology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 537: *Ornithology*. 4 credits.
Study of evolution, systematics, physiology, ecology, and behavior of birds, emphasizing field work. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Course in Ecology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

BIOL 538: *Mammalogy*. 4 credits.
Study of evolution, systematics, physiology, ecology, and behavior of mammals, emphasizing field work. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 538.

**Recommended Prerequisite:** Course in ecology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

BIOL 539: *Herpetology*. 4 credits.
Study of evolution, systematics, physiology, ecology, and behavior of amphibians and reptiles, emphasizing field work. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Course in ecology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 543: *Tropical Ecosystems*. 4 credits.
Terrestrial, aquatic, and marine ecosystems in tropics, emphasizing plant communities, plant-animal interactions, and role of humans in the tropics. Notes: Field trip to tropics required as part of laboratory. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 543.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

Field and laboratory approaches to freshwater ecology with emphasis on study design, sampling methods, laboratory and data analysis, and report writing. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 550.

**Recommended Prerequisite:** General Chemistry and a course in ecology.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 553: *Advanced Topics in Immunology*. 3 credits.
Comprehensive study of immunologic mechanisms as they pertain to immunologic diseases and transplantation. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** BIOL 452 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
**BIOL 560: Infectious Diseases of Wildlife. 3 credits.**
During this course, diseases of wildlife will be examined with emphasis on causes and mechanisms, pathobiology, ecology and epidemiology and population significance. We will explore methods of diagnosis, control, prevention and outbreak investigation as they apply to management and conservation of wildlife populations. Also, diseases crossing species barriers will be examined. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 560.

**Recommended Prerequisite:** Courses on evolution, ecology, zoology and conservation biology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 563: Virology. 3 credits.**
Fundamental concepts of nature of viruses, virus classification, cultivation, and biochemistry. Emphasizes bacteriophage and animal

**Schedule Type:** Lecture
viruses. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 482 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 564:** Techniques in Virology. 2 credits.  
Basic techniques of animal virus propagation, isolation, and quantitation. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 563 (concurrent enrollment is also permitted) or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**BIOL 566:** Cancer Genomics. 3 credits.  
Review of modern concepts in cancer biology including taxonomy of human tumors, common cancer syndromes, and genome instability. Genetic and molecular studies of tumor cell proliferation, migration, invasion, and death. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** A course in genetics or biochemistry.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 568:** Advanced Topics in Molecular Genetics. 3 credits.  
Comprehensive study of regulatory mechanisms controlling gene expression in viruses, prokaryotes, and eukaryotes, emphasizing current research. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 6 credits. Equivalent to BIOL 668.

**Recommended Prerequisite:** BIOL 482 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 572:** Human Genetics. 3 credits.  
Inheritance of humans emphasizing current problems, including genetic control of metabolic diseases, effects of radiation and chemical agents in environment, and directed genetic change. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 311 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 573:** Developmental Genetics. 3 credits.  
Genetic approaches to problem of eukaryotic development, emphasizing current research on regulation of gene enzyme systems. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 311 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 574:** Population Genetics. 3 credits.  
Genetic structure and dynamics of populations, both real and ideal. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 and 311, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 575:** Selected Topics in Genetics. 1-4 credits.  
Different topics in different years, including molecular, developmental, physiological, and classical genetics, emphasizing current problems and research. Notes: May be repeated once with permission of department
chair. Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 8 credits.

**Recommended Prerequisite:** BIOL 311, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 577: Biogeochemistry: A Global Perspective.** 3 credits.
Structure and function of ecosystems, their interactions as components of landscapes, and contributions to global environment. Emphasizes biogeochemical cycles of natural, disturbed, and managed ecosystems, and their integration at landscape and global level as related to current ecological problems such as transfer of nonpoint source pollutants, atmospheric deposition, stratospheric ozone depletion, and global change. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 307, CHEM 211, 212 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 578: Mutation, DNA Repair, and Environmental Contamination.** 3 credits.
Overview of relationship between environmental contamination and genetic damage. Covers types of contamination that result in mutations, and molecular mechanisms of DNA damage and repair. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 307 and 311.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 579: Molecular Evolution and Conservation Genetics.** 3 credits.
Evolution of genes and gene families at molecular level, including gene duplication and divergence, positive and negative selection, genetic drift, and molecular clocks. Also includes selected applications in conservation genetics, such as molecular phylogenetics and estimates of population size. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 311.

**Recommended Corequisite:** BIOL 471, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 580: Computer Applications for the Life Sciences.** 3 credits.
Studies computer use in biological sciences. Combines lectures, supervised exercises on mainframe and microcomputers. Students present seminars on advanced application and complete project using computers to fulfill a major assignment associated with another course or employment. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** 12 hours of biology and one year of college mathematics, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 581: Estuarine and Coastal Ecology.** 3 credits.
Emphasizes marine biology of estuarine and coastal habitats of Chesapeake Bay region, and factors affecting distribution and abundance of organisms. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 581.

**Recommended Prerequisite:** Course in ecology and permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 582: Estuarine and Coastal Ecology Laboratory.** 1 credit.
Continues EVPP 546/BIOL 546 as the laboratory section focusing on the approach and methods of estuarine research, including analysis and communication of results. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 582.
**Recommended Corequisite:** BIOL 581 or EVPP 581.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory

**BIOL 583: General Biochemistry.** 4 credits.
Structure and function of proteins, carbohydrates and lipids, enzymology, and metabolism and its controls. Emphasizes chemistry of nitrogen compounds. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to BIOL 483.

**Recommended Prerequisite:** BIOL 213, CHEM 313, CHEM 314, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOL 585: Eukaryotic Cell Biology Laboratory.** 1-2 credits.
Selected topics of laboratory procedures used in the study of eukaryotic cells. Notes: May be repeated one time with permission of program director. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to BIOL 485.

**Recommended Prerequisite:** BIOL 484 or BIOL 682 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOL 591: Special Topics.** 1-6 credits.
Offered by School of Systems Biology (p. 748). May be repeated within the degree.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**600 Level Courses**

Overview of concepts in physiological, population, community, and ecosystem ecology. Restricted to graduate students with little or no background in ecology. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 607.

**Recommended Prerequisite:** Permission of department.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOL 608: Topics in Biology.** 1-4 credits.
In-service course to strengthen and update teacher’s knowledge of biology. Topics include organismal biology, cell biology, ecology, microbiology, or genetics. Notes: Not available for credit toward MS in biology, or PhD in environmental science and public policy. May be repeated for credit with permission of department chair. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Employment or anticipated employment as a science teacher.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BIOL 682: Teaching Practicum.** 1 credit.
Experience teaching biology in laboratory or in field under supervision of faculty member. Notes: Undergraduate assists instructor. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor, chair, and course coordinator.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
BIOL 610: Bioremediation: Theory and Applications. 3 credits.
Provides basis for understanding proper application of bioremedial
technologies to treatment for hazardous wastes. Includes evaluation of
data to determine successful treatment. Offered by School of Systems
Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 610.

Recommended Prerequisite: Course in microbiology and either organic
chemistry or microbial physiology or equivalent or permission of
instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 611: Techniques in Environmental Microbiology. 2 credits.
Laboratory exercises illustrate techniques to demonstrate microbial
degradation, detection of microbes, isolation, and evaluation of
physiological and genetic characteristics. Notes: Open first to those
enrolled in BIOL 610. Offered by School of Systems Biology (p. 748). May
not be repeated for credit.

Recommended Prerequisite: A laboratory course in microbiology or
permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

BIOL 643: Microbial Ecology. 4 credits.
Study of relationships between microorganisms and their natural
environment, and methodology for observing their natural environment
and biochemical activities in that environment. Offered by School of
Systems Biology (p. 748). May not be repeated for credit. Equivalent to
EVPP 643.

Recommended Prerequisite: Course in microbiology or permission of
instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

BIOL 644: Wetland Ecology and Management. 4 credits.
Offered by School of Systems Biology (p. 748). May not be repeated for
credit.

Recommended Prerequisite: CHEM 211, 212, BIOL 307, PHYS 106 and
107 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

BIOL 645: Freshwater Ecology. 3 credits.
Offered by School of Systems Biology (p. 748). May not be repeated for
credit.

Recommended Prerequisite: EVPP 550 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 648: Population Ecology. 3 credits.
Survey of ecological models and theory. Topics include population
growth and regulation; competition; predator-prey, herbivore-plant, and
parasite-host interactions; mutualism; and metapopulation ecology.
Offered by School of Systems Biology (p. 748). May not be repeated for
credit. Equivalent to EVPP 648.

Recommended Prerequisite: Course in ecology or permission of
instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 649: Biological Resource Management. 3 credits.
Applies modern ecological theories and methods to biological resource
management in developing and developed countries. Explores problems
in achieving optimum productivity of specific resources and application
of systems analysis. Offered by School of Systems Biology (p. 748). May
not be repeated for credit.

Recommended Prerequisite: Course in ecology, or permission of
instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

BIOL 650: Environment Analysis and Modeling. 4 credits.
Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 650.

**Recommended Prerequisite:** 8 hours of ecology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

BIOL 665: Environmental Hazards to Human Health. 3 credits.
Health effects of chemical contaminants of air, water, and food resulting from industrialized society. Includes identifying, evaluating, and controlling hazards. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Courses in animal physiology and organic chemistry, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

BIOL 666: Human Genetics Concepts for Health Care. 3 credits.
Principles of genetically determined diseases with emphasis on clinical aspects of these diseases, genetic counseling, and laboratory methods used in human genetics. Extended studies students preparing to enter medical or dental school are welcome. Notes: Course in cell or molecular biology. Not available to students who have taken BIOL 572. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BS degree or enrollment in accelerated MS program. Course in cell or molecular biology.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

BIOL 668: Advanced Techniques in Molecular Biology. 4 credits.
Experimental studies using current methods for purification and characterization of biologically important compounds. Provides training for research in molecular biology. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 568 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

BIOL 669: Pathogenic Microbiology. 3 credits.
Molecular mechanisms of bacterial pathogenicity and immune response in infectious diseases. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate courses in physics, math, and microbiology, and permission of the Director of the Center for Biodefense.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

BIOL 675: Aerosol Biology. 4 credits.
Provides students with familiarity with the state of the art aerosol equipment and techniques used in laboratory-based research pertaining to biological warfare or terrorism threats. Emphasis will be placed on biosafety procedures, techniques, and equipment used in conducting experiments with infectious organisms in a contained environment. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate courses in physics, math, and microbiology, and permission of the Director of the Center for Biodefense.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

BIOL 678: Cell-Based Assays. 2 credits.
Focus on 1) basics of eukaryotic cell culture; 2) various cell based assay techniques; 3) Real-Time PCR based functional analysis of the signaling pathways. Students will maintain their cell cultures for the duration of the experiments, perform at least one functional assay and analyze the resultant data. Students are expected to learn the
properties and limitations of each cell based assay and should be able to explain their results regardless of the outcome. Each student will be responsible for submitting a written report summarizing the design of their experiments and its results. Each report will include the following sections: Introduction, Methods, Results and Discussion, and a special Troubleshooting section. Notes: A lab fee of $300 will be charged per student for lab supplies. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Permission of Instructor. 400-level coursework in cell or molecular biology.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment limited to students in the MS Bioinformatics Comp Biol, MS Biology or NDG Undeclared programs.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**BIOL 680: Experimental Design and Analysis for the Life Sciences.** 4 credits. Advanced course in applying probability and statistics to research in life sciences. Examples drawn from environmental, medical, physiological, genetic, and chemical biology. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Course in biostatistics or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**BIOL 682: Advanced Eukaryotic Cell Biology.** 3 credits. Structure and function of biomembranes, cytoskeleton, and transport systems. Also discusses protein trafficking, cell cycle, and cell adhesion molecules. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 483, CHEM 313, CHEM 314, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Biology or Biosciences.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 685: Emerging Infectious Diseases.** 3 credits. Students will gain an understanding of the pathogenesis of emerging and/or re-emerging infectious diseases in terms of immune response and systemic alterations. Factors contributing to emergence and virulence for each pathogen will be emphasized. Epidemiology, disease progression, treatment strategies and/or control measures of identified emerging infectious diseases will be discussed. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 213 and 311, 482 or equivalent; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 690: Introduction to Graduate Studies in Biology.** 1-2 credits. Required of all new MS students in biology. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 691: Current Topics in Biology.** 1-4 credits. Study of current topics in biology as determined by instructor. Topics vary and center on emerging areas of investigation in the biological sciences. Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 8 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOL 692: Seminar in Biology.** 1 credit. Topics vary. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 2 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

BIOL 693: Directed Studies in Biology. 1-8 credits.
Study of topic not otherwise available in graduate program. May involve any combination of reading assignments, tutorials, lectures, papers, presentations, or laboratory or field study, determined in consultation with instructor. Notes: May not be used to fulfill explicit undergraduate prerequisites for graduate work. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 8 credits.

Recommended Prerequisite: Permission of instructor and graduate committee.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

BIOL 695: Seminar in Molecular, Microbial, and Cellular Biology. 1 credit.
Review and discussion of recent literature in specialized area. Includes student presentations. Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 2 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

700 Level Courses

BIOL 715: Microbial Physiology. 3 credits.
Comprehensive study of functioning of microbial cells, with emphasis on pathogens. Stresses growth, transport, cell-to-cell signaling, biofilm formation, antibiotic resistance, and secondary metabolites. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: An undergraduate lecture/lab course in microbiology, and a course in biochemistry.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 718: Techniques in Microbial Pathogenesis. 3 credits.
Laboratory-based class in which students perform current techniques in microbial pathogenesis. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD biosciences program, the MS biology program, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

BIOL 720: Microbial Metabolism. 3 credits.
Discussions of catabolic and anabolic pathways of bacterial pathogens and regulation and integration of these pathways. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: An undergraduate lecture/lab course in microbiology and a course in biochemistry.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 745: Environmental Toxicology. 3 credits.
Study of nature, distribution, and interaction of toxic chemicals released into the environment. Emphasizes effects on nonhuman biota, detection and fate of chemicals, and implications for government regulation. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 745.

Recommended Prerequisite: Courses in ecology and physiology, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOL 793: Research in Biology. 1-3 credits.
Library, laboratory, or field investigation under supervisor's guidance. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: 8 hours of graduate hours in BIOL and permission of instructor and chair.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

BIOL 798: Master's Research Project. 1-3 credits.
Experimental or theoretical research project chosen and completed under guidance of graduate faculty member. Comprehensive report acceptable to student’s advisory committee is required. Notes: Students who take BIOL 793 may not receive more than 6 credits total for both BIOL 793 and 798. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Permission of instructor and chair.
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

BIOL 799: Thesis. 1-6 credits.
The thesis research under direction of supervisor. Notes: Students who take BIOL 793 may not receive more than 6 credits total for both BIOL 793 and 799. Offered by School of Systems Biology (p. 748). May be repeated within the degree.

Recommended Prerequisite: 8 graduate hours in BIOL and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

Biomedical Sciences (BMED)

500 Level Courses

BMED 550: Special Topics in Biomedicine. 2 credits.
This course presents various topics in biomedicine in a lecture/seminar format. Students build on the ABS Certificate curriculum to enhance their understanding of biomedical issues and better prepare for careers in the health professions. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Successful completion of first semester of the ABS Certificate curriculum (Biochemistry, Biostatistics, Histology).

Recommended Corequisite: Spring ABS Certificate courses (Human Anatomy, Human Physiology).

Registration Restrictions:
Enrollment limited to students in the CERG Adv Biomedical Sciences program.

Schedule Type: Lecture

600 Level Courses

BMED 601: Cell and Molecular Physiology. 4 credits.
Principles of biochemistry and cell signaling and current concepts regarding physiological processes at the cellular and molecular levels. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Advanced Biomedical Sciences.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 602: Biomedical Statistics. 3 credits.
Basic principles of biostatistics and epidemiology in theoretical and practical context including: exploring and displaying data appropriately, exploring relationships between two variables, issues of gathering sample data, and understanding randomness and probability. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Advanced Biomedical Sciences.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 603: Cell Biology and Microscopic Anatomy. 3 credits.
Examines basic histological techniques, ultrastructure of the cell, basic tissue types and histology of specific organ systems. Structure-functional and clinical correlations are described. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Advanced Biomedical Sciences.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 604: Fundamentals of Human Physiology. 5 credits.
Essential concepts of physiology and mechanisms of body function are presented at various levels of organization, ranging from cellular and molecular to tissue and organ system levels. Emphasis is placed on understanding the integrated regulation of various body processes among the major systems. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Advanced Biomedical Sciences.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
BMED 605: Introduction to Human Anatomy. 3 credits.
Principles of anatomy as well as the pertinent anatomy associated with the thorax, abdomen, and pelvic cavities. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Advanced Biomedical Sciences.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 610: Principles of Systems Biology. 2 credits.
Students will build on their knowledge of cellular and molecular biology, genetics, and physiology to understand how these components combine to give rise to complex systems function found in biology. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to Biomedical Sciences master’s degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 611: Molecular Genetics. 2 credits.
Students will build on their knowledge of molecular biology and genetics to understand how these components’ functions are altered during the inception and course of human disease. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to Biomedical Sciences master’s degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 651: Physician and Society. 1 credit.
Seminar series explores the cultural, social, economic and ethical factors that affect the practice of medicine in the 21st century. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 2 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Advanced Biomedical Sciences.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

BMED 652: Biomedical Career Pathways. 1 credit.
Series of workshops, presentations and field trips. Students will learn study and interview skills to become better prepared to complete AMCAS and secondary applications to medical schools. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Advanced Biomedical Sciences or Biomedical Sciences.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

BMED 653: Forum and Research. 3 credits.
Bi-weekly seminar-style presentations and reading assignments, followed by short student reports, followed by a small group discussions on topics of current interest. Students will prepare a detailed research paper on a topic related to one of the forum topics. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to Biomedical Sciences master’s degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 660: Molecular and Cellular Physiology. 3 credits.
Biochemistry and physiology of the typical cell. The biochemical focus will be on the fundamentals of the forces affecting molecular interactions, the structure-function relationships of proteins and carbohydrates, kinetics and catalysis, and high-throughput analysis of proteins in clinical samples. The physiological focus will be on the structure and function of subcellular organelles, and the foundations of some specialized cells blood and lymphoid cells, muscle cells, and nerve cells. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to Biomedical Sciences master’s program

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 661: Metabolism, Nutrition and Endocrinology. 4 credits.
Students will learn the pathways involved in energy metabolism, biosynthesis, and catabolism of waste products in preparation for excretion. Major emphasis will be on the coordination of metabolic pathways in the major organs and tissues through hormonal regulation. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to Biomedical Sciences master’s program

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 662: Cardiopulmonary Biology. 1-5 credits.
Anatomy, hemodynamic function, and electrophysiology of the cardiovascular and respiratory system. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 5 credits.

Recommended Prerequisite: Admission to Biomedical Sciences master’s program

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 663: Gastrointestinal Biology. 2 credits.
Embryologic development, gross and micro-anatomy, and physiologic function of the GI tract. Emphasis will be placed on understanding the integrated regulation of GI processes. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to Biomedical Sciences master’s program

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
BMED 664: Renal Biology. 2 credits.
Structural, functional and integrative aspects of the kidney and urinary system; identify the basic physiologic mechanisms that underpin renal function; and explain the role the kidney plays in fluid and electrolyte homeostasis, including acid-base balance. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to Biomedical Sciences master’s program

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BMED 665: Sexual Development and Reproduction. 3 credits.
Cellular and anatomical components of reproduction and early development. These components include the development of the reproductive track, development of gametes, fertilization, and formation of the germ layers and endocrinology of the system. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Admission to the Biomedical Sciences master’s program

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Biosciences (BIOS)

700 Level Courses

BIOS 701: Systems Biology. 3 credits.
Introduces biochemical systems to investigate complex, multicomponent, dynamic functions of cellular systems. Readings include articles from current literature in molecular biosciences. Application of molecular techniques within biosciences is now universal, and the underlying question remains "What is the structure of a cell, and how does it function?" Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to BINF 701.

Recommended Prerequisite: General Biochemistry.

Registration Restrictions: General Biochemistry.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

BIOS 702: Research Methods. 3 credits.
Trains students in research methodologies, techniques, and data analysis in life sciences. Divided into three modules that introduce separate but equally significant components of any research project: parameters required to outline and synthesize a problem, techniques of measurement and analysis used by life scientists, and approaches for data analysis and interpretations. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD program in Biosciences

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

BIOS 703: Laboratory Rotation. 3 credits.
Intensive introduction to research laboratory in biosciences. Students read background material pertinent to problem under study, learn and practice research methods of laboratory, and formulate short final project that may be proposal or actual project, demonstrating some mastery of techniques and approaches employed. Notes: Should be repeated three times (except by permission of concentration director). Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Admission to the PhD program in Biosciences.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

BIOS 704: Topics in Biosciences. 1 credit.
Combines invited seminars from internal and external faculty with graduate student seminars. Seminar presentation required for advancement to candidacy, generally given in last semester before candidacy. Includes discussion section led by course coordinator. Notes: Required of all students during each semester prior to advancement to candidacy. Should be repeated three times (except by permission of concentration director). Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 3 credits.

Recommended Prerequisite: Admission to the PhD program in Biosciences.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

BIOS 710: Current Topics in Bioscience. 1-3 credits.
Studies current topic in biosciences. Notes: Topics vary. May be repeated for credit with permission of concentration director. Offered by School of Systems Biology (p. 748). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Admission to the PhD program in biosciences or to the MS program in biology.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 715: Molecular Ecology.** 3 credits.
Introduces students to basic concepts of molecular biology, genetics, molecular evolution, bioinformatics, NextGen Sequencing and Technology. Students should have prior background in genetics and evolution. Offered by School of Systems Biology (p. 748). May not be repeated for credit. Equivalent to EVPP 515.

**Recommended Prerequisite:** Undergraduate course in Genetics and Chemistry or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 716: Methods in Evolutionary Biology.** 4 credits.
Intended for students who plan to do research in Molecular Ecology, Molecular Evolution, Conservation Genetics, Genomics or Biocomplexity. The lecture reviews basic concepts while the lab provides students the opportunity to experience the detailed protocols necessary for research in molecular biology. The course integrates theory, protocols, analysis and bioinformatics. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOS 715 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 719: Extremophiles.** 5 credits.
Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**BIOS 740: Laboratory Methods in Functional Genomics and Biotechnology.** 3 credits.
Current laboratory techniques in molecular biology and genomics, including nucleic acid isolation, gene cloning and sequencing, gel blot analysis, PCR, in vitro mutagenesis, and theory and practice of DNA microarray analysis of gene expression. Topics may vary from year to year depending on advances in field. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Graduate standing and undergraduate courses in genetics and molecular biology.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 741: Genomics.** 3 credits.
Genetic structure and function at whole genome level. Includes some sequence analysis, comparative genomics, classical genetics, and developmental genetics, as well as analysis of synteny groups, isochores, gene families, genetic complexity, C value paradox, directed discovery of gene functions, and animal models of human disease. Readings from recent texts and primary research literature. Students expected to give one or two oral presentations of primary research papers, as well as complete midterm and final exams. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** At least one undergraduate course in genetics and molecular biology, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 742: Biotechnology.** 3 credits.
Theory and applications of biotechnology. Includes promoter design, gene fusions, protein targeting, techniques of protein purification, construction of transgenic organisms, cloning of animals and plants, ethical and legal issues. This is a relatively new area of study that is rapidly changing; course strives to keep students abreast of current literature. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate coursework in genetics and molecular biology.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 743: Genomics, Proteomics, and Bioinformatics.** 3 credits.
Fundamental methods for analyzing genomic and proteomic data, including nucleic acid and protein sequences, pair-wise and multiple alignment, database search methods, clustering and presentation of data, prediction modeling, and survey of available software and freeware tools. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD program in biosciences or to MS program in biology.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 744: Molecular Genetics.** 3 credits.
Develops understanding of principles of modern molecular genetics and methods of investigation of genomes of pro- and eukaryotes, including types of genetic manipulations conducted in research laboratories today.
Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate coursework including BIOL 311, CHEM 313, 314, 315, and 318; equivalents; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 760:** *Seminar in Molecular Systematics*. 1-3 credits.
Presentations and discussion by students and faculty of research papers and projects. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 761:** *Dispersal Patterns of Biological Agents*. 3 credits.
Introduces military and terrorist methods of dispersal patterns. Covers physics of aerosols, engineering and mechanics of building ventilation systems, and mechanical dissemination including handheld, automatic, vehicle, and truck-mounted systems. Also covers viability of specific agents involved. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD Biosciences program or MS/Biology program, and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 762:** *Phylogenetic Analysis*. 4 credits.
A consideration of molecular systematics techniques in biology, especially cladistics and phenetics methods. Species concepts, biological nomenclature, and classifications will also be discussed. Laboratory will emphasize phylogenetic methods using online sources of comparative data. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD Biosciences program or MS/Biology program, and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BIOS 765:** *Molecular Systematics*. 4 credits.
Comparative evolutionary techniques applied to molecular data. Use of molecular techniques, molecular databases, and analytical techniques will be covered. Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD Biosciences program or MS/Biology program, and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**BIOS 782:** *Interdisciplinary Issues in Bioethics: Law and Policy*. 3 credits.
Offered by School of Systems Biology (p. 748). May not be repeated for credit.

**Recommended Prerequisite:** BIOS 780 and 781.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

800 Level Courses

**BIOS 898:** *Directed Studies in Biosciences*. 1-12 credits.
Studies of specialized topics in biosciences. Specific arrangements for designing scope and area of study to be determined in consultation with instructor. May involve literature searches and review, workshops, or tutorials. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 24 credits.

**Recommended Prerequisite:** Permission of Research Advisor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**BIOS 899:** *Directed Research in Biosciences*. 1-12 credits.
Research on a pertinent topic in biosciences. Scope and subject of research to be determined by instructor. Offered by School of Systems Biology (p. 748). May be repeated within the degree for a maximum 24 credits.

**Recommended Prerequisite:** Permission of Research Advisor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

900 Level Courses

**BIOS 998:** *Doctoral Dissertation Proposal*. 1-6 credits.
Research and writing of research proposal for doctoral dissertation. Offered by School of Systems Biology (p. 748). May be repeated within the degree.
Recommended Prerequisite: Permission of research advisor.

Registration Restrictions: Enroll limited to Graduate level students.

Schedule Type: Dissertation

**BUS 200: Global Environment of Business. 3 credits.**
As world becomes increasingly connected, business serves as core institution that mediates relations between individuals across national boundaries. Provides overview of global environment of business through study of political economy, international institutions and international trade theories, and global conflicts and cooperation around issues (natural resources, labor, human rights, distribution of income, and the environment). Addresses implications of topics for business. Designated a Green Leaf Course. Offered by School of Business (p. 846). May not be repeated for credit.

Mason Core: Global Understanding, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Registration Restrictions: Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**BUS 210: Business Analytics I. 3 credits.**
Course introduces business analytics and why businesses use analytics to create and sustain competitive advantage. Topics include data types, summarization and graphical display of data, application of basic probability rules, and probability distributions. Introduces fundamentals of spreadsheets and their use in business applications. Learn how to apply appropriate analytical tools to gain useful insights from real-life datasets. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions: Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**BUS 303: Develop Professional Skills II: Advanced Elements. 3 credits.**
In this course, students will continue to develop their professional skill set. Topics covered include understanding the modern work environment, business ethics and professional responsibilities, and professional judgment. Students will also continue to hone their professional writing and presentation skills, prepare for the job search process, and develop personal job search and professional development plans. Notes: School of Business students will not be permitted to make more than three attempts to achieve a C or higher in BUS 303. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information about this, see the "Termination from the Major" section under Academic Policies. Offered by School of Business (p. 846). Limited to three attempts.

Registration Restrictions: Required Prerequisites: (BUS 103C or U103). C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**BUS 310: Business Analytics II. 3 credits.**
Introduces modeling relationships contained in data and linear models to make (predictions in business. Topics include estimation, hypotheses testing, statistical inference, analysis of variance and linear regression techniques. Fundamentals of linear programming to solve optimization problems in business. Apply analytical tools to gain insights from real-life datasets. Hands-on experience and application of the methods to data
sets using spreadsheet software. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** BUS 210\(^C\), U210 or 210T.

\(^C\) Requires minimum grade of C.

Non-Degree level students may **not** enroll.

Students with the terminated from BU major attribute may **not** enroll.

**Schedule Type:** Lecture

**400 Level Courses**

**BUS 492: Undergraduate Internship.** 3 credits.

Opportunity to gain practical, professional experience in conjunction with academic development. Internship is an important part of academic and career preparation. May be used as elective credit, but may not be repeated. Notes: No more than 6 credits of School of Business internship coursework (BUS 492 or ACCT 492) can be applied towards a student’s 120 (BU) degree applicable credits. Students must receive departmental approval in order to register for this course; please contact the School of Business for internal eligibility requirements. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 6 credits. Equivalent to ACCT 492, SOM 492.

**Recommended Prerequisite:** Grade of C or higher in the 301 or 303 in the major. ISOM majors must complete MIS 301 or MIS 303 and OM 301 or OM 303.

**Registration Restrictions:**

Non-Degree level students may **not** enroll.

Students with the terminated from BU major attribute may **not** enroll.

**Schedule Type:** Internship

**BUS 498: Capstone Course: Advanced Business Models.** 3 credits.

Advanced integrated exploration of business models and industry dynamics that uses case analyses to assess competition, organizational strategy, and firm performance. Students examine strategic change in organizations from multiple perspectives, integrating knowledge from core course work into several papers and major presentation. Students receive coaching from area business leaders as they complete their presentations. The minimum grade of D or higher only reflects the pre-requisite requirement for BUS 498. Students must earn a C or higher in order to meet the Business Core and Foundations degree requirements. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to SOM 498.

**Mason Core:** Capstone (p. 135)

**Registration Restrictions:**

**Required Prerequisites:** (ACCT 301\(^D\), 303\(^D\), 330\(^D\), L301, L303 or L330) and (BULE 302\(^D\), 303\(^D\), L302 or L303) and (BUS 303\(^D\), L303, SOM 301\(^D\) or L301) and (FNAN 301\(^D\), 303\(^D\), L301 or L303) and (MGMT 301\(^D\), 303\(^D\), L301 or L303) and (MIS 301\(^D\), 303\(^D\), L301 or L303) and (MKTG 301\(^D\), 303\(^D\), L301 or L303) and (OM 301\(^D\), 303\(^D\), L301, DESC 301\(^C\), L301 or OM L303) and (BUS 310\(^D\), L310, OM 210\(^D\), DESC 210\(^D\), U210 or OM U210).

\(^D\) Requires minimum grade of D.

\(^C\) Requires minimum grade of C.

Enrollment limited to students with a class of Senior Plus or Senior.

Non-Degree level students may **not** enroll.

Students with the terminated from BU major attribute may **not** enroll.

**Schedule Type:** Lecture

**Business Management (BMGT) 600 Level Courses**

**BMGT 603: Economics for Successful Firm Management.** 3 credits.

Provides fundamental understanding of applying microeconomics concepts to managerial decision making. Explores principles of microeconomic theory, including market supply and demand, production and cost functions, industry structure, and product and resource pricing. Due to the presentation and application of course material, this course can only be taken by students enrolled in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BMGT 612: Performance Evaluation Through Cost Management.** 3 credits.

Examines impact of cost and cost allocation on performance and evaluation. Due to the presentation and application of course material, this course can only be taken by students enrolled in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**BMGT 613: Financial Reporting and Firm Analysis.** 3 credits.

Foundation course focusing on economics and analysis of business transactions and financial reporting issues. Topics include introduction to accounting framework in financial reporting; analysis of financial statements, economic events and impact on financial reports, and impact of accounting methods on financial reports. Due to presentation and application of course material, course only open to students enrolled in the Master of Science in Management program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**

Enrollment limited to students with a class of Senior Plus or Senior.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**BMGT 623: Marketing and Firm Performance.** 3 credits.
Develops market-based knowledge and skills for effective marketing decision making, strategy design, implementation, and evaluation in variety of institutional and competitive situations. Addresses importance of companies being market-driven and customer-focused. Emphasis on case studies, team work, and projects. Due to the presentation and application of course material, this course is only open to students enrolled in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**BMGT 633: Statistical Analysis for Management.** 3 credits.
Use statistical methods as analytical tools for understanding and solving business problems and supporting business decision making. Includes descriptive statistics, sampling, inferencing and regression. Extensive use of applied business scenarios to illustrate concepts and computer software for data analysis. Due to presentation and application of course material, this course can only be taken by students in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**BMGT 638: Managing Business Operations in a Global Environment.** 3 credits.
Focuses on design, planning, and control activities to produce and deliver goods/services in organizations. Introduces operations management decisions; operations strategy, process analysis and design, capacity planning, supply chain management, total quality management, and project management. Uses quantitative modeling, case studies, and computer software to analyze/solve problems. Due to the presentation and application of course material, course only open to Master of Science in Management students. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**BMGT 643: Financial Management in a Global Environment.** 3 credits.
Introduces theory and practice of finance within corporations. Topics include intertemporal choice, valuation, capital budgeting and structure, working capital management, and risk and return analysis. Due to the presentation and application of course material, this course can only be taken by students enrolled in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**BMGT 653: Fundamentals of Behavior in Organizations.** 3 credits.
Emphasizes development of conceptual tools for understanding and analyzing individual and group behavior in organizations and organizational processes. Considerable focus on developing relevant skills for working in groups and teams. Lectures, discussions, case analyses, and class exercises. Due to the presentation and application of course material, this course can only be taken by students enrolled in the Master of Science in Management program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**BMGT 662: Management of Information Technology.** 3 credits.
Strategic, economic and managerial aspects of managing organization’s IT assets are covered. Business value of IT is understood and assessed in context of its impact on organization’s structure and strategy. Includes discussion on major issues pertaining management of IT infrastructure. Due to presentation and application of course material, course is only...
open to students enrolled in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BMGT 673: Business Legal Environment.** 1.5 credit.
Examines the managerial impact of the law upon decision-making processes in business organizations. Lectures as well as discussions of judicial opinions and readings. Due to the presentation and application of course material, this course can only be taken by students enrolled in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BMGT 674: Ethics in the Global Business Environment.** 1.5 credit.
Strengthens student's ability to identify, critically analyze, appropriately respond to, and provide leadership regarding issues of ethical and socially responsible behavior which they may confront as employees and managers of people, objects and organizations. Due to the presentation and application of course material, this course can only be taken by students enrolled in the Master of Science in Management Program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BMGT 678: Business Strategy and Firm Leadership.** 3 credits.
Capstone focusing on strategy development at business unit and corporate level. Cases, readings, and project format familiarize students with strategic management function and help develop analytical, organizational, and managerial skills to analyze complex business situations. Opportunities to integrate knowledge gained in prior course work. Due to presentation and application of course material, course only open to students enrolled in the Master of Science in Management program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**BMGT 692: Professional Development Experience.** 3 credits.
Professional experience in conjunction with academic development. Hands-on experience is an important part of academic and career preparation and may be completed by an internship, consulting project, independent study or additional global experience. Must involve an average of 15 hours per week and be approved by program director. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** completion of 18 credit hours in BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management.

Enrollment limited to students in a Master of Science degree.

**Schedule Type:** Internship

**BMGT 695: Global Business Perspectives.** 3 credits.
Includes a weeklong international student study tour lead by a full-time School of Business professor. Students interact with business and government leaders, participate in seminars, and visit sites of local or multinational companies. Focus on developing an increased understanding of global markets, competition, business strategy, and business opportunities in addition to the social and cultural dimensions of global business. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management.

Enrollment limited to students enrolled in the Master of Science in Management program. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to BMGT program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
Business Management of Secure Information Systems (MSIS)

600 Level Courses

MSIS 611: Leadership and Change Management. 2 credits.
Distinguishes between leadership and management, and focuses on the critical roles and functions of leadership, including communication ability, use of power and influence, providing direction, aligning an organization's systems, motivating a workforce, and creating a culture for effectiveness. It also focuses on strategies for developing oneself as an effective leader. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to TECM 611.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management of Secure Info Syst or Technology Management.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSIS 614: Financial and Cost Accounting. 2 credits.
Provides managers with an overview of the purpose and importance of accounting within the organization and the financial valuation of information technology companies, projects, and product line. Students focus on the economics and analysis of business transactions and their related financial reporting issues from internal and external stakeholder perspectives. Students improve their skills in analyzing financial issues and presenting results in a case analysis framework. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to TECM 614.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management of Secure Info Syst or Technology Management.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSIS 620: Economics of Technology Management. 2 credits.
Enables students to build and evaluate economic and business models that can be used to analyze real managerial questions that affect all types of institutions, especially firms in the information technology industry. Students develop a better understanding of the operation of markets in general and the use of various quantitative and qualitative methods when making decisions within the firm. The use of economic analysis allows students to identify and evaluate decision alternatives, the competitive environments of firms, and the factors that influence firm performance, especially in the information technology industry. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to TECM 620.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management of Secure Info Syst Technology Management.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSIS 635: Decision Models and Methods. 2 credits.
Explores current metrics and metric development for quality, intangible assets, and project management as required within information technology companies. Applies statistical tools of best use with these metrics. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to TECM 635.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSIS 641: Innovation, Commercialization and Entrepreneurship. 2 credits.
Cybersecurity is a field with both tremendous opportunity and need for innovations and commercialization of new technologies. In addition, there is tremendous opportunity and success by cybersecurity startup firms in US and internationally. Course investigates technology and cybersecurity innovation and commercialization and keys to success for cybersecurity entrepreneurship. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management of Secure Info Syst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSIS 643: Managerial Finance. 2 credits.
Surveys the theory and practice of corporate financial management with specific application to the technology sector. Students develop an understanding of key elements required in the valuation of project alternatives; including their strategic importance. Students evaluate and use financial management models and gain an understanding of how finance can be employed as a source of potential competitive advantage. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to TECM 643.
Registration Restrictions:  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management of Secure Info Syst or Technology Management.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Approval by faculty member and program director required prior to registration. Studies specialized topics in business not otherwise available in the curriculum. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 4 credits.

Registration Restrictions:  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management of Secure Info Syst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

MSIS 697: Special Topics in Management of Secure Information Systems. 1-3 credits.
Sections established as necessary to focus on various topical issues that emerge in practice of management of secure information systems. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Management of Secure Info Syst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

MSIS 711: Deriving Strategic Value from IT Investments. 2 credits.
Prepares students to be educated consumers of information technology to maximize strategic advantage of IT to an organization. Information technologies, architectures, and products are categorized and analyzed with a view to develop and maintain the most favorable IT asset portfolio to successfully carry out business goals and strategies. Techniques for making group technology assessments, outsourcing decisions, project bidding, and contract negotiations. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to TECM 711.

Registration Restrictions:  
Enrollment is limited to students with a major in Management of Secure Info Syst or Technology Management.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSIS 735: Capstone Project. 1-3 credits.
Teams undertake a strategic evaluation and plan for IT-driven business initiatives. Presentation includes analysis of competitive forces and the value chain; recommendations, including changes in goals and organizational design; plan of action integrating marketing, human resource development, organizational design, finance, and information technology; and implementation plan using theories of communication and change management, to include business case and business plan. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to TECM 735.

Registration Restrictions:  
Enrollment is limited to students with a major in Management of Secure Info Syst.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSIS 747: Enterprise Information Security Audit. 2 credits.
Focuses on defining a control framework, control objectives and the logging, monitoring and reporting and subsequent change management for an enterprise relying on secure information systems to its business objectives. Students will learn the process of creating a control structure with goals and objectives, audit a given IT infrastructure against it, and if found inadequate, establish a systematic remediation procedure. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: C or higher in MSEC 510 or equivalent.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Students spend a week in an international residency. Emphasizes dealing with technological changes across international markets and amid global developments, virtual organizations, and project management across cultures. Corporate site visits combined with presentations by professors from universities outside the United States and relevant practitioners. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:  
Enrollment is limited to students with a major in Management of Secure Info Syst.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Business and Legal Studies (BULE)**

**300 Level Courses**

**BULE 302: Legal Environment of Business.** 3 credits.
Survey of the legal environment of business, emphasizing legal concepts and legal reasoning to prepare students to recognize legal problems and formulate appropriate responses. Topics include the federal and state court systems, constitutional and administrative law, business torts and crimes, contracts and business ethics. Lecture, discussion, cases. Notes: Students cannot receive credit for both BULE 302 and BULE 303. Offered by School of Business (p. 846). Limited to three attempts. Equivalent to BULE 303.

**Recommended Prerequisite:** Sophomore standing.

**Registration Restrictions:**
Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**BULE 303: Legal Environment of Business.** 3 credits.
Survey of the legal environment of business, emphasizing legal concepts and legal reasoning to prepare students to recognize legal problems and formulate appropriate responses. Topics include the federal and state court systems, constitutional and administrative law, business torts and crimes, contracts and business ethics. Lecture, discussion, cases. Notes: School of Business students will not be permitted to make more than three attempts to achieve a C or higher in BULE 303. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information about this, see the "Termination from the Major" section under Academic Policies. Students cannot receive credit for both BULE 302 and BULE 303. Offered by School of Business (p. 846). Limited to three attempts. Equivalent to BULE 302.

**Recommended Prerequisite:** Degree status; sophomore standing

**Registration Restrictions:**
Students with a class of Freshman may not enroll.

Non-Degree or Washington Consortium level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**400 Level Courses**

**BULE 402: Commercial Law.** 3 credits.
Survey of commercial law emphasizing the Uniform Commercial Code. Lecture, discussion, cases. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**Chemistry (CHEM)**

**100 Level Courses**

**CHEM 101: Introduction to Modern Chemistry.** 3 credits.
Physical and chemical discoveries and properties of matter presented along with their application and impact on way of life. Topics include atomic and molecular structure, nuclear chemistry, and chemistry in Earth and atmosphere. Note: does not fulfill the requirement for a laboratory course in chemistry. Not for chemistry majors. No credit given for both CHEM 101 and CHEM 103 or for both CHEM 101 and CHEM 211-212. No previous knowledge of chemistry required. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 203, CHEM 204.

**Mason Core:** Natural Science Overview (p. 135)

**Schedule Type:** Lecture

**CHEM 102: Introduction to Organic, Biochemical, Pharmacological, and Fuel Chemistry.** 3 credits.
Modern and historical accounts of organic chemistry, biochemical, pharmacology, and fuel chemistry. Topics include the chemistry of carbon compounds, synthesis of polymers and their utility and use in the modern world, biomolecules, DNA and animal cloning, embryonic stem cells, the chemical structure and biological activity of drugs and medicines, and fuel chemistry including petroleum through green chemistry and the future. Notes: Does not fulfill the requirement for a laboratory course in Chemistry. Not for Chemistry majors. No credit for both CHEM 102 and CHEM 104, or CHEM 212. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 203, CHEM 204.

**Mason Core:** Natural Science Overview (p. 135)

**Schedule Type:** Lecture

**CHEM 103: Chemical Science in a Modern Society.** 4 credits.
Terminal course in chemistry for nonscience and nursing majors. Principles and application of chemistry. Notes: CHEM 103 and CHEM 101 are taught simultaneously in the same room. CHEM 101 is for those students who are not required to complete the lab component of CHEM 103. Not open to students majoring in chemistry. Credit will not be given for both this course and CHEM 211, 212. Topics are those described for CHEM 101 and 102 but with lab to enhance scientific experience. Offered by Chemistry (p. 636). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Schedule Type:** Laboratory, Lecture

**CHEM 104: Introduction to Organic, Biochemical, Pharmacological, and Fuel Chemistry.** 4 credits.
Modern and historical accounts of organic chemistry, biochemical, pharmacology, and fuel chemistry. Topics include the chemistry of carbon compounds, synthesis of polymers and their utility and use in the modern world, biomolecules, DNA and animal cloning, embryonic stem cells, the chemical structure and biological activity of drugs and medicines, and fuel chemistry including petroleum through green
chemistry and the future. (CHEM 104 requires concomitant registration in a 104 laboratory section). Notes: Not open to students majoring in chemistry. Credit will not be given for both CHEM 104 and CHEM 212 Offered by Chemistry (p. 636). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory, Lecture

CHEM 105: Introductory Chemistry Laboratory I. 1 credit.
Introductory laboratory course to demonstrate principles and application of chemistry. Notes: Not open to students majoring in chemistry. Credit will not be given for both this course and CHEM 211, 212. Students will enroll in CHEM 105 by Individualized Section and attend one of the CHEM 103 lab sections. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 211, CHEM 212.

Recommended Prerequisite: CHEM 101.

Schedule Type: Laboratory

CHEM 106: Introductory Chemistry Laboratory II. 1 credit.
1-credit laboratory course for non-science majors. Laboratory experience to demonstrate principles and application of chemistry. Notes: Not open to students majoring in chemistry. Credit will not be given for both this course and CHEM 211, 212. Students will enroll in CHEM 106 by Individualized Section and attend one of the CHEM 104 lab sections. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 211, CHEM 212.

Recommended Prerequisite: CHEM 102.

Schedule Type: Laboratory

CHEM 155: Introduction to Environmental Chemistry I. 4 credits.
Basic chemical principles of Earth's water, air, and soil systems; presented in the context of understanding environmental issues. Includes Saturday morning field trips to sites of past and present environmental contamination, alternating with Saturday morning laboratory activities. Notes: Credit will not be given for this course and CHEM 103, 104. Offered by Chemistry (p. 636). May not be repeated for credit.

Mason Core: Natural Science with Lab, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Laboratory, Lecture

CHEM 156: Introduction to Environmental Chemistry II. 4 credits.
Basic chemical principles of Earth's water, air, and soil systems; presented in the context of understanding environmental issues. Includes Saturday morning field trips to sites of past and present environmental contamination, alternating with Saturday morning laboratory activities. Notes: Credit will not be given for this course and CHEM 103, 104. Offered by Chemistry (p. 636). May not be repeated for credit.

Mason Core: Natural Science with Lab, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Recommended Prerequisite: CHEM 155 or permission of instructor.

Schedule Type: Laboratory, Lecture

200 Level Courses

CHEM 201: Introductory Chemistry I. 3 credits.
Fundamental principles of atomic and molecular structure; chemical bonding; basic concepts of chemical reactions and thermochemistry; and properties of gases, liquids, and solids. Notes: Does not fulfill degree requirements for laboratory science course. Credit will not be given for this course and CHEM 211 or 103. General chemistry course for students interested in science, engineering, mathematics, or computer science who do not require a lab. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 211.

Mason Core: Natural Science Overview (p. 135)

Schedule Type: Lecture

CHEM 202: Introductory Chemistry II. 3 credits.
Fundamentals of reaction rates and equilibrium. Topics include kinetics, properties of solutions, ionic equilibrium, chemical thermodynamics, electrochemistry, and nuclear chemistry. Notes: Does not fulfill degree requirements for laboratory science course. Credit will not be given for this course and CHEM 212 or 104. Second-semester general chemistry course for those interested in science, engineering, mathematics, or computer science who do not require a lab. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 212.

Mason Core: Natural Science Overview (p. 135)

Recommended Prerequisite: CHEM 201 or 211.

Schedule Type: Lecture

CHEM 203: General Chemistry Laboratory I. 1 credit.
General Chemistry laboratory course for students majoring in science, engineering, or mathematics. Laboratory experience to demonstrate general chemistry principles and applications. Students will enroll in CHEM 203 by Individualized Section and attend one of the CHEM 211 lab sections. Notes: Credit will not be given for this course and CHEM 101 or 102 to students majoring in science, engineering, or mathematics. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 101, CHEM 102, CHEM 213.

Recommended Prerequisite: CHEM 201.

Schedule Type: Laboratory

CHEM 204: General Chemistry Laboratory II. 1 credit.
Second semester general chemistry laboratory course for students majoring in science, engineering, or mathematics. Laboratory experience to demonstrate general chemistry principles and applications. Students will enroll in CHEM 204, by Individualized Section, and attend one of the CHEM 212 lab sections. Notes: Credit will not be given for this course and CHEM 101 or 102 to students majoring in science, engineering, or mathematics. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CHEM 101, CHEM 102, CHEM 214.

Recommended Prerequisite: CHEM 202.

Schedule Type: Laboratory

CHEM 211: General Chemistry I. 3 credits.
Fundamental principles of atomic and molecular structure; chemical bonding; basic concepts of chemical reactions and thermochemistry; properties of gases, liquids, and solids. Notes: Credit will not be given for this course and CHEM 103, 104. Students majoring in science, engineering, or mathematics should choose this course sequence.
CHEM 211 is a prerequisite to CHEM 212. Offered by Chemistry (p. 636). Limited to two attempts. Equivalent to CHEM 105, CHEM 106, CHEM 201.

Mason Core: Natural Science with Lab (p. 135)

Registration Restrictions:
Required Prerequisites: CHEM 213*; U213* or 213T*.
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 212: General Chemistry II. 3 credits.
Fundamentals of colligative properties, reaction rates and equilibrium. Topics include kinetics, properties of solutions, ionic equilibrium, chemical thermodynamics, electrochemistry, and nuclear chemistry. Notes: Credit will not be given for this course and CHEM 103, 104. Students majoring in science, engineering, or mathematics should choose this course sequence. Offered by Chemistry (p. 636). Limited to two attempts. Equivalent to CHEM 202.

Mason Core: Natural Science with Lab (p. 135)

Registration Restrictions:
Required Prerequisites: (CHEM 211*C, 211T or U211) and (CHEM 214*C, 214T* or U214*).
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 213: General Chemistry Laboratory I. 1 credit.
General Chemistry laboratory course for students majoring in science, engineering, or mathematics. Laboratory experience will demonstrate general chemistry principles and applications. Notes: Students majoring in science, engineering, or mathematics should choose this course sequence. Credit will not be given for this course and CHEM 103. Offered by Chemistry (p. 636). Limited to two attempts. Equivalent to CHEM 203.

Mason Core: Natural Science with Lab (p. 135)

Registration Restrictions:
Required Prerequisites: CHEM 211*C, U211* or 211T*.
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Laboratory

CHEM 214: General Chemistry Laboratory II. 1 credit.
General Chemistry laboratory course for students majoring in science, engineering, or mathematics. Laboratory experience will demonstrate general chemistry principles and applications. Notes: Credit will not be given for this course and CHEM 103, CHEM 104. Students majoring in science, engineering, or mathematics should choose this course sequence. Offered by Chemistry (p. 636). Limited to two attempts. Equivalent to CHEM 204.

Mason Core: Natural Science with Lab (p. 135)

Registration Restrictions:
Required Prerequisites: (CHEM 212*C, U212* or 212T*) and (CHEM 211*C, 211T or U211).
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Laboratory

CHEM 251: General Chemistry for Engineers. 4 credits.
Fundamental principles of chemical structure and reactivity including atomic and molecular structure; chemical bonding; structures of ionic, covalent, and metallic lattices; oxidation reduction; electrochemistry and chemistry of metals; and introduction to organic chemistry and polymers. Notes: Enrollment restricted to students intending to major in engineering. Students who need two semesters of chemistry should enroll in CHEM 211. Credit will not be given for this course and CHEM 211. Offered by Chemistry (p. 636). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Schedule Type: Laboratory, Lecture

300 Level Courses

CHEM 300: Chemistry of Semiconductor Processing. 3 credits.
Chemical aspects of the manufacture of semiconductor devices. Topics include oxidation of silicon, photoresists, plasma etching, removal of metal contaminants by acid etching, and analysis of semiconductor thin films. Notes: Does not satisfy chemistry course requirements for BS in biology. Cannot be used as a chemistry elective toward BA, BS, or minor in chemistry, and does not fulfill premedical requirements. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: 30 credit hours or permission of instructor.

Schedule Type: Lecture

CHEM 313: Organic Chemistry I. 3 credits.
Theoretical, synthetic, industrial, and biological aspects of the chemistry of carbon compounds. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Corequisite: CHEM 315.

Registration Restrictions:
Required Prerequisites: (CHEM 212*C or U212) and (CHEM 211*C or U211).
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 314: Organic Chemistry II. 3 credits.
Theoretical, synthetic, industrial, and biological aspects of the chemistry of carbon compounds. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Corequisite: CHEM 318.

Registration Restrictions:
Required Prerequisites: (CHEM 313*C or L313) and CHEM 212*C and 211*C.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 315: Organic Chemistry Lab I. 2 credits.
Lab techniques and reactions arranged to accompany CHEM 313. Notes: One-hour recitation. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CHEM 313*C or L313*) and CHEM 212*C and 211*C.
* May be taken concurrently.
C Requires minimum grade of C.
Schedule Type: Laboratory

CHEM 318: Organic Chemistry Lab II. 2 credits.
Continuation of CHEM 315, arranged to accompany CHEM 314. Notes: One-hour recitation. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CHEM 315 C or L315) and (CHEM 314 C or L314) and (CHEM 313 C or L313).
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Laboratory

CHEM 321: Quantitative Chemical Analysis. 4 credits.
Principles of chemical analysis emphasizing ionic equilibria. Lab consists of gravimetric, volumetric, and instrumental methods illustrating principal types of quantitative determinations. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 212 C, MATH 113 C, CHEM 211 C and MATH 114 C.
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Laboratory, Lecture

CHEM 331: Physical Chemistry I. 3 credits.
Yearlong survey covering topics including thermodynamics, equilibria, kinetics, solution properties, elementary quantum theory, electrochemistry, atomic and molecular structure, and nuclear chemistry. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CHEM 212 C and MATH 114 C) and (PHYS 243 C or 160 C).
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 332: Physical Chemistry II. 3 credits.
Yearlong survey covering topics including thermodynamics, equilibria, kinetics, solution properties, elementary quantum theory, electrochemistry, atomic and molecular structure, and nuclear chemistry. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 114 C and CHEM 331 C) and (PHYS 243 C or 160 C) and (PHYS 244 C or 260 C).
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 333: Physical Chemistry for the Life Sciences I. 3 credits.
Yearlong survey of principles of physical chemistry emphasizing application in biological sciences. Topics include first and second laws of thermodynamics, free energy and chemical equilibria, kinetics, transport properties, molecular interactions, molecular structure, spectroscopy, statistical thermodynamics, and x-ray diffraction. Notes: Credit will not be given for both this course sequence and CHEM 331, 332. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: CHEM 333, MATH 113, 114.

Schedule Type: Lecture

CHEM 334: Physical Chemistry for the Life Sciences II. 3 credits.
Yearlong survey of principles of physical chemistry emphasizing application in biological sciences. Topics include first and second laws of thermodynamics, free energy and chemical equilibria, kinetics, transport properties, molecular interactions, molecular structure, spectroscopy, statistical thermodynamics, and x-ray diffraction. Notes: Credit will not be given for both this course sequence and CHEM 331, 332. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: CHEM 333.

Schedule Type: Laboratory

CHEM 336: Physical Chemistry Lab I. 2 credits.
Quantitative experimental study of physicochemical principles. CHEM 336 and 337 constitute an introduction to the practice and theory of experimental physical chemistry. Notes: One-hour recitation. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: CHEM 333, MATH 113, 114.

Schedule Type: Lecture

CHEM 337: Physical Chemistry Lab II. 2 credits.
Continuation of CHEM 336. Notes: One-hour recitation. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CHEM 331 C or L331) and (CHEM 332 C or L332) and (CHEM 336 C or L336).
* May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Laboratory

CHEM 341: Fundamental Inorganic Chemistry. 3 credits.
Descriptive chemistry including chemical properties, reactions, and reaction mechanisms of inorganic elements and compounds. Topics include main group and transition elements, organometallic compounds, and bioinorganic chemistry. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 212 C, 313 C and 315 C.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 355: Undergraduate Research. 1-3 credits.
Original research project. May involve lab study, computer modeling and analysis, or other original research as appropriate. Research formulated and completed under instructor’s guidance. Culminates in a written and oral final report. May be repeated for a total of 6 credits. Offered by
Chemistry (p. 636). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisites: CHEM 313C, 315C, MATH 113C, PHYS 243C and 244C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Junior, Sophomore, Senior Plus or Senior.

Enrollment is limited to students with a major, minor, or concentration in Chemistry.

Schedule Type: Research

400 Level Courses

CHEM 413: Synthetic and Mechanistic Organic Chemistry. 3 credits.
General review of synthetic pathways and applications to new topics, emphasizing fused ring aromatics, heterocyclics, natural products, and biologically active compounds. Includes relationship of applied organic chemistry to consumer products, including drugs and agricultural chemicals. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CHEM 314C or 314L) and (CHEM 318C or 318L) and CHEM 331C.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 422: Instrumental Methods of Chemical Analysis. 3 credits.
Introduces theories of analysis by instrumental methods. Basic electronics applied to chemical measurements. Topics include introduction to theory of spectroscopy including ultraviolet, visible, and infrared, and electrochemical methods of analysis; theory of Fourier transform techniques such as FT-IR and FT-NMR; and theory of advanced pulse techniques. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 321C, 332C and 337C.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 423: Instrumental Methods of Chemical Analysis Laboratory. 2 credits.
Laboratory-based introduction to quantitative analysis of organic and inorganic substances by using modern analytical instrumentation. Laboratory highlights practice of atomic and molecular spectroscopy, spectrophotometry, chromatography, voltammetry, and potentiometry in relation to chemical experimentation. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CHEM 422C.
C Requires minimum grade of C.

Schedule Type: Laboratory

CHEM 427: Aquatic Environmental Chemistry. 3 credits.
Thermodynamic and kinetic processes regulating the chemistry of surface and ground water in natural and polluted environments with particular emphasis in explaining the aqueous concentrations of chemical species and controlling geochemical factors in the hydrosphere. Structure, sources and transformations of organic matter in the aquatic environment and interactions with aqueous solutes will be covered as related to contemporary issues in water quality. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CHEM 321C.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 438: Atmospheric Chemistry. 3 credits.
The fundamental chemical processes of the Earth's atmosphere including chemical cycles, thermodynamics, reaction kinetics, photochemistry, radiative balance, ozone chemistry and environmental issues, including air pollution, acid rain and global change. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CLIM 438.

Registration Restrictions:
Required Prerequisite: CHEM 332C.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 439: RS: Atmospheric Chemistry II: Air Analysis Techniques. 3 credits.
The theory, design and implementation of air sampling and analysis techniques for investigating GMU and regional air quality. Offered by Chemistry (p. 636). May not be repeated for credit.

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: CHEM 438 or permission of instructor.

Schedule Type: Lecture

CHEM 441: Properties and Bonding of Inorganic Compounds. 3 credits.
Interpretation of physical and chemical properties of inorganic compounds in terms of currently used bonding concepts. Topics include molecular symmetry and applications of symmetry, structure and bonding in ionic solids; reactions and characterizations of solids; electronic and magnetic properties and applications of solids. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 332C and 337C.
C Requires minimum grade of C.

Schedule Type: Lecture

CHEM 445: Inorganic Preparations and Techniques. 2 credits.
Application of techniques of inorganic chemistry to preparation, purification, and spectroscopic characterization of selected substances. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CHEM 441C.
C Requires minimum grade of C.

Schedule Type: Laboratory

CHEM 446: Bioinorganic Chemistry. 3 credits.
Application of inorganic coordination chemistry and physical methods in study of structure and function of metal ion sites in biomolecules. Properties of transition metal ions, ligand field theory. Topics include iron cytochromes, zinc and copper enzymes, cobalamins, iron sulfur
proteins, oxygen transport, iron storage, electron transfer, inorganic model compounds, metals in medicine, and toxicity of inorganic species. Notes: Students may take this course concurrently with CHEM 463 or after taking CHEM 463. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CHEM 463 or BIOL 483) and CHEM 331 and 336.
C Requires minimum grade of C.

Schedule Type: Lecture
CHEM 451: Special Projects in Chemistry. 1-3 credits.
Introduction to chemical research or development. Includes literature search, conferences, and lab. Notes: Written and oral technical reports required. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 314, 318, 321, 331 and 336.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior Plus or Senior.
Enrollment is limited to students with a major, minor, or concentration in Chemistry.

Schedule Type: Research
CHEM 452: Special Projects in Chemistry. 1-3 credits.
Introduction to chemical research or development. Includes literature search, conferences, and lab. Notes: Written and oral technical reports required. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CHEM 451 C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior Plus or Senior.
Enrollment is limited to students with a major, minor, or concentration in Chemistry.

Schedule Type: Research
CHEM 455: Honors Research in Chemistry. 3 credits.
Introduction to research on current problem in chemical sciences under supervision of faculty advisor. Includes literature search, laboratory or theoretical work, conferences with faculty advisor, attendance at regularly scheduled seminars, and oral and written presentations. Notes: Credit will not be given for both these courses and CHEM 451, 452. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: B+ or higher in CHEM 455.

Registration Restrictions:
Required Prerequisite: CHEM 456 B+.
B+ Requires minimum grade of B+.

Enrollment limited to students with a class of Senior Plus or Senior.
Enrollment is limited to students with a major in Chemistry.
Enrollment limited to students with the Honors Coll Schlrshp Confirmd, Honors College, or Honors in the Major. attributes.

Schedule Type: Research
CHEM 456: Honors Research in Chemistry. 3 credits.
Introduction to research on current problem in chemical sciences under supervision of faculty advisor. Includes literature search, laboratory or theoretical work, conferences with faculty advisor, attendance at regularly scheduled seminars, and oral and written presentations. Notes: Credit will not be given for both these courses and CHEM 451, 452. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CHEM 456 C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior Plus or Senior.

Schedule Type: Lecture
CHEM 463: General Biochemistry I. 4 credits.
Brief introduction to biochemistry, followed by in-depth look at amino acids and proteins, 3-D structure, folding and dynamics, their specialized function, and primary metabolism. Emphasizes enzymes and their chemical mechanisms, and metabolism. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to BIOL 483.

Registration Restrictions:
Required Prerequisites: (CHEM 313 or L313) and BIOL 213 C.
C Requires minimum grade of C.

Schedule Type: Lecture
CHEM 464: General Biochemistry II. 3 credits.
Continuation of general biochemistry, focusing on secondary metabolism, cell signaling, and processes of replication, transcription, and translation. Emphasizes important biochemistry research topics; much material drawn from current biochemical literature. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 463 C and (CHEM 314 or 314L).
CHEM 465: Biochemistry Lab. 2 credits.
Introduction to modern biochemical experimental methods of studying chemical and physical properties of biological molecules. Includes separation, identification, and characterization of biomolecules. Offered by Chemistry (p. 636). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Grade of C or better in CHEM 315 and CHEM 463.

Recommended Corequisite: CHEM 463.

Registration Restrictions:
Required Prerequisites: CHEM 463 and (CHEM 315 or 315L).

Schedule Type: Laboratory

CHEM 467: The Chemistry of Enzyme-Catalyzed Reactions. 3 credits.
Examples of enzyme mechanisms demonstrate how chemical principles are employed by living organisms. Specific enzyme mechanisms used to illustrate principles from organic, inorganic, and physical chemistry. Discusses techniques to monitor enzyme reactions. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 463 and 314 and 331.

Schedule Type: Lecture

CHEM 468: Bioorganic Chemistry. 3 credits.
Basic understanding of chemical nature of biomolecules and biomacromolecules. Introduces biomolecules such as amino acids, proteins, carbohydrates, and lipids. Lectures focus on biophysical properties and synthesis, using practical examples and visual aids. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CHEM 463 and 464 and 314 and 331.

Schedule Type: Lecture

CHEM 469: Undergraduate Seminar. 1 credit.
Selected topics from recent chemical theory and applications, generally consisting of research presentations by invited faculty from other institutions. Attendance is required at 80% of the seminars and students must write up a one-page summary of each talk attended. This course will also be used to teach students how to give effective presentations. May be repeated for a total of 2 credits. Offered by Chemistry (p. 636). May be repeated within the degree for a maximum 2 credits.

Registration Restrictions:
Required Prerequisites: (CHEM 331 or 336).

Schedule Type: Seminar

500 Level Courses

CHEM 500: Selected Topics in Modern Chemistry. 3 credits.
Topics of interest in analytical, biological, environmental, geological, geochemical, inorganic, organic, and physical chemistry. Notes: Credit not allowed toward major in chemistry. Credit not allowed toward minor in chemistry. Offered by Chemistry (p. 636). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Senior Plus or Senior.

Enrollment is limited to students with a major, minor, or concentration in Chemistry.

Schedule Type: Lecture

CHEM 513: Synthetic and Mechanistic Organic Chemistry. 3 credits.
General review of synthetic pathways and applications to new topics, emphasizing fused ring aromatics, heterocyclics, natural products, and biologically active compounds. Includes relationship of applied organic chemistry to consumer products, including drugs and agricultural chemicals. Organic core course. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: Grade of C or better in CHEM 314, CHEM 318 and CHEM 331.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CHEM 530: Instrumental Techniques of Analysis. 2 credits.
Principles and operation of modern instrumentation, emphasizing applications to analysis of chemical, biological, and environmental samples. Methods include combined capillary column gas chromatography and mass spectrometry, high-performance liquid chromatography, optical methods, surface analysis methods, magnetic resonance spectroscopy, atomic emission and absorption spectrometry, and electroanalytical methods. With approval of research committee,
students choose methods studied. Offered by Chemistry (p. 636). May be repeated within the term.

**Recommended Prerequisite:** CHEM 321 and 422 or 521 or permission of department.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**CHEM 563: General Biochemistry I.** 4 credits.
Brief introduction to biochemistry, followed by an in-depth look at amino acids and proteins, 3-D structure, folding and dynamics, their specialized function and primary metabolism. Emphasizes enzymes and their chemical mechanisms and metabolism. Students will be assigned papers from the primary literature and be required to answer questions from these papers on exams. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 313, BIOL 213.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CHEM 564: General Biochemistry II.** 3 credits.
Previous course in biology recommended but not required. Important biological compounds, including proteins, carbohydrates, lipids, and nucleic acids, and their interrelations. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 563 or equivalent.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CHEM 567: The Chemistry of Enzyme-Catalyzed Reactions.** 3 credits.
Examples of enzyme mechanisms demonstrate how chemical principles are employed by living organisms. Specific enzyme mechanisms used to illustrate principles from organic, inorganic, and physical chemistry. Discusses techniques to monitor enzyme reactions. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 313 and 314, or equivalent, or permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CHEM 568: Bioorganic Chemistry.** 3 credits.
Basic understanding of chemical nature of biomolecules and biomacromolecules. Introduces biomolecules such as amino acids, proteins, carbohydrates, and lipids. Lectures focus on biophysical properties and synthesis, using practical examples and visual aids. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 314 and 463, or equivalent, or permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CHEM 579: Special Topics.** 1-6 credits.
Current topics in chemistry, depending on instructor’s specialty. Notes: May be repeated with different topics, with department approval. Offered by Chemistry (p. 636). May be repeated within the term.

**Recommended Prerequisite:** CHEM 313 and 314, or permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**CHEM 613: Modern Polymer Chemistry.** 3 credits.
Synthetic and analytical chemistry of synthetic macromolecules. Topics include polymer solutions, molecular weight determination, spectroscopy, thermal analysis, x-ray crystallinity, polymerization types, and commercial and electroactive polymers. Organic core course. Offered by Chemistry (p. 636). May not be repeated for credit.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 614: Physical Organic Chemistry.** 3 credits.
Principles underlying molecular structure, reactivity, and reaction mechanisms. Topics include valence-bond and molecular-orbital theory, electronic interpretation of organic reactions, stereochemistry, conformational analysis, kinetics and thermodynamics of organic reactions, and photochemistry. Organic core course. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 314 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 620: Modern Instrumentation.** 3 credits.
Methods of sensing and measurement of radiation, particles, pressure, concentrations of specific elements and compounds. Topics include basic operational amplifier circuits for analog signals, digitizing devices and computerized data collection, noise and noise-reduction methods, and specialized instrumentation systems for various areas of chemistry and physics. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 422 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 624: Principles of Chemical Separation.** 3 credits.
Theories and models of separation with applications to analyses of a wide range of chemical, biological, and environmental samples. Topics include high-resolution gas and high-performance liquid chromatography. Emphasizes theory of reverse phase, normal phase, ion exchange, size exclusion, and affinity based separations. Also presents instrumentation such as detectors, pumps, and columns, and data acquisition. Analytical core course. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 422 or 521 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 625: Electroanalytical Chemistry.** 3 credits.
Review of basic electrochemistry. Emphasizes analysis and research for applications of modern electrochemical techniques such as chronooamperometry; cyclic, stripping, and AC voltammetry; pulse polarography; coulometry; electrochemical sensors; and instrumentation. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 321 and CHEM 331.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 627: Aquatic Environmental Chemistry.** 3 credits.
Thermodynamic and kinetic processes regulating the chemistry of surface and groundwater in natural and polluted environments with particular emphasis in explaining the aqueous concentrations of chemical species and controlling geochemical factors in the hydrosphere. Structure, sources and transformations of organic matter in the aquatic environment and interactions with aqueous solutes will be covered as related to contemporary issues in water quality. Students will be assigned papers from the primary literature and be required to answer questions from these papers on exams. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 321 or GEOL 302 or equivalent courses or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 633: Chemical Thermodynamics and Kinetics.** 3 credits.
Advanced study covering application of kinetics to the elucidation of reaction mechanisms and application of statistical thermodynamics to theory of elementary reaction rates. Physical core course. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CSI 711.

**Recommended Prerequisite:** CHEM 331 and 332.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 641:** Solid State Chemistry. 3 credits.
Focuses on the design and synthesis, structure and bonding of solid state compounds; physical properties and characterization of solids. Topics of current interest will also be included. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 441 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 646:** Bioinorganic Chemistry. 3 credits.
Applies inorganic coordination chemistry and physical methods to understand structure and function of metal ion sites in biomolecules. Biochemical roles of metal centers in oxygen transport, metalloenzymes, and electron transfer. Topics include iron cytochromes, zinc and copper enzymes, cobalamins, iron sulfur proteins, inorganic model compounds, and metals in medicine. Inorganic core course. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 441, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 651:** Environmental Chemistry of Organic Substances. 3 credits.
Study of principles governing multimedia distribution and fate of organic chemicals in environment. Overview of origin and occurrence of major classes of natural and anthropogenic organic chemicals in environment. Environmental core course. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** One semester of Physical Chemistry, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 660:** Protein Biochemistry. 3 credits.
Proteins play critical roles in most biological processes. Therefore, to understand these processes, it is necessary to understand proteins. This course will introduce students to proteins, their biosynthesis/biodegradation and their biophysical and biochemical properties. Biochemistry core course. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 463 or equivalent or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 661:** Antibiotic Chemistry and Resistance. 3 credits.
Introduces the various classes of antibiotics. Focus on the chemistry of antibiotics and how they inhibit bacterial growth and/or cause death and the response of bacteria to these compounds. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 463 or equivalent or permission of instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CHEM 662:** Modern Methods of Drug Discovery. 3 credits.
Introduction to the process of drug discovery. Covers modern methods and strategies of target identification, lead identification, and lead optimization. Biochemistry core course. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 463 (or equivalent) or permission of instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
CHEM 665: Protein-Protein Interactions: Methods and Applications. 3 credits.
Introduction to the fundamental principles of protein-protein interactions, including experimental design considerations and methods for quantification of these interactions. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: CHEM 463 (or equivalent), or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CHEM 670: Teaching Practicum. 2 credits.
Pre-laboratory lecture and laboratory teaching in chemistry. Students work closely with faculty and are responsible for all aspects of teaching undergraduate laboratory techniques. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: Enrollment in the graduate program and permission of Chair.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

700 Level Courses

CHEM 728: Introduction to Solid Surfaces. 3 credits.
Introduces properties of solid surfaces. Topics include gas absorption isotherms, surface area measurement techniques, real and clean surfaces, physisorption and chemisorption, methods of gas adsorption and desorption, measurement of heats of adsorption, desorption kinetics, electron spectroscopies and surface sensitivities, instrumentation; and principles of vacuum technology. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CSI 712.

Recommended Prerequisite: CHEM 422 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CHEM 736: Computational Quantum Mechanics. 3 credits.
Study of fundamental concepts of quantum mechanics from computational point of view, review of systems with spherically symmetric potentials, electron-atom solutions to Schrodinger’s equation, electron spin in many electron systems, atomic structure calculations, algebra of many electron calculations, Hartree-Fock, self-consistent field method, molecular structure calculations, scattering theory computations, and solid-state computations. Offered by Chemistry (p. 636). May not be repeated for credit. Equivalent to CSI 783, PHYS 736.

Recommended Prerequisite: PHYS 502, 510, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CHEM 735: Astrophysical Chemistry of Planetary Bodies. 3 credits.
In depth review of the chemistry of planets, comets and other bodies in the Solar System. Emphasis will be placed on the laboratory techniques and measurements made in order to understand and predict astronomical observations. Offered by Chemistry (p. 636). May not be repeated for credit.

Recommended Prerequisite: CHEM 331, or ASTR 403, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CHEM 770: Graduate Seminar. 1 credit.
Selected topics from recent chemical theory and applications, generally consisting of research presentations by invited faculty from other institutions. Attendance is required at 80% of the seminars and students must write up a 1 page summary of each talk attended. Course also used to teach students effective presentation methods. Notes: Requires, in last semester, seminar presentation on student’s research or another topic acceptable to department. Three credits of CHEM 790 required for MS degree; an additional 3 credits required after admission to PhD program. Offered by Chemistry (p. 636). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Admission to a graduate program in Chemistry and Biochemistry, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CHEM 796: Directed Reading and Research.** 1-6 credits. Reading and research on a specific topic in chemistry or biochemistry under direction of a faculty member. Offered by Chemistry (p. 636). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Admission to a graduate program in Chemistry and Biochemistry or affiliated programs.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Research

**CHEM 798: Research Project.** 3-6 credits. Experimental or theoretical research project chosen and completed under guidance of graduate faculty member. Notes: Requires comprehensive report acceptable to advisory committee, and final oral exam on report. Offered by Chemistry (p. 636). May be repeated within the degree for a maximum 6 credits.

**Recommended Corequisite:** Permission of department; 6 credits of CHEM 798 or 799 (credit will not be given for both).

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**CHEM 799: Master's Thesis.** 1-6 credits. Laboratory thesis research and writing under direction of supervisor. Notes: Minimum of 3 credits for first two enrollment periods. Offered by Chemistry (p. 636). May be repeated within the degree.

**Recommended Corequisite:** Permission of the department.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**CHEM 814: Advanced Bioorganic Chemistry.** 3 credits. Introduces the chemical nature of biomolecules, with a focus on their organic properties. Focuses on the chemical principals that underlie the diverse structures, properties and reactions of biomolecules. Core course in the Chemistry and Biochemistry doctoral program. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 313, 314, and 463 or equivalent; or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CHEM 817: Organic Structural Spectroscopy.** 3 credits. Spectroscopic determination of organic molecular structure using 1H, 13H, 19F, and 31P nuclear magnetic resonance, infrared, ultraviolet, visible, and Raman spectroscopy, and mass spectrometry. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 314 or equivalent.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CHEM 821: Theory of Analytical Processes.** 3 credits. Theory and application of contemporary analytical processes and methods used in chemistry research. Emphasis on analytical signals and accompanying noise, sample preparation techniques, and quality assurance in measurements. Core course in the Chemistry and Biochemistry doctoral program. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Chemistry and Biochemistry doctoral program.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CHEM 833: Physical Chemistry and Biochemistry.** 3 credits. The theory and practical use of thermodynamics, kinetics, spectroscopy and quantum chemistry in chemical and biochemical research. Core course in the Chemistry and Biochemistry doctoral program. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 331 or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CHEM 891: Doctoral Scientific Critique, Writing and Presentation.** 3 credits. Development of skills associated with scientific communication and research such as oral presentation of scientific material, analysis of scientific research and preparation of scientific proposals. In preparing scientific proposals, students will learn how to identify scientific questions of interest and how to plan a course of experiments to address these questions. Core course in the Chemistry and Biochemistry doctoral program. Offered by Chemistry (p. 636). May not be repeated for credit.

**Recommended Prerequisite:** Permission of academic advisor, research advisor and/or research committee

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CHEM 896: Doctoral Directed Reading and Research.** 1-6 credits. Reading and research on a specific topic in Chemistry or Biochemistry under direction of a faculty member. Offered by Chemistry (p. 636). May be repeated within the degree for a maximum 15 credits.

**Recommended Prerequisite:** Admission to the PhD in Chemistry and Biochemistry or affiliated programs.
Recommended Prerequisite: CHIN 109, CHIN 110.

Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 102 and CHIN 109 or 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 110.

CHIN 101: *Elementary Chinese*. 3 credits.

Introduction to Mandarin, including basic grammar, oral expression, listening comprehension, reading, and writing. Notes: Students may not receive credit for CHIN 101 and CHIN 109 or 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 101, CHIN 102, CHIN 109.

Recommended Prerequisite: CHIN 101.

Schedule Type: Lecture

CHIN 102: *Elementary Chinese*. 3 credits.

Continuation of CHIN 101. Notes: Students may not receive credit for CHIN 102 and CHIN 109 or 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 109, CHIN 110.

Recommended Prerequisite: CHIN 101.

Schedule Type: Lecture


Further development of skills acquired in CHIN 101 and 102, including grammar, oral expression, listening comprehension, reading, and writing. Notes: CHIN 201 and 202 must be taken in sequence. Students may not receive credit for CHIN 201 and CHIN 209 or 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 210.

Recommended Prerequisite: CHIN 101 and 102.

Schedule Type: Lecture


Continuation of CHIN 201. CHIN 201 and 202 must be taken in sequence. Notes: Students may not receive credit for CHIN 202 and CHIN 209 or 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 210.

Recommended Prerequisite: CHIN 201.

Schedule Type: Lecture


Recommended for students who desire training in Chinese language to an intermediate level of competence in a relatively short period of time. Notes: Equivalent to CHIN 201 and 202 taught in single semester. Students may not receive credit for CHIN 209 and CHIN 201, 202, or 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 210.

Recommended Prerequisite: CHIN 102, 109, appropriate placement score, or permission of instructor.

Schedule Type: Lecture


Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Chinese-speaking regions. Notes: Students may not receive credit for CHIN 210 and CHIN 201, 202, or 209. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to CHIN 201, CHIN 202, CHIN 209.
Recommended Prerequisite: CHIN 110 or appropriate placement score.

Schedule Type: Lecture

CHIN 250: Gateway to Advanced Chinese. 3 credits.
Integration of advanced intermediate-level Chinese reading, writing, listening, and speaking skills; and the development of critical thinking about authentic texts from around the globe. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Chinese

Recommended Prerequisite: CHIN 210.

Schedule Type: Lecture

300 Level Courses

CHIN 300: Reading Skills Development. 3 credits.
Develops reading proficiency, emphasizing vocabulary and grammar of standard written Chinese. Introduces discourse structure, sociolinguistic and cultural knowledge, and strategies for reading Chinese at an advanced level. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Chinese

Recommended Prerequisite: CHIN 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

CHIN 301: Advanced Grammar and Syntax. 3 credits.
In-depth review of Chinese grammar and syntax. Provides extensive practice in controlled and free writing, emphasizing fundamental difficulties and points of interference between English and Chinese. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Chinese

Recommended Prerequisite: CHIN 250 or equivalent; appropriate placement score; or permission of instructor.

Schedule Type: Lecture

CHIN 305: Chinese for the Business World. 3 credits.
Introduces terminology and structure of business Chinese. Emphasizes acquiring vocabulary and developing facility in Chinese business articles and correspondence. Notes: May be repeated for credit with permission of department when content is different. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Chinese

Recommended Prerequisite: CHIN 250 or equivalent; appropriate placement score; or permission of instructor.

Schedule Type: Lecture

CHIN 310: Survey of Chinese Literature. 3 credits.
Introduces outlines of Chinese literature to the 19th century, presented through literary sources arranged in roughly chronological order. Readings include poetry, fiction; personal essays; documents of philosophy, history, and religion; and transcribed oral records. Notes: Knowledge of Chinese helpful but not required. May be repeated when topic is different with approval of department. Offered by Modern &

Recommended Prerequisite: CHIN 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

CHIN 311: Modern Chinese Literature in Translation. 3 credits.
Introduction of outlines of modern Chinese literature from early 20th century to post-Mao era, presented through literary sources arranged in roughly chronological order. Readings include poetry, fiction, personal essays. Notes: Knowledge of Chinese helpful but not required. May be repeated when topic is different with approval of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101, or permission of instructor.

Schedule Type: Lecture

CHIN 318: Introduction to Classical Chinese. 3 credits.
Introduces basic structures and vocabulary of Classical Chinese, which still has a significant influence on the formal written prose of modern newspapers and documents. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Specialized Designation: Taught in Chinese, Non-Western Culture

Recommended Prerequisite: CHIN 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

CHIN 320: Contemporary Chinese Film. 3 credits.
Explores China from 1949 to present through cinematic and literary representations. Discussions focus on representations of cultural, social, and political changes in the movies. Also introduces critical readings that address issues of gender and youth, family, ethnicity, modernity and the nation, as well as visuality and memory. Notes: Knowledge of Chinese language helpful but not required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in English, Non-Western Culture

Recommended Prerequisite: CHIN 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

CHIN 325: Major Chinese Writers. 3 credits.
Studies works of major Chinese writers. Writers studied may vary. Notes: Knowledge of Chinese helpful but not required. May be repeated when topic is different with approval of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Mason Core: Literature (p. 135)
Specialized Designation: Taught in English, Non-Western Culture

Recommended Prerequisite: ENGL 101/ENGH 101, or permission of instructor.

Schedule Type: Lecture

CHIN 328: Asian American Women Writers. 3 credits.
Introduction to selected works by female writers of Chinese, Filipino, Indian, Japanese, and Korean descent. Analyzes themes, form, style, language, and structure of a variety of works, mainly novels and short stories. Assesses role and significance of writings as part of ethnic American and women's literature by exploring questions of identity formation and disintegration, and how they are rooted in gender, social status, ethnicity, community, geography, and generational conflict. Notes: Knowledge of Asian languages not required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Schedule Type: Lecture

CHIN 355: Readings in Chinese Poetry and Poetics. 3 credits.
Close readings and discussions of primary texts covering major periods in Chinese poetry to 1949. Analyzes variety of themes, forms, and styles. Notes: May be repeated when readings are different with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Mason Core: Capstone (p. 135)

Specialized Designation: Taught in Chinese

Recommended Prerequisite: CHIN 300 or permission of instructor.

Schedule Type: Lecture

CHIN 365: Readings in Chinese Fiction after Mao. 3 credits.
Close readings and discussions of primary texts after the Cultural Revolution. Analyzes themes, subjects, language, and styles. Notes: May be repeated when readings are different with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in Chinese

Recommended Prerequisite: CHIN 300 or permission of instructor.

Schedule Type: Lecture

400 Level Courses

CHIN 470: Special Topics in Chinese Studies. 3 credits.
Covers topics on Chinese language, literature, or culture organized by theme, genre approach, or era. Notes: May be repeated when topic is different with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in Chinese

Schedule Type: Lecture

CHIN 475: Chinese Popular Culture. 3 credits.
Combines language learning with an introduction to the complex and vibrant popular culture of contemporary China: music, food, games, gender and family issues, commercial culture, and digital media. Authentic texts will include popular music and poems, films, TV shows, and social media posts. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Specialized Designation: Taught in Chinese

Recommended Prerequisite: Three years of college Chinese or equivalent.

Schedule Type: Lecture

CHIN 480: Fourth-Year Chinese I. 3 credits.
Advanced work in major grammatical and lexical topics of Chinese. Applies theoretical principles to guided written and oral exercises. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Chinese, Writing Intensive in the Major

Recommended Prerequisite: CHIN 300 and 301; appropriate placement score, or permission of instructor.

Schedule Type: Lecture

CHIN 481: Fourth-Year Chinese II. 3 credits.
Advanced work in major grammatical and lexical topics of Chinese. Applies theoretical principles to guided written and oral exercises. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Chinese

Schedule Type: Internship

Civil and Infrastructure Engineering (CEIE)

100 Level Courses

CEIE 100: Environmental Engineering around the World. 3 credits.
Introduces environmental engineering as practiced in different societies around the world. Environmental engineering is broadly defined as organizational and physical infrastructure to manage natural resources. Focuses on how different contemporary and past societies have responded to environmental challenges related to engineering opportunities. Issues include construction of large dams to manage river systems; use of forecast climate and weather data to improve agriculture, emergency response, or water supply; collection and treatment of wastewater; public health and pollution control; disposal of waste nuclear...
materials; and management of significantly polluted sites. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

**Mason Core:** Global Understanding, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

### 200 Level Courses

**CEIE 203: Geomatics and Engineering Graphics.** 3 credits.
Introduces topographic surveying and engineering drawing for civil engineering applications. Topics include surveying, GPS, GIS, digital terrain modeling, design of horizontal and vertical curve geometry for road applications, engineering drawing concepts, and drawing with CAD-based software. Fieldwork required on selected topics. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (CEIE 117C or CDS 130C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CEIE 210: Statics.** 3 credits.
Covers force vectors and operations in 2D and 3D; equilibrium of a particle; moment of a force vector; equilibrium of a rigid body; truss analysis; center of gravity, centroid and moment of inertia; shear force and bending moment diagrams; dry friction; virtual work. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts. Equivalent to ENGR 210.

**Registration Restrictions:**
**Required Prerequisites:** (PHYS 160C) and (MATH 114C or 116C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CEIE 240: Hydraulics.** 3 credits.
Principles of fluids in equilibrium and motion. Topics include hydrostatic pressure; continuity, Bernoulli, and momentum equations; viscosity flow problems; pressure pipe flow and turbomachinery; measuring instruments; and applications to closed conduits and open channels. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts. Equivalent to CEIE 230.

**Registration Restrictions:**
**Required Prerequisite:** (PHYS 160C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

### 300 Level Courses

**CEIE 301: Engineering and Economic Models in Civil Engineering.** 3 credits.
Applies planning, analysis, control, and engineering economic models to life cycle of physical infrastructure. Introduces infrastructure design process and application of quantitative and probabilistic models. Presents applications of model building for engineering economics; decision making; forecasting; resource scheduling and allocation; estimating; work measurement and materials; and quality and process control in water, transportation, environmental, energy, and telecommunications infrastructure systems and the built environment. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

**Specialized Designation:** Writing Intensive in the Major

**Registration Restrictions:**
**Required Prerequisites:** (STAT 344C or L344) and (ENGL 114C, ENGL L302, ENGL L302 or HNRS 353C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CEIE 304: Jr Engineering Competency Exam.** 0 credits.
Assess student preparation for the Fundamentals of Engineering exam after completing engineering science requirements for a BS degree in engineering. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the term for a maximum 0 credits.

**Registration Restrictions:**
**Required Prerequisites:** (MATH 114C or 116C) and (PHYS 160C).
C Requires minimum grade of C.

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Independent Study

**CEIE 310: Mechanics of Materials.** 3 credits.

**Registration Restrictions:**
**Required Prerequisites:** (ENGR 210C or CEIE 210C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CEIE 311: Structural Analysis.** 3 credits.
Basic concepts and assumptions of structural analysis, including statical and geometric redundancy. Analysis, by integration of deformation of simple structural members. Virtual work method for the analysis of deformations of simple structural systems such as articulate beams, trusses, frames, and arches. Method of forces to analyze statically indeterminate systems, method of displacements to analyze geometrically indeterminate systems, and symmetry and antisymmetry in structural analysis. Uses computer programs for structural analysis. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisites: (ENGR 310\textsuperscript{C}, L310, CEIE 310\textsuperscript{C} or L310).
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

CEIE 331: Soil Mechanics. 3 credits.
Covers soil classification, soil properties and engineering characteristics of soils. Includes seepage effects, effective stresses, soil strength and deformation characteristics. Also, the determination of immediate and consolidation settlement, lateral earth pressures and bearing capacities. Introduces foundation design fundamentals. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts. Equivalent to CEIE 305.

Registration Restrictions:
Required Prerequisites: (ENGR 210\textsuperscript{C} or CEIE 210\textsuperscript{C}) and (CEIE 230\textsuperscript{C} or 240\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

CEIE 340: Water Resource Engineering. 3 credits.
Introduces principles and practice of water resources engineering. Topics include hydrology, governing principles, design and evaluation methods, common models, and typical applications in water resource engineering. Laboratory and field work required on selected topics. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 230\textsuperscript{C}, U230, 240\textsuperscript{C} or U240).
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 355: Environmental Engineering and Science. 3 credits.
Introduces students to the concepts of water pollution, air pollution, noise, and solid waste generation and management. Relationships between human population growth and pollution are introduced. Contemporary environmental engineering topics such as sustainability and global climate change are presented. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Required Prerequisites: (CHEM 211\textsuperscript{C}, U211, 251\textsuperscript{C} or U251) and (CEIE 230\textsuperscript{C}, U230, 240\textsuperscript{C} or U240).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 360: Introduction to Transportation Engineering. 3 credits.
Introduces transportation systems and the factors that influence their planning, design, and operation. Topics include fundamentals of urban travel, travel demand forecasting, and traffic flow; principles of highway design; highway capacity and level of services; introduction to traffic control; traffic signal control systems; intersection design; speed zoning and control; and introduction to Intelligent Transportation Systems and travel demand management. Requires laboratory, field work on selected topics. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 290\textsuperscript{C}, U290, 203\textsuperscript{C} or U203) and (CEIE 304) and (ENGR 210\textsuperscript{C}, U210, CEIE 210\textsuperscript{C} or U210).
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 370: Construction Systems. 3 credits.
Overview of the modern construction industry and principles and practices of construction management. Topics include project planning, construction administration, the contract environment, equipment operations, cost estimation and scheduling, and legal theories. Current industry trends are emphasized as are the uses of modern scheduling and cost-estimating software and online databases. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 301\textsuperscript{C}) and (CEIE 290\textsuperscript{C}, 203\textsuperscript{C} or U290).
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 395: Mentored Research in Civil and Environmental Engineering. 1-3 credits.
Introduces the scientific research process through hands-on experience: students are matched with faculty mentors who are actively involved in civil engineering-related research. Requires no less than 60 hours per semester working with mentors. Notes: Three credits of CEIE 395 may substitute for a maximum of 3 credits of CEIE 4xx technical elective credits with department permission. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: At least 60 credit hours applicable to the Civil and Infrastructure Engineering program.

Registration Restrictions:
Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study
400 Level Courses

CEIE 400: Civil Engineering Planning and Management. 3 credits.
Quantitative and qualitative analysis in planning, design, construction, and management of engineering systems and facilities. Introduces policies, programs, and regulations that influence land development, history-enabling legislation, governing and regulating bodies, control of site plan development, and approval process. Examines structure, function, and purpose of urban design systems and how they can be achieved. Discusses physical relationships among development, land use, transportation, energy, communications, and water systems. Studies public- and private-sector urban development industry. Other topics include innovation, competition, new technology, and environmental issues. Requires design projects. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 340C or L340) and (CEIE 360C or L360).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 401: Sustainable Land Development. 3 credits.
Introduces students to sustainable land development topics including low impact development, site resource conservation, ultra-low water design, deconstruction and materials reuse, healthy building design, green house gas reduction, zero and low energy design, and other topics related to sustainable practices in facilities and infrastructure design and construction. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Specialized Designation: Green Leaf Course

Recommended Corequisite: CEIE 400.

Registration Restrictions:
Required Prerequisites: (CEIE 355C) and (CEIE 360C or L360) and (CEIE 340C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 402: Highway Design and Construction. 1.5 credit.
Provides a survey of the tools, techniques, and methods used by the various civil engineering disciplines to design and construct highways. Combines lectures, individual readings, and hands-on exposure to the tools and processes used in design and construction of highways. All facets of a project are covered including planning, project management, survey and mapping, preliminary design, geotechnical, pavements, environmental, hydraulics, bridge design, PS&E design, materials, and construction. Notes: Course meets off-campus at the Federal Highway Administration Eastern Federal Lands Highway Division in Sterling, VA. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: CEIE 310C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior Plus or Senior.

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 403: Experimental Methods in Civil Engineering. 1.5 credit.
Surveys common testing and laboratory experimental methods that civil engineers encounter in their professional practice and in research settings. Students fabricate specimens of civil engineering materials and conduct experiments in the following laboratories at the Federal Highway Administration's Turner-Fairbank Highway Research Center: Concrete and Steel Materials, Structures, Hydraulics, Geotechnical, and Asphalt. Notes: Course meets off-campus at the Federal Highway Administration's Turner-Fairbank Highway Research Center in McLean, VA. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: CEIE 310C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior Plus or Senior.

Students cannot enroll who have a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 404: Sr Engineering Competency Exam. 0 credits.
Assess student preparation for the Fundamentals of Engineering exam after completing engineering design electives required for a BS degree in engineering. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the term for a maximum 0 credits.

Registration Restrictions:
Required Prerequisite: (CEIE 304).

Enrollment is limited to students with a major in Civil and Infrastructure Engr.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

CEIE 409: Professional Practice and Management in Engineering. 1 credit.
Introduces professional ethics and management principles, and prepares students for leadership roles in practice. Topics include introduction to professional and technical societies; code of ethics related to the public, clients, contractors, suppliers, employers, agreements, contracts, competitive bidding, the engineering profession, conflict of interest, legal responsibilities and case law. Case studies of professional ethics; professional licensure; engineering versus engineering management; personal development; time management, career versus grad school, continuing education; public policy considerations in engineering practice; practical considerations in project management; effectively communicating with employees, contractors and clients; marketing, competitive bidding and project selection; conflict resolution; and managing a small business. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts. Equivalent to ENGR 401.

Mason Core: Information Technology: Ethics Only (p. 135)

Registration Restrictions:
Enrollment limited to students with a class of Senior Plus or Senior.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 410: Geographic Information Systems in Engineering. 3 credits.
Introduces geographic information systems (GIS) and their application in environmental, transportation, land-use planning, and other situations. Explores methods, technologies for spatial data acquisition, specification, storage, manipulation, query, thematic analysis, presentation, and application in the design process. Introduces relationships, integration of GIS with computer-aided design and global positioning system. Hands-on projects. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CDS 130C, CS 112C, U112, ENGR 117C, U117 or CEIE 117C) and (CEIE 360C) and (CEIE 355C). C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 411: Introduction to Design and Inventive Engineering. 3 credits.
Outlines major stages of design process. Covers conceptual versus detailed design; design evaluation. Covers applications of Artificial Intelligence (AI) in design, including evolutionary computation. Covers inventive problem-solving methods, including brainstorming, Synectics, TRIZ, and morphological analysis. Includes computer tools to support design creativity. Features collaborative design: fundamentals and group projects dealing with civil engineering problems provided by industry. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 412: Structural Steel Design. 3 credits.
Covers analysis and design of structural steel members including tension members, compression members, bolted and welded connections, columns, beams, and beam-columns. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 311C or L311). C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 413: Reinforced Concrete Design. 3 credits.
Covers analysis and design of reinforced concrete members including beams, columns, slabs and footings; sizing of structural members for flexure and shear; determining serviceability limits; detailing reinforcing steel bars. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 311C or L311). C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 414: Structural Modeling for Engineers. 3 credits.
This course provides an introduction to the computer modeling tools that underpin modern structural engineering practice: finite element analysis. Emphasis a combination of theory and practical experience with modeling software. Modeling concepts and the assumptions that engineers must make while building finite element models will be discussed. Topics include applications from structural analysis, structural design, and dynamic vibration analysis. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Recommended Prerequisite: CEIE 311.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 432: Foundation Design. 3 credits.
Introduction to various principles and practices of geotechnical engineering including estimation of soil properties using in-situ tests, laboratory tests, and correlations. Course includes study of earth pressure theories as applied to the design of retaining walls, anchored bulkheads, and excavation bracing. Additional topics include retaining wall stability, bearing capacity and settlement of shallow foundations on sands and clays and design considerations and capacity analysis of deep foundations. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts. Equivalent to CEIE 431.

Registration Restrictions:
Required Prerequisites: CEIE 305C or 331C. C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 435: Engineering Geology. 3 credits.
Introduction to formation and occurrence of earth materials: rock and soil; weathering processes, geomorphology, structural geology, interpreting topographic and geologic maps; field investigation fundamentals, field engineering properties of soil and rock; standards and terminology; rock mass engineering classification systems; subsurface water control; rock as a construction material; special case studies in foundations, such as sinkholes, waste impoundments, dam failures, earth spillway performance. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 305C or 331C). C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 440: Water Supply and Distribution. 3 credits.
Analysis and design of public water supplies. Topics include: water supply evaluation; water quality; demand projections; hydraulic analysis of water distribution systems including line sizing, fire protection, pumps, valves, and storage; surge analysis; water modeling; concepts in management, business, and public policy of public water supplies; and federal, state, and local government laws and regulations related to
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CEIE 442:** *Open Channel Flow.* 3 credits.
Analysis and design of open channels. Topics include principles of open channel flow including conservation of mass, momentum and energy; flow regimes including uniform, gradually varied, rapidly varied, and unsteady flows; sediment transport; channel design; and modeling and computer applications in open channel analysis and design. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 340\(^c\) or U340).
\(^c\) Requires minimum grade of C.

The course will be taught with an emphasis on remote sensing techniques as a tool for engineering practices, such as regional planning, site investigation, terrain mapping, urban infrastructure development, water resources engineering, and flood monitoring. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registered Prerequisites:
* CEIE 355\(^c\).
\(^c\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CEIE 450:** *Environmental Engineering Systems.* 3 credits.
Introduces the concepts and applications of systems analysis in environmental engineering. Tools and methodologies of systems analysis are applied to improve the understanding and resolution of complex environmental engineering problems related to air, soil, water quality and pollution. Scientific, engineering, political, social, legal, regulatory, medical, economic, and financial impacts of environmental engineering decisions are considered. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 355\(^c\) or L355).
\(^c\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CEIE 453:** *Water and Wastewater Treatment Processes.* 3 credits.
Reviews unit treatment processes used in the treatment of water and wastewater systems. Topics include water quality, regulatory requirements, physical unit processes, chemical treatment processes and an introduction to biological treatment processes as applied to a range of community sizes. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts. Equivalent to CEIE 452.

Registration Restrictions:
Required Prerequisite: (CEIE 355\(^c\)).
\(^c\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CEIE 454:** *Sustainable Water Resources Infrastructure in Developing Countries.* 3 credits.
This course addresses the principles of infrastructure engineering and planning in developing countries, with a focus on sustainable technologies for rural and small-scale water supply and wastewater treatment. Students will design simple, reliable water supply and sanitation systems for developing countries with limited human and material resources and with regard to local customs and socio-cultural public health and economic factors. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: CEIE 355\(^c\).
\(^c\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CEIE 457:** *Remote Sensing in Civil Engineering.* 3 credits.
This course provides an introduction to the fundamentals of remote sensing. It will focus on how remote sensing data are acquired, displayed, restored, enhanced, and analyzed. The course will be taught with an emphasis on remote sensing techniques as a tool for engineering practices, such as regional planning, site investigation, terrain mapping, urban infrastructure development, water resources engineering, and flood monitoring. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Recommended Prerequisite: C or better in CEIE 355.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CEIE 461:** *Traffic Engineering.* 3 credits.
Elements of traffic engineering analysis; system components of traffic operations: driver, vehicle, and roadway; traffic flow design elements including volume, density, and speed; intersection design elements including traffic control device warrants, signal timing, delay, capacity, and accident countermeasures; and terminal design elements including inflow, outflow, and circulation. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 360\(^c\) or L360).
\(^c\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CEIE 462:** *Urban Transportation Planning.* 3 credits.
Technical and qualitative aspects of urban transportation planning process. Topics include urban travel characteristics and data collection methods; urban transportation modeling system, including land use, trip generation, trip distribution, mode choice, and trip assignment models; site traffic impact studies; environmental impacts; project and plan evaluation; and technology options for urban transport. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 360\(^c\) or L360).
\(^c\) Requires minimum grade of C.
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 471: Construction Administration. 3 credits.
Examines the principals of project planning and administration using modern specification and project delivery methods. The role of the project manager as facilitator, constructability advisor, and on-site administrator is emphasized. Project risk transference, market conditions, and legal requirements are explored in the construction contract environment. Other topics include green specifications, design-build delivery, job order contracting, turnkey construction, and public-private partnerships. Appropriate for students, engineering and design professionals, project managers, contract administrators, and owners interested in the planning and administration needs of construction. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 370 or L370).
Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 472: Building Information Modeling. 3 credits.
Virtual design and construction techniques are covered using modern 3D Building Information Modeling (BIM) software. Historical and technological basis for virtual building and infrastructure design are presented. Design and construction coordination are emphasized using clash detection, conflict management, constructability analysis, specification mapping, and asset management. Industry supported model component databases are used with commercial software design environments for hands-on simulated design and construction projects. Offered by Civil, Environ & Infrastr Engr (p. 1090). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CEIE 370 or L370).
Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CEIE 498: Independent Study in Civil Engineering. 1-3 credits.
Directed self-study of special topics of current interest. Notes: May be repeated if topics substantially differ. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the term.

Recommended Prerequisite: Permission of the Department Chair.

Registration Restrictions:
Enrollment limited to students with a class of Junior or Senior.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

CEIE 499: Special Topics in Civil Engineering. 1-3 credits.
Varies with nature of topic. Topics of special interest to undergraduates. Notes: May be repeated if topics substantially differ. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the term.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

500 Level Courses

CEIE 501: Sustainable Development. 3 credits.
Introduction to sustainability concepts and terminology including the development and use of sustainability indices. Exploration of sustainability tools and frameworks such as the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, American Institute of Architects Sustainable Design Resources Guide, and the Natural Step (TNS) Framework. Methods for evaluation of sustainable sites, water/energy efficiency, sustainable materials and resources, and indoor air quality are presented. Designated a Green Leaf Course. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 510: Geographic Information Systems in Engineering. 3 credits.
Introduces geographic information systems (GIS) and their application in environmental, transportation, land-use planning, and other engineering-related decision situations. Introduces methods and technologies for
spatial data acquisition, specification, storage, manipulation, query, thematic analysis, presentation, and application in the design process. Introduces relationships, integration of GIS with computer-aided design and global positioning system. Hands-on projects. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Knowledge of computer programming and databases or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 512: Structural Steel Design. 3 credits.
Covers analysis and design of structural steel members including tension members, compression members, bolted and welded connections, columns, beams, and beam-columns. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: CEIE 311

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 513: Reinforced Concrete Design. 3 credits.
Covers analysis and design of reinforced concrete members including beams, columns, slabs and footings; sizing of structural members for flexure and shear; determining serviceability limits; detailing reinforcing steel bars. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: CEIE 311.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 524: Introduction to Bridge Engineering. 3 credits.
A balanced theoretical and practical insight into the art and science of bridge engineering. Various methodologies of bridge design and evaluation are investigated, including constructability reviews. Bridges of steel, reinforced concrete, and pre-stressed concrete materials are included. Short-span composites; major innovation and low cost solutions targeted at aging infrastructure. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE; CEIE 512 or CEIE 513 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 525: Structural Evaluation and Rehabilitation. 3 credits.
Structural condition survey and evaluation for strength and serviceability of existing structures including foundation elements; older building practices and materials; criteria for rehabilitation; retrofit techniques for change in function, loading, and seismic forces. Historic preservation issues. Repair, remediation, and structural strengthening methods and current trends. Carbon fiber external P.T. Material selection criteria, including mechanical and environmental factors. Cost/value feasibility analysis; estimating remedial construction costs; engineering oversight of rehabilitation work. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 526: Advanced Steel Design. 3 credits.
Behavior, strength, and design of vertical steel structures using the LRFD approach; plate girders, composite beams, welded built-up columns, bolted and welded connections, beam-columns, and torsion; introduction to plastic analysis and its application to members and vertical structures; erection procedure and methods field inspection issues; unique properties of high strength steels. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.
Recommended Prerequisite: Graduate Standing in CEIE; CEIE 512 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 527: Pre-stressed Concrete. 3 credits.
Strength, behavior, analysis, and design of pre-stressed concrete members, vertical building structures, and bridges, with emphasis on pre-tensioned, precast construction, and post-tensioned construction; basics of segmental concrete bridges, cable-stayed bridges, and spliced-girder concrete bridges; continuous span theory; protection of pre- & post-tensioned systems; secondary effects. Composite Portland cement with cast-in-place topping; precast as a stay-in-place system; connection detailing; durability issues; advantages in a marine environment. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE; CEIE 513 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 527: Pre-stressed Concrete. 3 credits.
Strength, behavior, analysis, and design of pre-stressed concrete members, vertical building structures, and bridges, with emphasis on pre-tensioned, precast construction, and post-tensioned construction; basics of segmental concrete bridges, cable-stayed bridges, and spliced-girder concrete bridges; continuous span theory; protection of pre- & post-tensioned systems; secondary effects. Composite Portland cement with cast-in-place topping; precast as a stay-in-place system; connection detailing; durability issues; advantages in a marine environment. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE; CEIE 513 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 532: Foundation Design. 3 credits.
Introduction to various principles and practice of geotechnical engineering including estimation of soil properties using in-situ tests, laboratory tests, and correlations. Course includes the study of earth pressure theories as applied to the design of retaining walls, anchored bulkheads, and excavation bracing. Additional topics include retaining wall stability, bearing capacity and settlement of shallow foundations on sands and clays and design considerations for deep foundations. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 535: Engineering Geology. 3 credits.
Introduction to formation and occurrence of earth materials-rock and soil; weathering processes, geomorphology, structural geology, interpreting topographic and geologic maps; field investigation fundamentals, field engineering properties of soil and rock; standards and terminology; rock mass engineering classification systems; subsurface water control; rock as a construction material; special case studies in foundations, such as sinkholes, waste impoundments, dam failures, earth spillway performance. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 540: Water Supply and Distribution. 3 credits.
Analysis and design of public water supplies. Topics include supply evaluation; water quality and quantity requirements; treatment requirements and methods; hydraulic analysis of water distribution systems including line sizing, fire protection, pumps, valves, and storage; sustainability; security; concepts in management, business, and public policy of public water systems; and federal, state, and local government laws and regulations related to public water systems. Requires laboratory, field work on selected topics. Designated a Green
Leaf Course. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** Course in hydraulics or fluid mechanics

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 542:** Open Channel Flow. 3 credits.
Analysis and design of open channels. Topics include principles of open channel flow including conservation of mass, momentum and energy; flow regimes including uniform, gradually varied, rapidly varied, and unsteady flows; sediment transport; channel design; modeling and computer applications in open channel analysis and design. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** A course in hydraulics or fluid mechanics.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 553:** Water and Wastewater Treatment Processes. 3 credits.
Studies unit treatment processes used in the treatment of water and wastewater systems. Topics include water quality, regulatory requirements, physical unit processes, chemical treatment processes and an introduction to biological treatment processes as applied to a range of community sizes. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** CEIE 355.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 556:** Environmental Law. 3 credits.
Introductory course in the study of environmental laws as they pertain to urban systems infrastructure management. Reviews the National Environmental Policy Act, Clean Air Act, Clean Water Act, Safe Drinking Water Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation, and Liability Act, and other environmentally related legislation. Also reviews laws for allocation of surface and groundwater supplies, and reviews environmental law databases. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** CEIE 355.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduation Deadline Extended, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 560:** Public Transportation Systems. 3 credits.
Analyzes public transportation systems in terms of their role in urban transportation. Topics include history of public transportation in the United States, quantitative performance attributes of different modes, analytical techniques for planning and operation, and management and administrative concepts. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** CEIE 360.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 561: Traffic Engineering. 3 credits.
Covers elements of traffic engineering analysis; system components of traffic operations: driver, vehicle, and roadway; traffic flow design elements including volume, density, and speed; intersection design elements including traffic control device warrants, signal timing, delay, capacity, and accident countermeasures; and terminal design elements including inflow, outflow, and circulation. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: CEIE 365.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 562: Urban Transportation Planning. 3 credits.
Covers technical and qualitative aspects of urban transportation planning process. Topics include urban travel characteristics and data collection methods; urban transportation modeling system, including land use, trip generation and distribution, mode choice, and trip assignment models; site traffic impact studies; environmental impacts; project and plan evaluation; and technology options for urban transport. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: CEIE 360.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 563: Building Information Modeling. 3 credits.
Examines the legal principles associated with project planning and administration using modern specification and project delivery techniques. The role of the project manager as facilitator, constructability advisor, and on-site administrator is emphasized. Project risk transference, market conditions, and legal requirements are explored in the construction contract environment. Other topics include green specifications, design-build delivery, job order contracting, turnkey construction, and public-private partnerships. Appropriate for students, engineering and design professionals, project managers, contract administrators, and owners interested in the planning and administration needs of construction. Offered by Civil, Environ & Infracr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 575: Design for Constructability.** 3 credits.

Systems design of structures to consider foundations, structures and constructability; foundation alternatives; structural design to simplify erection; prefabrication, modulation of structures; material handling on a construction site; crane selection and placement; temporary works. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 576: Construction Cost Estimating.** 3 credits.

Overview of cost estimating and financial management in the modern construction industry. Techniques and software applications for construction take-offs, bidding, bonding, insurance, equipment ownership, material and labor costing. Additional topics include: cost recovery planning; budgeting, forecasting, acquisition, cast flow management, managerial accounting concepts, and taxes. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 601: Infrastructure Modeling.** 3 credits.

Concepts of modeling for infrastructure engineering. Covers modeling, simulation, optimization, deterministic and stochastic models, and limitations of modeling approaches. Also includes multiple objective, multiple decision-maker problems, and case studies in areas such as transportation, water resources, the environment, energy, telecommunications, and construction. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** CEIE 605.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 603: Research Methods in Civil Engineering.** 3 credits.

Familiarizes students with the process of rigorous research in civil engineering by providing a strong background in research methods, such as critical thinking, experimental design (idea, concept, design, development), writing a scientific article, and interpretation of results (uncertainty quantification, assumptions, etc.). Introduces common quantitative methods in civil engineering research such as descriptive and inferential statistics, data assimilation, and hypothesis testing. Encourages critical thinking and collaboration among students from different civil engineering disciplines. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate standing in CEIE.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 605: Risk and Uncertainty in Civil Engineering.** 3 credits.

Probability and statistics topics for analysis of infrastructure systems. Includes Bayesian decision theory, decision trees, Monte Carlo analysis, stochastic models, and economic analysis of infrastructure projects and systems. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** STAT 344.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 607: Public Infrastructure Management and Finance. 3 credits.
Current and projected outlook for managing and financing public works infrastructure including, transportation, public utilities, water and waste water facilities, energy, and public buildings; Infrastructure management including the impact of built infrastructure on the environment, tracking and improving infrastructure performance, government regulations, emerging technologies, social concerns, and the impacts of disasters; Infrastructure finance including public and private sources of capital, special financing districts, bond markets, federal and state grants, public-private partnerships, and design-build project delivery. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 611: Advanced Structural Analysis. 3 credits.
Application of the stiffness method in planar trusses, beams, planar frames, curved beams, and three-dimensional structures; Introduction to non-linear structural analysis with emphasis on geometric non-linearity. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 612: Structural Mechanics. 3 credits.
Covers the foundations of structural modeling and theories of elasticity. Topics include: multidimensional theories of stress and strain, governing equations of elasticity, numerical solution techniques, material failure criteria, basics of nonlinear analysis. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 613: Structural Dynamics. 3 credits.
This course covers the fundamental principles necessary to analyze the responses of structures subjected to dynamic loads such as blast, earthquake, rotating machinery, etc. Idealized linear structural models subjected to free vibrations, harmonic vibrations, and impulsive loadings are presented. Practical applications of structural dynamics for solving simplified problems in blast and earthquake engineering are included. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Differential Equations.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 619: Special Topics in Structural Engineering. 3 credits.
Advanced topics in recently developed areas of structural engineering. May be repeated for credit when topics vary. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree for a maximum of 6 credits.

Recommended Prerequisite: Graduate standing in CEIE or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 620: Intelligent Structural Systems. 3 credits.
Covers modern “smart” structures, structural health monitoring, and intelligent inspection technologies. Laboratory exercises with sensing and data acquisition systems. Applied data filtering and pattern recognition (machine learning). Modern image analysis and inspection techniques. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 623: Advanced Reinforced Concrete Design.** 3 credits.

Covers the behavior, analysis and design of two-way reinforced concrete slabs; design of long columns including slenderness effects; structural design of isolated footings, combined footings and pile caps; design of deep beams using the strut-and-tie models; introduction bearing, retaining and shear wall designs. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Reinforced Concrete Design.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 634: Groundwater and Geoenvironmental Design.** 3 credits.

Equations of groundwater flow and seepage, groundwater site investigations, parameter determination, flownets, well design and aquifer testing, design of dewatering systems, seepage control. Conservative and non-conservative pollutant transport in groundwater, transport processes, modeling techniques for flow and transport. Groundwater remediation technologies, Brownfields and land revitalization. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 635: Advanced Soil Mechanics.** 3 credits.

Consolidation of soil: primary and secondary; and rate. Soil strength in the framework of Critical State Soil Mechanics: normally consolidated, lightly and heavily overconsolidated, drained and undrained, elastic and plastic deformation. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 636: Sources of Geotechnical Data.** 3 credits.

Resources for conducting desk top studies; tools for field investigations; subsurface investigations (options and selection of techniques); laboratory testing of soil and rock; accepted testing procedures; typical values; empirical relationships between properties and testing techniques; risk and uncertainty; use of lab testing, insitu strength testing, and empirical methods in design; identifying slickensides. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 638: Advanced Foundation Design.** 3 credits.

Design of shallow and deep foundations for civil engineering structures, including time rate of consolidation settlement, stress distribution, elastic settlement, and bearing capacity. Driven piles and drilled shafts subjected to axial and lateral loading, both single and group action. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 639: Special Topics in Geotechnical Engineering.** 1-3 credits.

Advanced topics in recently developed areas of geotechnical engineering. May be repeated for credit when topics vary. Offered by Civil, Environ &
**CEIE 641: Water Resources Engineering I: Principles and Practice.** 3 credits. Introduction to the principles of hydrology and hydraulics and their application to the planning, design and management of modern water resources. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate standing in CEIE or CEIE 340 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 642: Flood Hazards Engineering.** 3 credits. Introduction to the principles of flood hazards engineering. Theory and practice of the application of hydrology and hydraulics to flood hazards delineation. Theory and practice of the application of geospatial analyses to support flood hazards modeling. Application of computational methods to support planning, design and management of flood hazards. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate standing in CEIE and CEIE 340 and CEIE 340 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 643: Coastal Flood Hazards.** 3 credits. Introduction to the theory and practice of coastal flooding and hazards engineering. Topics include the theory of hurricane storm surges, tides, coastal hydrodynamics, waves and coastal processes. Use of the Surface Water Modeling System (SMS) and the Advanced Circulation Model (ADCIRC) for coastal flooding analysis. Introduction to High Performance Computing (HPC) modeling of hurricane storm surge. Introduction to Geographic Information Systems (GIS) applications to support coastal flood modeling and hazard analysis. Applications of coastal engineering to support coastal flood mapping and hazard prevention. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 644: Groundwater Systems Modeling.** 3 credits. Introduces groundwater hydrology and modeling, including quantity and quality aspects. Topics include characterization of subsurface regime; well hydraulics; consideration of two-dimensional steady and unsteady-state flows; exploration of modeling approaches; simulation and optimization modeling; contaminant transport; parameter estimation; and design of systems to control groundwater quantity and quality. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit. Equivalent to CEIE 632.

**Recommended Prerequisite:** Graduate Standing in CEIE.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CEIE 649: Special Topics in Water Resources Engineering.** 3 credits. Advanced topics in recently developed areas of water resources engineering. May be repeated for credit when topics vary. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Graduate standing in CEIE or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree of Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 657: Environmental Engineering Microbiology. 3 credits.
Addresses the fundamental aspects of microbial physiology and ecology and their application to environmental engineering processes. Specific topics include cell structure and function, energetics, metabolism, enzyme and growth kinetics, microbial/environmental interactions (e.g., interactions with organic pollutants), biogeochemical cycles, and an introduction to engineering applications including bioremediation, wastewater treatment, biosensors and microbial fuel cells. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 658: Water Quality. 3 credits.
This course addresses the physical, chemical and biological principles that define water quality. Mathematical and chemical models are formulated and employed to predict fate and transport of contaminants in both surface and groundwater. Laboratory and field-work are required. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 659: Hazardous Waste. 3 credits.
Physical, chemical and biological properties of hazardous waste; abiotic and biotic transformation of hazardous wastes and their fate in the environment; design of remediation schemes including incineration, landfill, bioremediation and other physical and chemical stabilization processes; principles of risk assessment to select and optimize hazardous waste treatment; methods and strategies for hazardous waste reduction. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Graduate, Non Degree or Senior Plus.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 664: Transportation Engineering and the Environment. 3 credits.
Introduction to transportation and air quality; Clean Air Act; greenhouse gases, climate change, and modeling for greenhouse gases; travel activity; The NEPA process for transportation projects; road transportation and noise; noise abatement. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 665: Travel Survey Methods and Data Analysis. 3 credits.
Covers the concept and practice of travel survey methods; national household travel survey; Census transportation survey and products; travel diary based, roadside, mail-in and web-based and GPS-based travel surveys; longitudinal vs. cross-sectional surveys; stated-preference survey; interactive and adaptive survey method; transit survey methods; special generator surveys; sampling approach and representativeness analysis; econometric data analysis; panel data; self-selection issues; other data mining methods; data security, privacy, IRB process, and ethics. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 667: Multi-modal Transportation Systems. 3 credits.
Topical coverage of freight and logistics; non-motorized transportation considerations; and public transit planning. Freight topics include demand and supply modeling concepts; freight flow data sources; and truck size and weight policies. Bicycle and pedestrian planning considering traveler response to facility and policy improvements and identifying common resources for addressing non-motorized project concerns. Public transportation planning coverage including mass transit technology typologies, corridor planning and operations concepts, and finance and public policy issues, including environmental justice. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 668: Transportation Economics. 3 credits.
Advanced topics in recently developed areas of transportation engineering. May be repeated for credit when topics vary. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 669: Special Topics in Transportation Engineering. 3 credits.
Advanced topics in recently developed areas of transportation engineering. May be repeated for credit when topics vary. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Graduate standing in CEIE or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CEIE 679: Special Topics in Construction Management. 3 credits.
Advanced topics in recently developed areas of construction management. May be repeated for credit when topics vary. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Graduate standing in CEIE or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a class of Advanced to Candidacy.

Registration Restrictions: Instructor.

Recommended Prerequisite: repeated for credit.

Students in a Non-Degree Undergraduate degree may not enroll.

CEIE 686: Transportation System Security and Safety. 3 credits. Focuses on critical transportation systems infrastructure and operations, and technologies for predicting and managing damage and disruptions caused by potential threats, including natural and technological disasters and terrorist threats. Includes asset management, methodologies for assessing vulnerabilities, potential impact of damage and disruption, applying state-of-the-art technologies and R&D processes for harnessing best analysis methods, and technologies for hardening transportation infrastructure systems. Includes sensing and surveillance using satellite and aerial remote sensing imagery, application of GIS and spatial information technologies, information and communication, intelligent transportation systems, hardening systems, and making intelligent choices for implementing technology advances to transportation security and safety. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: BS in Engineering, or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 683: Water and Wastewater Systems Security. 3 credits. Examines overall security of water and wastewater systems. Covers theory and methods to define water and wastewater infrastructure as physical and organizational systems. Explores concepts of infrastructure systems security, identifies actors, interactions in organizational infrastructure, and threats to water and wastewater infrastructure; describes behavior of physical and organizational infrastructures under stress; examines history of threats or attacks against water and wastewater systems; and explores evolution of design, operations, and maintenance paradigms in response to changes in threats. Covers proactive responses to security threats through vulnerability assessments, and models of organizational and physical infrastructure system. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: BS in Civil Engineering or CEIE 440 and CEIE 455.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 690: Topics in Civil Engineering. 3 credits. Topics not covered in the regular civil engineering offerings. Notes: Course content may vary each semester. Course may be repeated with change in topic. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the term.

Specialized Designation: Green Leaf Course

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

700 Level Courses

CEIE 742: Water Resources Engineering II: Water Resource Systems. 3 credits. Introduces concepts, applications, and tools of systems analysis for water resources planning, management, and design. Problems including river basin planning, real-time hydrosystem operations, water quality management, capacity expansion, urban drainage network design, and sanitary sewer design used to illustrate applications of systems analysis. Tools include optimization and simulation modeling and knowledge-based systems. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing in CEIE; CEIE641 or equivalent.

Registration Restrictions: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 762: Network Models for Transportation Planning. 3 credits. Covers network models for transportation systems analysis - theory, mathematical structure, and applications of equilibrium, iterative, incremental, dynamic and stochastic equilibrium models. Also covers data structures and heuristic methods for computer implementation of various algorithms such as shortest path and direction search algorithms; specialty network topics such as tracking and prohibition of turn movements, k-shortest path algorithms and select-link analysis.
Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: CEIE 562 or 660; CEIE 601.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 763: Discrete Choice Analysis in Transportation. 3 credits.
Utility theory and individual choice behavior; Binary choice model; Multinomial choice model; Characteristics of Probit and Logit models; Aggregate forecasting techniques; Travel survey and sampling; Test and choice of model structure; Correlation and nested Logit Model, Advanced models and estimation techniques; Travel, route choice and car ownership models. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 767: Traffic Engineering Modeling and Analysis. 3 credits.
Covers fundamentals of traffic flow theory; shock-wave analysis; queueing theory; macroscopic traffic flow models on freeway and arterials; fundamentals of traffic simulation; car following models; network analysis based on traffic simulation models; and developing skills to select most appropriate model for given scenarios. Offered by Civil, Environ & Infrastr Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: CEIE 561.

Recommended Corequisite: CEIE 601.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 795: Civil and Infrastructure Engineering Seminar. 0 credits.
Invited speakers, faculty, and CEIE graduate students lecture on current topics and research. Fulfills seminar requirement for MS in civil and infrastructure engineering. Notes: Students must enroll in CEIE 795 each semester (fall and spring) for the duration of their MS studies. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.


800 Level Courses

CEIE 800: Civil, Environmental, and Infrastructure Engineering Colloquium. 1 credit.
Seminar series required of Civil and Infrastructure PhD students.
Features variety of speakers from universities, government, and private sectors. Topics include civil engineering technologies, research advancements, and policies. Doctoral students take 2 credits of CEIE 800 and make a presentation of their dissertation research at the seminar.
No more than 1 credit per semester may be taken. Students eligible to register upon successful completion of qualifying exams. Offered by Civil, Environ & Infrast Engr (p. 1090). May be repeated within the degree for a maximum 2 credits.

Registration Restrictions:
Enrollment limited to students in the PHD Civil Infrastructure Engr program.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Seminar

CEIE 890: Special Topics in Urban Transportation. 3 credits.
Includes traffic safety analysis, simulation in transportation, intelligent transportation systems, advanced public transportation systems, congestion and travel demand management, geographic information systems and information technology, and innovative refinancing and public-private partnerships. Offered by Civil, Environ & Infrast Engr (p. 1090). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: CEIE 560 and 660 or equivalent; or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate level students.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 892: Special Topics in Environmental and Water Resource Systems Engineering. 3 credits.
Possible topics include studies in waste minimization; pollution prevention; hazardous waste management; wastewater management; air pollution control; solid waste management; environmental decision making; sustainability; water resource and environmental economics; wetlands management, design and construction; groundwater contamination modeling; stochastic hydrology; river basin planning and management; and water quality modeling. Offered by Civil, Environ & Infrast Engr (p. 1090). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: CEIE 601

Registration Restrictions:
Enrollment limited to Graduate level students.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CEIE 894: Design and Inventive Engineering. 3 credits.
Topics include Fundamentals: successful intelligence and creative intelligence, creative class, the Medici Effect, the Renaissance Man and Da Vinci’s Seven Principles, engineering creativity; Design Engineering: system designing and architecting, designing as search, evolutionary designing, constraint search, constructive induction, Axiomatic and Inferential Design Theories; Inventive Engineering: Brainstorming, Synectics, Morphological Analysis, TRIZ, Visual Thinking, Inventive Design in Practice; Project Presentations. Notes: This is transdisciplinary course focused on creativity in engineering and science. Open to all graduate students in the Volgenau School of IT and Engineering. Graduate students from other schools are encouraged to register with the instructor’s permission. Offered by Civil, Environ & Infrast Engr (p. 1090). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to Graduate level students.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Seminar

CEIE 896: Civil Engineering Research Topics. 3 credits.
Reading on specific topic under direction of faculty member. May be repeated with change in topic. Offered by Civil, Environ & Infrast Engr (p. 1090). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission into CEIE PhD program, or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate level students.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Independent Study

900 Level Courses

CEIE 990: Civil and Infrastructure Dissertation Topic Presentation. 1 credit.
Opportunity for PhD students to present research proposal for critique. Covers presentation of research topic for PhD in Civil and Infrastructure Engineering. Students complete dissertation research proposal. May be repeated with change in topic, but degree credit is given only once. Offered by Civil, Environ & Infrast Engr (p. 1090). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing; completion of all course work required for PhD in Civil and Infrastructure Engineering or permission of instructor.

Registration Restrictions:
Enrollment limited to students in the PHD Civil Infrastructure Engr program.
Enrollment is limited to Graduate level students.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Research

CEIE 998: Doctoral Dissertation Proposal. 1-12 credits.
Work on research proposal that forms basis for doctoral dissertation. May be repeated for credit. Notes: No more than 24 credits of CEIE 998
and 999 may be applied to doctoral degree requirements. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree for a maximum 12 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Dissertation

CEIE 999: Doctoral Dissertation. 1-12 credits.
Formal record of commitment to doctoral dissertation research under direction of faculty member in civil engineering and infrastructure engineering. Offered by Civil, Environ & Infrastr Engr (p. 1090). May be repeated within the degree for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Dissertation

Classics (CLAS)

200 Level Courses

CLAS 240: Greek and Latin Elements in English. 3 credits.
Studies formation of English vocabulary derived from Greek and Latin prefixes, stems, and suffixes to increase word power in English (vocabulary, style). Special emphasis on bioscientific, medical, and legal terminology. Intended for native and non-native speakers of English. Literary texts illustrate word analyses, vocabulary uses. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101, or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 250: Classical Mythology. 3 credits.
Illustrates role of classical myths in classical and modern literature and art. Notes: Coursework in English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101, or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 260: The Legacy of Greece and Rome. 3 credits.
Introduces history, culture, and literature of Greece and Rome through close readings of central passages from classical literature dealing with some of the most important aspects of human existence. Illustrates importance of classical antiquity for the Western tradition. Notes:

Coursework in English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

300 Level Courses

CLAS 330: Roman Law and Society. 3 credits.
Introduces the Roman legal system, from the Law of the Twelve Tables to Justinian's Digest. Explores the fundamental concepts of Roman Law and its importance for Roman society and the legal history of the West. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 340: Greek and Roman Epic. 3 credits.
Examines development of classical epic as genre, from beginnings with Homer to transformations in the works of later Greek and Roman authors. Notes: Coursework in English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 350: Greek and Roman Tragedy. 3 credits.
Follows development of tragedy from its origins to the works of Aeschylus, Sophocles, and Euripides, and its reappearance in the Roman world in the tragedies of Seneca. Considers influence of Greek tragedy on later cultures. Notes: Coursework in English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 360: Greek and Roman Comedy. 3 credits.
Studies forms, contexts, and developments of comedy as a dramatic form in Greco-Roman world. Traces development of New Comedy in Hellenistic age and translation and adaptation of New Comedy by Roman dramatists Plautus and Terence. Notes: Coursework in English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English
Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 370: Greek and Roman Historians. 3 credits.
Examines writings of major Greek and Roman historians, including Herodotus, Thucydides, Sallust, Livy, and Tacitus; their interpretations of the past; and their influence. Notes: Coursework in English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 380: Greek and Roman Novels. 3 credits.
Examines novels written in antiquity, and influences on postclassical and modern literature. Emphasizes works of Longus, Heliodorus, Petronius, and Apuleius. Notes: Coursework in English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

CLAS 390: Topics in Classical Literature and Culture. 3 credits.
Studies forms, contexts, and developments of distinctive literary genre or cultural phenomenon in the Greco-Roman world. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree.

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or permission of instructor.

Schedule Type: Lecture

400 Level Courses

CLAS 499: Senior Seminar in Classical Studies. 3 credits.
Individual research on specialized topic culminating in seminar paper. Fulfills writing-intensive requirement. Subject of seminar determined by instructor in consultation with student. Notes: Permission must be obtained in advance. Students may present no more than 3 credits for graduation. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in English

Recommended Prerequisite: Classical studies minors, 90 credits including 15 credits in classics, and permission of instructor.

Schedule Type: Seminar

Climate Dynamics (CLIM)

100 Level Courses

CLIM 101: Global Warming: Weather, Climate, and Society. 3 credits.
Survey of the scientific and societal issues associated with weather and climate variability and change. Examines physical phenomena observed in the Earth’s weather and climate, providing sufficient scientific and technical background to enable students to critically examine arguments being discussed by policymakers and the public at large. Also reviews the current debate on climate change from a scientific point of view with a focus on those aspects that have the largest potential impact on global society. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Mason Core: Natural Science Overview, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

CLIM 102: Introduction to Global Climate Change Science. 4 credits.
The scientific basis of computer models that simulate past and present climate and predict future climate change; how complex models are built, tested, and interpreted to better understand physical, chemical, and biological processes; how uncertainty is managed. Students conduct laboratory experiments through an online interface and apply results to policy and planning. Designated a Green Leaf Course. Notes: Computer models are used in the lab. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Mason Core: Natural Science with Lab, Encore:Sustainability (p. 135)

Specialized Designation: Sustainability (p. 135)

Recommended Prerequisite: Basic math skills (Geometry, Algebra).

Schedule Type: Laboratory, Lecture

CLIM 111: Introduction to the Fundamentals of Atmospheric Science. 3 credits.
Overview of the Earth's atmosphere, its history, and the physical and chemical process that determine its characteristics. Focuses on key concepts from thermodynamics, radiation, chemistry, and dynamics that are essential for understanding the state, variability, and long term evolution of the atmosphere; especially in the context of comparisons with other planetary atmospheres. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to PHYS 111.

Mason Core: Natural Science with Lab, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

CLIM 112: Introduction to the Fundamentals of Atmospheric Science Lab. 1 credit.
Laboratory course associated with CLIM 111. Study of the Earth's atmosphere based on concepts taken from thermodynamics, radiation transport, chemistry, and dynamics. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to PHYS 112.

Mason Core: Natural Science with Lab, Encore:Sustainability (p. 135)
Specialized Designation: Green Leaf Course

Schedule Type: Laboratory

300 Level Courses

CLIM 301: Weather Analysis and Prediction. 4 credits. Large-scale behavior of mid-latitude weather systems. Includes coupling of synoptic motion to mesoscale processes that lead to significant weather events. Introduces the observational network, numerical weather models, and prediction. Laboratory portion gives practical experience in weather analysis, prediction, and technology currently used for visualization and analysis. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: MATH 113 or equivalent; one of CLIM/PHYS 111/112 or EOS 121 or GGS 121.

Schedule Type: Laboratory, Lecture

CLIM 312: Physical Climatology. 3 credits. Quantitative description of nature and theory of the climate system, dynamics of atmosphere-ocean-land surface, internal interactions and response to external forcing, description of the climate record and simple climate models. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to GGS 312.

Recommended Prerequisite: CLIM/PHYS 111/112 OR GGS 121; and PHYS 243,244, or permission of instructor.

Schedule Type: Lecture

CLIM 314: Severe and Extreme Weather. 3 credits. Behavior of weather events ranging from small scale (e.g., thunderstorms and tornadoes) to mesoscale (e.g., fronts and hurricanes). Introduces the dynamical and physical processes, atmospheric boundary layer processes, and coupling between different spatial scales that create and shape severe and localized weather events. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to GGS 314.

Recommended Prerequisite: MATH 113 or equivalent; CLIM/PHYS 111/112 OR GGS 121; and PHYS 243,244, or permission of instructor.

Schedule Type: Lecture

CLIM 319: Air Pollution. 3 credits. Description of major types of air pollution and introduction to how their characteristics are influenced by interaction with the atmosphere. Topics include sources and distribution of pollution from local to global scales, effects of radiation and wind on pollution, modeling of plume dispersion, and pollution effects on climate. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: CLIM 111 or GGS 121.

Schedule Type: Lecture

CLIM 390: Topics in Climate Research. 1-4 credits. Selected topics not covered in fixed content courses. May be included for credit by AOES majors in the 45 credits of courses required for BS degree. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of AOES courses within concentration.

Schedule Type: Independent Study

400 Level Courses

CLIM 408: Senior Research. 3 credits. Independent research under guidance of faculty member on a research project in numerical, experimental, observational, or theoretical atmospheric or climate-related research. A written report on the project is required. Notes: May be repeated with department permission. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Writing Intensive in the Major

Recommended Prerequisite: 15 credits of AOES courses within major.

Schedule Type: Research

CLIM 409: Research Internship. 3 credits. On-the-job experience for AOES majors in industry or government laboratories, including summer research programs. Students work in observational, experimental, or theoretical research, and prepare a written report at the end of the internship. Notes: May be repeated with department permission. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 75 credits. 15 credits of courses in major and permission of department.

Schedule Type: Independent Study

CLIM 411: Atmospheric Dynamics. 3 credits. Observational bases and fundamentals of fluid dynamic principle for understanding atmospheric motions across multiple spatial and temporal scales; covers basic conservation laws of mass, momentum, and energy; concepts of circulation and vorticity; balanced atmospheric flows, e.g. geostrophic wind and shear, thermal wind; quasi-geostrophic and isentropic potential vorticity analysis for mid-latitude cyclones and fronts. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to CLIM 311.

Recommended Prerequisite: CLIM 111 and MATH 213, or permission of instructor.

Schedule Type: Lecture

CLIM 412: Physical Oceanography. 3 credits. Reviews global patterns of temperature, salinity, currents and waves in the world's oceans and how these patterns influence marine biota, climate, and human activity. Introduces key concepts which explain physical features of the ocean ranging from microscopic turbulence to global circulation. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to GEOL 412.

Recommended Prerequisite: MATH 113 or 115 and PHYS 160 or 253; or permission of instructor.
Schedule Type: Lecture

CLIM 429: Atmospheric Thermodynamics. 3 credits. Thermodynamics of the atmosphere, properties of dry and moist air, air parcel as a thermodynamic system, atmospheric stability and convection, cloud formation and stability indices. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: CLIM 111, MATH 114 and PHYS 260; or permission of instructor.

Schedule Type: Lecture

CLIM 438: Atmospheric Chemistry. 3 credits. Reviews fundamental chemical processes of the Earth's atmosphere including chemical cycles, thermodynamics, reaction kinetics, photochemistry, radiative balance, ozone chemistry and environmental issues, including air pollution, acid rain and global change. Includes some review of extraterrestrial atmospheric chemistry. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to CHEM 438.

Recommended Prerequisite: CHEM 331 and 332 or permission of instructor.

Schedule Type: Lecture

CLIM 440: Climate Dynamics. 3 credits. Structure, dynamics and thermodynamics of atmospheric and oceanic circulations that maintain the climate. Role of the large scale transport of energy, moisture and angular momentum. Relationships of large scale circulation to weather and weather extremes, and implications for past and future climates. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: MATH 213, MATH 214, and CLIM 411.

Schedule Type: Lecture

CLIM 456: Introduction to Atmospheric Radiation. 3 credits. Provides fundamentals, physical understanding and quantitative analysis of radiative transfer in the atmosphere, discusses radiation processes-reflection, refraction, absorption, transmission, emission, and scattering and introduces tools for atmospheric radiative transfer. Provide students the basics for more advanced topics such as remote sensing or satellite meteorology. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to GGS 456.

Recommended Prerequisite: CLIM 111, MATH 214, and CLIM 411.

Schedule Type: Lecture

CLIM 470: Numerical Weather Prediction. 3 credits. Concepts and techniques of numerical prediction of weather, including the numerical models used and the rationale for large suites of meteorological forecasts. Sources of errors in the forecast: errors in the initial conditions and in the numerical weather prediction models. Interpretation of model output. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: MATH 213, MATH 214, and CLIM 411.

Schedule Type: Lecture

500 Level Courses

CLIM 512: Physical Oceanography. 3 credits. Course describes the global patterns of temperature, salinity, currents and waves in the world's oceans, and how these patterns influence marine biota, climate, and human activity. Course introduces key concepts which explain physical feature of the ocean ranging from microscopic turbulence to global circulation. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: MATH 113 or MATH 115; PHYS 160 or PHYS 243; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses


Recommended Prerequisite: BS or MS in a natural science or engineering, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

CLIM 700: Climate Comprehensive Exam. 1 credit. Preparation for and completion of written comprehensive exam, on a climate-related subject, within AOES department. The exam is part of the degree requirements in lieu of writing a master's thesis. Instructor should be the chair of the examination committee. The exam committee will specify exam content. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 2 credits.

Recommended Prerequisite: At least 15 graduate credits, approved project proposal, and permission of major advisor or chair of the examination committee.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
CLIM 710: Introduction to Physical Climate System. 3 credits.
Provides modern understanding of ocean, atmosphere, and land based on fundamental physical laws. Describes current climate and physical processes by which climate is maintained. Covers theoretical models of general circulation of atmosphere, including time mean and transient behavior. Describes basics of ocean circulation and interactions between ocean and atmosphere. Reviews past climate change, stratosphere and its interactions with troposphere, and role of land processes in modulating climate. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: BS or MS in mathematics or a physical science, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CLIM 711: Introduction to Atmospheric Dynamics. 3 credits.
Covers basic conservation laws of mass, momentum, and energy and scaling analysis of equation of motion and thermodynamic equation. Discusses balanced flows in atmosphere, such as geostrophic wind and its vertical shear, and thermal wind relationship. Also explores circulation and vorticity; role of atmospheric boundary layer in mass, momentum, and energy transfer; synoptic scale motions; and role of gravity and Rossby waves in controlling general circulation of atmosphere. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to PHYS 676.

Recommended Prerequisite: BS or MS in mathematics or a physical science, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CLIM 712: Physical and Dynamical Oceanography. 3 credits.
Introduces climatology and dynamics of oceans. Covers nature of seawater, heat, and salt budgets; general circulation of the ocean, including the Gulf Stream and thermohaline circulations; dynamics of wind-driven ocean circulation; and processes influencing biological and chemical behavior. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: CSI 751 or CLIM 710, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CLIM 713: Atmosphere-Ocean Interactions. 3 credits.
Provides comprehensive observational and mechanistic understanding of El Nino and Southern Oscillation (ENSO) phenomena. Topics include observations and theories of seasonal and interannual changes in ocean circulation and temperature and interactions with atmosphere; equations of motion and theories of wind-driven circulation; mixed layer observations and theories; midlatitude and equatorial ocean waves; interannual variability and atmosphere-ocean coupling; and tropical oceanography and meteorology. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: CLIM 712 or 711 or equivalent, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CLIM 714: Land-Climate Interactions. 3 credits.
Interdisciplinary course providing detailed description of surface energy and water balance over land and radiative and turbulent transfer. Introduces numerical techniques for modeling land surface and applications in weather, climate, and hydrologic forecasting and simulation. Includes hands-on experience with land surface models in computer laboratory, including sensitivity experiments to reinforce theoretical concepts. Exposure to contemporary research through reading and reviewing seminal journal papers. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: BS or MS in mathematics or physical science, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CLIM 715: Numerical Methods for Climate Modeling. 3 credits.
Foundation and theory of computational methods for atmosphere and ocean modeling, with special emphasis on finite-difference and spectral methods. Topics include accuracy, consistency, convergence and stability; time stepping schemes; nonlinear computational stability; energy and enstrophy conserving schemes for momentum equations; staggered and curvilinear grids; alternate vertical coordinate systems; implicit and split-explicit barotropic mode solution; pressure gradient errors and vorticity constraints; spectral methods for atmospheric models; and treatment of model physics. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: CLIM 712 or 711 or equivalent, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CLIM 750: Geophysical Fluid Dynamics. 3 credits.
Introduces geophysical fluid dynamics, the study of rotating stratified flows. Covers hydrostatics; equations of motion, gravity wave dynamics, and stratified flow; effects of rotation, midlatitude dynamics, Rossby number and quasigeostrophic expansion; beta plane approximation; and
equatorial Kelvin and Rossby waves. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** CLIM 711, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CLIM 751:** *Predictability and Prediction of Weather and Climate.* 3 credits.
Covers predictability and seamless prediction of weather and climate for timescales ranging from days to decades. Studies limitations to predictability due to chaos, and possible sources of predictability due to slowly varying surface boundary conditions produced by interactions among atmospheres, ocean and land system. Discusses predictability of droughts and floods, monsoons, ENSO, decadal variations and climate change. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** CLIM 711
B-Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CLIM 752:** *Ocean General Circulation.* 3 credits.
Description and theory of large-scale ocean circulation and how it affects climate. Focus is on ubiquitous flow structures such as gyres, equatorial currents, and meridional overturning cells. Examines how the circulation follows from wind and thermohaline forcing, as well as physical principles. The influence of the circulation on heat transport and climate variability is also discussed. Conceptual guideposts include barotropic gyres, Ekman cells, potential vorticity, western intensification, the interplay of gravity and the Earth's rotation, advective-diffusive balance, multiple flow states, and Rossby waves. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** CLIM 712 or 711 or equivalent, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CLIM 753:** *General Circulation of the Atmosphere.* 3 credits.
Overview and several theoretical perspectives of atmospheric transport of energy, moisture, and angular momentum, and how these processes fundamentally affect the climate on various time scales. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** CLIM 710 and CLIM 711.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CLIM 754:** *Elements of the Tropical Climate System.* 3 credits.
Observations and dynamics of key processes of tropical weather and climate. Topics include: structure of the tropical atmosphere and ocean, convection, dynamics of tropical waves in the atmosphere and ocean, tropical intraseasonal variability, tropical the global monsoons, cyclones, and stratospheric quasi-biennial oscillation. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** CLIM 711.

**Recommended Corequisite:** CLIM 710.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CLIM 759:** *Topics in Climate Dynamics.* 3 credits.
Covers selected topics in climate dynamics not covered in fixed-content courses. Notes: May be repeated for credit when offered with different content. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CLIM 762:** *Statistical Methods in Climate Research.* 3 credits.
Introduction to a core set of statistical methods that have proven useful to modern climate and predictability research. Topics include detecting and attributing climate change, describing climate variability with empirical orthogonal functions, statistical forecasting with regression and time series models, and identifying coupled patterns of variability with canonical correlation analysis. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate level linear algebra and STAT 344 (or equivalent), or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CLIM 763:** *Advanced Statistical Methods in Climate Research.* 3 credits.
Introduction to multivariate statistical techniques commonly used in climate science, with special emphasis on estimation in large dimensional spaces. Topics include: multivariate regression, canonical correlation analysis, predictable component analysis, field significance tests, data assimilation (especially the ensemble Kalman Filter), discriminant analysis, and multivariate detection and attribution of climate change. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** CLIM 762 or permission of instructor.
Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CLIM 796: Directed Reading and Research. 1-6 credits.
Reading and research on a specific topic in climate dynamics under the direction of a faculty member. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Admission into the climate dynamics doctoral program and permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

CLIM 798: Master's Climate Research Project. 1-6 credits.
Research or literature-review project in climate science or related topic chosen and completed under the guidance of a faculty member. Proposition required before enrollment. Technical report acceptable to student's project committee required for completion. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: At least 15 graduate credits, approved project proposal, and permission of major advisor or chair of the examination committee.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

CLIM 799: Master's Thesis in Climate. 1-6 credits.
Research project in climate science or related topic chosen and completed under the supervision of a faculty member. Resulting thesis acceptable to student's committee and potentially publishable is required for completion. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Degree candidacy, thesis proposal approved by thesis committee, and permission of major advisor or instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

900 Level Courses

CLIM 991: Climate Dynamics Seminar. 1 credit.
Presentations in climate dynamics field by Mason faculty and invited speakers. Notes: A maximum of 3 credits may be applied toward the climate dynamics PhD. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CLIM 996: Doctoral Reading and Research. 1-6 credits.
Reading and research on a specific topic in climate dynamics under the direction of a faculty member. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Admission into the climate dynamics doctoral program and permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Research

CLIM 998: Doctoral Dissertation Proposal. 1-12 credits.
Covers development of research proposal under guidance of dissertation director and doctoral committee. Proposal forms basis for climate dynamics doctoral dissertation. Notes: Course may be repeated, but no more than 12 credits of CLIM 998 may be applied to doctoral degree requirements. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree.

Recommended Prerequisite: Doctoral standing and permission of advisor.

Registration Restrictions: Enrollment is limited to students with a class of Advanced to Candidacy.

Students receive Writing Center training in theory and techniques of writing and work a minimum of 3 hours per week in Writing Center. Focus is on practical application of writing theory and pedagogy from course readings, development of tutoring skills, and self-reflection through journals and final paper. Notes: Students must submit two faculty recommendations and a sample of recent academic writing, and complete an interview with the director of the Writing Center. Offered by

CHSS 390: Peer Tutoring in Writing across the Disciplines. 1 credit.
Experiential learning course in teaching of writing across disciplines. Students receive Writing Center training in theory and techniques of tutoring writing and work a minimum of 3 hours per week in Writing Center. Focus is on practical application of writing theory and pedagogy from course readings, development of tutoring skills, and self-reflection through journals and final paper. Notes: Students must submit two faculty recommendations and a sample of recent academic writing, and complete an interview with the director of the Writing Center. Offered by
Humans & Social Sciences (p. 295). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Grade of A in ENGL 302/ENGH 302, 60 credits, and overall minimum GPA of 3.00 with a minimum GPA in major of 3.50.

**Schedule Type:** Internship

### College of Science (COS)

#### 100 Level Courses

**COS 120: Introduction to Research.** 1-3 credits.
Introduction to research, involving work on a research project. May involve lab study, computer modeling and analysis, mathematics, or other original research as appropriate. Research formulated and completed under instructor’s guidance. Culminates in a written or oral final report. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Independent Study

#### 400 Level Courses

**COS 401: RS: Discipline Based Education Research.** 2-3 credits.
Students will conduct an original Discipline-Based Education Research (DBER) project with their faculty mentor and STEM Accelerator faculty mentor. Offered by College of Science (p. 593). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive

**Schedule Type:** Independent Study

### College of Visual and Performing Arts (CVPA)

#### 100 Level Courses

**CVPA 101: Arts Pass.** 2 credits.
Introduction to appreciation of the arts through lectures and demonstrations in visual art, music, dance, and theater. Emphasizes aesthetic principles in modern society. Students attend performances and exhibitions and develop analytical skills through written journal and discussion. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 4 credits.

**Schedule Type:** Lecture

**CVPA 102: Experiencing the Arts.** 3 credits.
Reserved for high school students enrolled in CVPA. Introduces collaborative and interdisciplinary arts experiences in visual art, music, dance, theater, film, and media through daily intensive immersion in the arts for two and a half weeks. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Schedule Type:** Lecture

**CVPA 105: Special Topics in the Arts.** 1-3 credits.
Exploration of topical studies on the arts. Notes: Subject matter varies. May be repeated when taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 12 credits.

**Schedule Type:** Lecture

### 300 Level Courses

**CVPA 308: Cross-Cultural Arts Appreciation.** 3 credits.
Provides cumulative arts experience by tying subject matter to major cultural production of Center for the Arts. Notes: Subject matter varies. May be repeated when taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 12 credits.

**Schedule Type:** Lecture

**CVPA 399: Special Topics in the Arts.** 1-6 credits.
In-depth presentation and exploration of topical studies on the arts. Notes: Subject matter varies. May be repeated when taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 24 credits.

**Schedule Type:** Lecture

### 400 Level Courses

**CVPA 430: Topics in Arts and Wellness.** 1-3 credits.
In-depth presentation and exploration of topical studies in arts and wellness or related areas such as injury prevention, performance enhancement, and health and wellness training. Notes: Topic depends on instructor. May be repeated if taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** 90 hours or permission of instructor, concurrent enrollment is permitted.

**Schedule Type:** Lecture

**CVPA 489: Field Experience in the Arts.** 3-6 credits.
Apprenticeship, internship, or project with organization or individual in the arts. Must be prearranged with division director before enrollment. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Junior standing and completion of six credits in CVPA courses in the area of residency, CVPA 305, or permission of instructor.

**Schedule Type:** Internship

**CVPA 499: Research/Performance/Topics in the Arts.** 3-6 credits.
Advanced research, performance, or exploration of topical studies in arts. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Permission of department chair.

**Schedule Type:** Independent Study

### 500 Level Courses

**CVPA 530: Topics in Arts and Wellness.** 1-3 credits.
In-depth presentation and exploration of topical studies in arts and wellness and/or related areas (e.g., injury prevention, performance enhancement, health and wellness training to educators and arts professionals). Topic depends on instructor. Notes: May be repeated if taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 9 credits.
Recommended Prerequisite: 90 hours or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CVPA 592: Special Topics in Interdisciplinary Arts Studies. 1-3 credits. Topics in interdisciplinary arts. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: Undergraduate degree or equivalent, or Permission of Instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

CVPA 599: Independent Study. 1-6 credits. Independent reading, performance, or research on specific project under direction of selected faculty member. May include attendance in parallel undergraduate course. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Undergraduate degree or equivalent, or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

700 Level Courses

CVPA 700: Academic Writing in the Arts. 1 credit. Prepares graduate students for the rigors of academic writing in the arts at the advanced level and supports students’ acculturation in the academic writing skills and practices of their discourse communities. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of 21 graduate credits in a CVPA graduate degree.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CVPA 701: Thesis and Project Writing. 1 credit. Students will develop an expertise within the specific rhetorical context of the thesis/project genre, understand the specialized features of the final project or thesis, and apply the strategies they have learned in their disciplines to their capstone event. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of 21 graduate credits in a CVPA graduate degree.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Communication (COMM)

100 Level Courses

COMM 100: Public Speaking. 3 credits. Presents principles to develop effective presentations for public and professional settings while integrating appropriate technologies. Emphasizes analyzing audience; composing meaningful, coherent messages; conducting responsible research; developing effective arguments; and improving delivery skills to strengthen confidence and credibility. Offered by Communication (p. 303). May not be repeated for credit.

Mason Core: Oral Communication (p. 135)

Schedule Type: Lecture

COMM 101: Interpersonal and Group Interaction. 3 credits. Presents principles to develop appropriate and effective communication strategies in one-to-one and small group communication settings. Emphasizes analyzing and assessing communication skills to create and sustain effective communication in personal and professional relationships. Offered by Communication (p. 303). May not be repeated for credit.

Mason Core: Oral Communication (p. 135)

Schedule Type: Lecture

COMM 140: Forensics Seminar in Creative Arts. 1 credit. Intensive work in creative forensics events, including rhetorical criticism and informative, persuasive, extemporaneous, after-dinner,
and impromptu speaking. Offered by Communication (p. 303). May be repeated within the term for a maximum 4 credits.

**Recommended Prerequisite:** Audition required.

**Schedule Type:** Seminar

**COMM 141:** Forensics Seminar in Recreational Arts. 1 credit.
Intensive work in recreational forensic events, including dramatic duo, program interpretation, poetry interpretation, dramatic interpretation, and prose interpretation. Offered by Communication (p. 303). May be repeated within the term for a maximum 4 credits.

**Recommended Prerequisite:** Audition required.

**Schedule Type:** Seminar

**COMM 142:** Forensics Seminar in Debate: Affirmative Strategies. 1 credit.
Work in affirmative research, case construction, and oral presentation; directed toward affirmative analysis of intercollegiate debate proposition. Offered by Communication (p. 303). May be repeated within the term for a maximum 4 credits.

**Recommended Prerequisite:** Audition required.

**Schedule Type:** Seminar

**COMM 143:** Forensics Seminar in Debate: Negative Strategies. 1 credit.
Work in negative research, case attacks, and oral presentation directed toward negative analysis of intercollegiate debate proposition. Offered by Communication (p. 303). May be repeated within the term for a maximum 4 credits.

**Recommended Prerequisite:** Audition required.

**Schedule Type:** Seminar

**COMM 145:** Newspaper Workshop I. 1 credit.
Practical experience in writing, editing, or business aspects of newspaper production at Broadside or other papers. Coordinated by newspaper faculty advisor. Offered by Communication (p. 303). May be repeated within the term for a maximum 3 credits.

**Recommended Prerequisite:** Audition required.

**Schedule Type:** Seminar

**COMM 148:** Radio Workshop I. 1 credit.
Students receive individual guidance while learning to be on-air show hosts at student internet radio station WGMU. New technologies such as computer automation systems and advanced production software are integrated throughout the curriculum to prepare students to engage in the most current applications for commercial and internet radio and podcasting. Offered by Communication (p. 303). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** One 100 level COMM course, or permission of instructor.

**Schedule Type:** Studio

**COMM 150:** Communication Skills for International Students. 3 credits.
Introduction to speaking, listening, and nonverbal skills required to communicate appropriately in university study. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** International students in first year of study in the United States, non-native speakers of English with some difficulty speaking clearly and accurately, or permission of instructor.

**Schedule Type:** Lecture

**COMM 157:** Digital Media Workshop. 1 credit.
Offers students a hands-on introduction to digital tools of creative expression, involving the use of specific software and hardware, including operating systems, media editing programs, authoring applications, and software utilities. Notes: Students who have already completed or are in COMM 208 are not eligible to take this course. Offered by Communication (p. 303). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** COMM 100 or 101 and declared major or minor in communication, undeclared major, or permission of undergraduate program director.

**Schedule Type:** Seminar

**200 Level Courses**

**COMM 200:** Communication Theory. 3 credits.
Introduces the field of communication, including perspectives on theory and research, topical areas within the discipline, basic research methodologies, and a survey of theories in those areas. Covers basic procedures for theory-building, research, and writing about communication. Offered by Communication (p. 303). May not be repeated for credit.

**Specialized Designation:** Discovery of Scholarship

**Recommended Prerequisite:** COMM 100 or COMM 101 or permission of undergraduate program director.

**Schedule Type:** Lecture

**COMM 201:** Small Group Communication. 3 credits.
Principles of communicating effectively in small group situations. Emphasizes problem-solving group communication. Practice in working cooperatively with others to complete projects using systematic approach to problem solving. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** COMM 101, or equivalent course.

**Schedule Type:** Lecture

**COMM 202:** Media and Society. 3 credits.
Examines the relationship between media and society through the study of the development of various media systems in the United States, including print media, radio, television, film, the recording industry, and new communication technologies. Introduces media effects and basic theories. Offered by Communication (p. 303). May not be repeated for credit.

**Schedule Type:** Lecture

**COMM 203:** Introduction to Journalism. 3 credits.
American journalism including history and First Amendment components; role of professional journalist; print, broadcast, and computer assisted news operations; economics of publishing; and effect of new technologies. Serves as starting point for those interested in journalism careers and as orientation for those interested in learning
more about news business operations. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 204: *Introduction to Public Relations*. 3 credits.
Introduces the evolving field of public relations and the role it plays in global business, politics and social interactions. Focuses on creation of integrated digital communication and social media engagement. This is a required course for the Communication Department Public Relations concentration and a prerequisite for several upper-level public relations courses. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 208: *Introduction to Media Production*. 3 credits.
Provides a general introduction to media production with emphasis on the basics of multimedia tools for camera, audio, lighting, and editing, focusing on non-fiction, journalism, or public relations/advocacy presentations. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to COMM 355.

Schedule Type: Lecture

COMM 210: *Voice and Articulation*. 3 credits.
Principles of voice production, with practice in effective vocal use of American English. Emphasizes student participation. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

Examines common persuasive message strategies and approaches. Covers basic principles of persuasive process. Case studies include advertisements, speeches, and persuasive activities from all segments of society. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 249: *Communication Field Experience*. 1-2 credits.
Field training and experience related to one of the five communication department concentrations through faculty-approved activity support. Offered by Communication (p. 303). May be repeated within the term for a maximum 4 credits.

Recommended Prerequisite: 45 credits total.

Schedule Type: Activity-Based

COMM 255: *Introduction to Media Literacy*. 3 credits.
Principles and practices of media literacy. Emphasizes critical viewing, listening, and reading media skills; and media effects on consumer. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 260: *Basic Debate Theory and Practice*. 3 credits.
Theory and practice of formal debate, including approaches to analytical reasoning, research, delivery, and conceptual basis for debate. Does not require tournament participation. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture, Recitation

COMM 261: *Theories of Argumentation*. 3 credits.
Analyzes argument within communicative settings. Emphasizes deductive and inductive forms of reasoning, fallacies in reasoning, tests of evidence, and models for such analyses. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

300 Level Courses

Theories and principles of public communication, emphasizing methods of persuasion, critical analysis, speaker-listener alignments in public setting, and measurements of effective public communication. Offered by Communication (p. 303). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:

Required Prerequisite: (COMM 200).«
«Requires minimum grade of C.

Schedule Type: Lecture

COMM 301: *Foundations of Interpersonal Communication*. 3 credits.
Theories and principles of interpersonal communication emphasizing models of communication, verbal and nonverbal message systems, and analysis of communicative relationships. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 302: *Foundations of Media Theory*. 3 credits.
Provides a comprehensive review of mass communication and media theory, focusing on media effects and the complex relationships between media producers, messages, technologies, and users/audiences. Examines role of media in news, politics, and popular culture. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 303: *Writing across the Media*. 3 credits.
Foundation course focusing on writing for the mass media: Internet, public relations, newspapers, broadcast (television and radio) and advertising with a strong emphasis on adherence to Associated Press Style. Notes: Prerequisite for all communication media writing courses. Lab work required. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: 30 credits.

Schedule Type: Lecture

Explores health communication research practice: the role of communication in health care delivery, health promotion and disease prevention, risk communication, and personal as well as psychological well-being. Examines interpersonal, organizational, team, family, and intercultural relationships. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 305: *Foundations of Intercultural Communication*. 3 credits.
Analyzes communication variables as they relate to intercultural encounters. Emphasizes culture's influence on communication process,
particularly influence of verbal and nonverbal communication on how message is interpreted. Notes: Communication majors are encouraged to complete COMM 200 prior to enrolling in this course. Offered by Communication (p. 303). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Recommended Prerequisite:** 3 credits of 100 or 200-level COMM courses or 60 credits.

**Schedule Type:** Lecture

COMM 306: Issues in Intercultural Communication. 3 credits. Applies basic principles of intercultural communication to analyze specific situations involving communication and cultural differences. Notes: Continuation of COMM 305. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** COMM 305, or permission of instructor.

**Schedule Type:** Lecture

COMM 307: Field Study in Communication. 3 credits. Structured communication learning experience: one to three weeks of travel in a foreign environment involving another country or relevant U.S. co-cultures. Students must complete appropriate readings, laboratory assignments, and personal learning paper to process communication concepts and experiences. Notes: May be repeated for credit when field study is substantially different with permission of the undergraduate director. Offered by Communication (p. 303). May be repeated within the degree.

**Recommended Prerequisite:** Permission of instructor.

**Schedule Type:** Lecture

COMM 310: Performance for Communication Arts. 3 credits. Principles and theories of performance for communication arts. Practice in spoken performance of prose, poetry, and drama. Offered by Communication (p. 303). May not be repeated for credit.

**Schedule Type:** Lecture

COMM 320: Business and Professional Communication. 3 credits. Study of basic theories and skills of communication in professional contexts, including interviewing, relationship maintenance, small group teams, and public presentations. Emphasizes developing practical and critical thinking skills. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** COMM 100, 101, or 104 or permission of instructor.

**Schedule Type:** Lecture

COMM 326: Rhetoric of Social Movements and Political Controversy. 3 credits. Social and political forces of contemporary era from communication perspective, emphasizing political leadership, pressures for social and political change, and transformations in communicative environment. Offered by Communication (p. 303). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** COMM 300.

**Schedule Type:** Lecture

COMM 327: Political Communication. 3 credits. Studies how political communication shapes development of "political reality." Examines interactions between media and politics with respect to the ways communication functions in political settings. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to COMM 432.

**Schedule Type:** Lecture

COMM 330: Principles of Public Relations. 3 credits. Surveys nature, history, scope, and practice of public relations in business, trade associations, nonprofit organizations, and educational and government institutions. Covers principles, practice of public relations, including media relations, issues management, and public service announcements; marketing and research; planning and publicity for special events; house publications; and institutional advertising. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of COMM credit and 60 hours, or permission of instructor.

**Schedule Type:** Lecture

COMM 331: Advanced Principles in Public Relations. 3 credits. Develops the conceptual knowledge and practical skills students need to thrive in challenging public relations situations, such as crisis management, research for clients, communication with clients, and development of client work. Students complete the course with a portfolio of research, writing, and visual materials they have created. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:** Required Prerequisites: COMM 204 or 330. Requires minimum grade of C.

**Schedule Type:** Lecture

COMM 332: Nonverbal Communication. 3 credits. Theory, principles, and methods to analyze nonverbal communication. Emphasizes physical behavior, facial expression, personal space and territoriality, physical appearance, vocal cues, and environment. Offered by Communication (p. 303). May not be repeated for credit.

**Schedule Type:** Lecture

COMM 334: Family and Health Communication. 3 credits. Examines how family communication contributes to physical, psychological, and social wellness. Explores how family communication affects our experience with health transitions (e.g., coping with cancer; becoming a caregiver; losing a loved one), contributes to health outcomes (e.g., stress and anxiety; disordered eating behavior; schizophrenia; drug abuse), and is central to health promotion behavior (e.g., understanding health history and genetics). Offered by Communication (p. 303). May not be repeated for credit.

**Schedule Type:** Lecture

COMM 335: Organizational Communication. 3 credits. Theory, practice, and methods to analyze communication in organizations. Emphasizes process and structure, interaction formats, mechanisms for modification, and career paths in organizational communication. Offered by Communication (p. 303). May not be repeated for credit.
Recommended Prerequisite: COMM 100, 101, or 301, or permission of instructor.

Schedule Type: Lecture

COMM 340: Forensics Seminar in Creative Arts. 1 credit.
Intensive work in various types of creative forensics events, including rhetorical criticism and informative, persuasive, extemporaneous, after-dinner, and impromptu speaking. Offered by Communication (p. 303). May be repeated within the term for a maximum of 4 credits.

Recommended Prerequisite: Completion of 60 hours, or 4 hours of COMM 140. Audition required.

Schedule Type: Seminar

COMM 341: Forensics Seminar in Recreative Arts. 1 credit.
Intensive work in various types of recreative forensics events, including dramatic duo, program interpretation, poetry interpretation, dramatic interpretation, and prose interpretation. Offered by Communication (p. 303). May be repeated within the term for a maximum of 4 credits.

Recommended Prerequisite: Completion of 60 hours, or 4 hours of COMM 141. Audition required.

Schedule Type: Seminar

COMM 342: Forensics Seminar in Debate: Affirmative Strategies. 1 credit.
Work in affirmative research, case construction, and oral presentation directed toward affirmative analysis of intercollegiate debate proposition. Offered by Communication (p. 303). May be repeated within the term for a maximum of 4 credits.

Recommended Prerequisite: Completion of 60 hours, or 4 hours of COMM 142. Audition required.

Schedule Type: Seminar

COMM 343: Forensics Seminar in Debate: Negative Strategies. 1 credit.
Work in negative research, case attacks, and oral presentation directed toward negative analysis of intercollegiate debate proposition. Offered by Communication (p. 303). May be repeated within the term for a maximum of 4 credits.

Recommended Prerequisite: Completion of 60 hours, or 4 hours of COMM 143. Audition required.

Schedule Type: Seminar

COMM 345: Newspaper Workshop II. 1 credit.
Practical experience in writing and editing for student newspaper or other papers. Offered by Communication (p. 303). May be repeated within the term for a maximum of 3 credits.

Recommended Prerequisite: 3 credits of COMM 145, 351, or permission of instructor.

Schedule Type: Seminar

COMM 346: Yearbook Workshop. 1 credit.
Practical experience in promotion, marketing, and sales of video yearbook, or practical experience working on Senior Expressions, a print supplement to the video yearbook. Offered by Communication (p. 303). May be repeated within the term for a maximum of 3 credits.

Schedule Type: Seminar

COMM 347: Cable TV Programming and Marketing. 1 credit.
Practical experience in television programming, promotion, and marketing of a campus television cable network operation. Offered by Communication (p. 303). May be repeated within the degree for a maximum of 3 credits.

Schedule Type: Lecture

COMM 348: Radio Workshop II. 1 credit.
Intensive practical application of previously acquired on-air show hosting skills at student internet radio station WGMU. Skill development in commercial production and writing included. New technologies such as social media, computer automation systems and advanced production software are integrated throughout the curriculum to prepare students to engage in the most current applications for commercial and internet radio and podcasting. Offered by Communication (p. 303). May be repeated within the term for a maximum of 3 credits.

Recommended Prerequisite: COMM 148, or permission of instructor.

Schedule Type: Seminar

COMM 350: Mass Communication and Public Policy. 3 credits.
Investigates how matters of public importance are communicated via various mass communication channels. Emphasizes regulations to minimize influence of mass media on public decision-making, and media manipulation by pressure groups, politicians, and media gatekeepers. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 202, 255, or 302, or permission of instructor.

Schedule Type: Lecture

COMM 351: News Writing and Reporting. 3 credits.
Experience in actual news gathering. Students write and report for print and online outlets. Numerous in-class and out-of-class writing assignments train students in unique styles of print and online journalism. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions: Required Prerequisite: (COMM 303^c).

^c Requires minimum grade of C.

Schedule Type: Lecture

COMM 352: News Editing: Print and Beyond. 3 credits.
Copy preparation, headline writing, news judging, and layout for various forms of print and electronic formats. Introduces working on news copy desks. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions: Required Prerequisite: (COMM 303^c).

^c Requires minimum grade of C.

Schedule Type: Lecture

COMM 353: Broadcast Journalism. 3 credits.

Registration Restrictions:
Required Prerequisite: (COMM 303\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**COMM 354:** Radio Production. 3 credits.
Offers theory and practice of operational digital media and radio broadcasting. The curriculum emphasizes core skills and knowledge in writing and digital radio production. Topics include content creation, production techniques (including digital audio software) and promotion, management and other aspects of commercial and noncommercial radio, internet radio, satellite radio, podcasting, and other audio/radio art forms. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** COMM 302 or permission of instructor.

**Schedule Type:** Lecture

**COMM 356:** Video: Performance and Writing. 3 credits.
Writing for video, performance skills for on-air work, interviewing. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** 45 credits.

**Schedule Type:** Lecture

**COMM 358:** Multi-Camera Studio Production. 3 credits.
Provides an in-depth exploration of the creative, technical, logistical, and aesthetic requirements of production in a multiple camera environment. The fundamental skills learned in this class will serve as a foundation for narrative, event, live sports, talk show, broadcast journalism, and magazine-styled television and webcast programming. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** COMM 355\(^C\), FAVS 255\(^C\) or COMM 208\(^C\).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**COMM 359:** Media Management. 3 credits.
Principles, practices of media management from general techniques to operation of individual departments within a media organization. Offered by Communication (p. 303). May not be repeated for credit.

**Schedule Type:** Lecture

**COMM 360:** Digital Postproduction. 3 credits.
Offers instruction on delivering high-quality image and video products for digital media. Students will be introduced to an array of video-audio editing and digital image software for integrating video, audio, photo and graphic postproduction. Student projects focus on journalism, public relations, and advocacy contexts. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to FAVS 260.

**Registration Restrictions:**
**Required Prerequisites:** COMM 355\(^C\), FAVS 255\(^C\) or COMM 208\(^C\).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**COMM 361:** Online Journalism. 3 credits.
Focuses on online journalism, research, reporting, web page and weblog creation, and writing for Internet. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** COMM 208\(^C\) or FAVS 255\(^C\).
\(^C\) Requires minimum grade of C.
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Schedule Type</th>
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<td>COMM 370</td>
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<td>COMM 371</td>
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<td>Lecture</td>
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<td>3</td>
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<td>COMM 374</td>
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<td>3</td>
<td>Lecture</td>
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<td>May not be repeated for credit.</td>
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<td>3</td>
<td>Lecture</td>
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<td>Special Topics in Journalism</td>
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<td>Lecture</td>
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<td>May not be repeated for credit.</td>
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<tr>
<td>COMM 378</td>
<td>Special Topics in Political Communication</td>
<td>3</td>
<td>Lecture</td>
<td>Requires grade of C.</td>
<td>May not be repeated for credit.</td>
</tr>
<tr>
<td>COMM 379</td>
<td>Special Topics in Journalism</td>
<td>3</td>
<td>Lecture</td>
<td>Requires grade of C.</td>
<td>May not be repeated for credit.</td>
</tr>
</tbody>
</table>
Schedule Type: Lecture

COMM 388: Special Topics in Public Relations. 3 credits. Topics vary. Counts toward Public Relations concentration in the Communication Department. Notes: May be repeated for credit when topic is different. Offered by Communication (p. 303). May be repeated within the degree.

Schedule Type: Lecture

COMM 389: Public Relations for Associations and Nonprofits. 3 credits. Principles of editing and journalism applied to publications, public relations, and advertising needs within corporate environment. Job requirements of editorial positions in public relations, publications, and information as defined by trade associations, nonprofit organizations, and large corporations. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: 60 credits, or 3 credits of lower-division COMM courses.

Schedule Type: Lecture

COMM 390: Issues in Public Relations. 3 credits. Focuses on current issues in corporate, government, and nonprofit public relations. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: COMM 204\textsuperscript{C} or 330\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

COMM 391: Writing for Public Relations. 3 credits. Focuses on public relations writing including news releases, client memos, broadcasting, speeches, brochures, journals, and advertisements. Includes writing styles, formats, organization, and writing research. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: COMM 303\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

COMM 392: Public Relations Study Abroad. 3 credits. Concentrated survey course in public relations for business, trade associations, nonprofit organizations, and governmental institutions from the perspective of a location abroad. Emphasis placed on the global and intercultural aspects of public relations. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 395: Special Topics in Health Communication. 3 credits. Topics vary. Notes: May be repeated for credit when topic is different. Offered by Communication (p. 303). May be repeated within the degree.

Schedule Type: Lecture

COMM 396: Special Topics in Mass Communication. 3 credits. Topics vary. Counts toward Media Production and Criticism Concentration in the Communication Department. Notes: May be repeated for credit when topic is different. Offered by Communication (p. 303). May be repeated within the degree.

Schedule Type: Lecture

COMM 397: Special Topics in Production. 1-3 credits. Provides hands-on media production experience. Topics vary. Notes: May be repeated for credit when topic is different. Offered by Communication (p. 303). May be repeated within the term.

Schedule Type: Studio

COMM 398: Research Practicum in Communication. 1-3 credits. Work individually with a faculty member on a faculty research project. Requires readings in research methods and topic area and a final project. Notes: Students must submit an application for COMM 398 at least one week prior to the beginning of the semester. Offered by Communication (p. 303). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 60 credits including at least 9 hours of COMM credit toward the major; minimum GPA of 2.5 overall and 3.0 in the major; approval of department.

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

400 Level Courses

COMM 400: Research Methods in Communication. 3 credits. Explores applications for primary research methodologies used in communication. Research project with focus on survey, critical ethnographic, or experimental methodologies. Notes: Students may not receive credit for both COMM 400 and COMM 490. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to COMM 490.

Specialized Designation: Scholarly Inquiry

Recommended Prerequisite: Two of COMM 300, 301, 302, 305 each one with a minimum grade of 2.00 (C).

Registration Restrictions:
Required Prerequisites: COMM 200\textsuperscript{C} or U200.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

COMM 401: Interpersonal Communication in the Workplace. 3 credits. Comprehensive study of theories and research associated with dynamics of interpersonal relationships in the workplace. Emphasizes individual motivation, interpersonal needs, communication styles, leadership, problem solving, decision making, diversity, interpersonal conflict, individual adaptation to organizational change, and influence of technology on workplace relationships. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 301, or permission of instructor.
COMM 411: Public Relations Practicum. 3 credits.
Helps communication majors apply their public relations education. Covers three general areas: public relations theory and applications, writing and editing, and networking/story placement. Includes public relations strategy and tactics, interviewing and analysis, writing and message delivery. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: COMM 204\(^C\) or 330\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

COMM 412: Politics and the Mass Media. 3 credits.
Covers responsibilities; freedoms of mass media in a democracy; and media influence on citizens’ opinions, elections, and decisions of public officials. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to GOVT 412.

Recommended Prerequisite: GOVT 103 or permission of instructor.

Schedule Type: Lecture

COMM 430: Persuasion. 3 credits.
Theories of persuasive communication including traditional and contemporary attitudinal change; relationship among speaker, message, and audience; and relationship between attitudinal and behavioral change. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 431: New Media and Democracy. 3 credits.
Examines how an evolving media environment, including new information sources and new opportunities to produce content, changes how people understand their place in American society. Engages with questions of where and how people learn about, discuss, and engage with issues of public importance, such as political policy concerning science, health, technology, and society. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: 60 credits or permission of instructor.

Schedule Type: Lecture

COMM 433: Environmental Communication. 3 credits.
Rhetoric and persuasion about environmental issues in contemporary society. Investigation of case studies in corporate, institutional, and movement attempts to mobilize and cope with ecological concerns. Critical assessment of public communication is emphasized. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Lecture

COMM 434: Interviewing. 3 credits.
Theory, principles, and practical skills essential to interview process. Emphasizes information gathering, journalistic, persuasive, employment, and performance-appraisal interviews. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: 60 hours or permission of instructor.

Schedule Type: Lecture

COMM 435: Digital Communication. 3 credits.
Offers practical application, skill development, and theoretical and critical assessment of mediated communication, including digital networking and social media. Discusses and engages with digital communication in terms of culture and language, functional and dysfunctional communication, social interaction, critical perspectives and ideology, copyright, freedom, ethics and responsibility, and images of the future. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: 60 credits.

Schedule Type: Lecture

COMM 440: Ceremonial Speech Writing and Performance. 3 credits.
Provides students with the opportunities to develop speaking skills for a variety of contexts from eulogies to commencement speeches. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: 75+ hours or permission of instructor.

Schedule Type: Lecture

COMM 450: Internship in Communication. 3 credits.
On-the-job training in communication through approved field work study programs. Internships arranged and supervised by Department of Communication through internship coordinator. Related class work in resume preparation and job interviewing. Notes: See department for the application process. Offered by Communication (p. 303). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 60 credits, major or minor in communication, journalism, or sport communication; 15 credits in COMM for majors, 12 credits for non-COMM majors, and permission of department.

Schedule Type: Internship

COMM 451: Facilitating Communication Education. 3 credits.
Theory and practice in facilitating learning of communication principles and skills. Students work as instructional aides in lower-division classes under direct supervision of faculty member. Activities may include online learning support, social media updates, media production, facilitating small-group activities and individually critiquing oral performances. Offered by Communication (p. 303). May not be repeated for credit.

Schedule Type: Independent Study

COMM 452: Media Production Practicum. 1-3 credits.
Theory and practice in creation, distribution, and response to media productions. Students complete minimum 150 hours of work as assistants to engineers, producers, directors, and organizers of media production facilities on campus, under supervision of a sponsoring faculty member. Notes: Only 3 credits may be applied to the communication major. Offered by Communication (p. 303). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: COMM 208, 303, or 348.

Schedule Type: Internship

COMM 453: Multimedia Journalism. 3 credits.
Applies concepts of advanced visual storytelling within today's fluid media landscape. Students report and tell compelling stories across multiple platforms using simple, portable equipment and software
essential to reporters working in the contemporary converged newsroom. Highlights a multimedia approach to journalism to include broadcast, mobile reporting skills and backpack journalism techniques. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** COMM 353.

**Registration Restrictions:**

**Required Prerequisite:** COMM 303C.

**Schedule Type:** Lecture

COMM 454: *Free Speech and Ethics.* 3 credits. Major issues surrounding roles of speech, press, and electronic media in society. Includes history of free speech and press issues in society, government role in regulating marketplace of ideas, and responsibility of individual in free society. Offered by Communication (p. 303). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** 60 credit hours or permission of instructor.

**Schedule Type:** Lecture

COMM 455: *History of Journalism.* 3 credits. Development of print journalism, emphasizing interaction of technology, audience, and government intervention. Topics include birth of press, development of modern newspaper, and American development including Revolutionary and Civil wars, rise of independent press, and yellow journalism. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to HIST 455.

**Recommended Prerequisite:** 3 hours of COMM or HIST.

**Schedule Type:** Lecture

COMM 456: *Comparative Mass Media.* 3 credits. Survey of major foreign mass media systems as they compare with American system. Focuses on broad dimensions of international mass media and describes issues facing global journalism and media systems. Provides substantive framework to critically evaluate various national media systems. Offered by Communication (p. 303). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Schedule Type:** Lecture

COMM 456: *Topics in Communication and Gender.* 3 credits. Topics may include gender and culture, women as rhetors, male and female communication, and communication and gender roles. Examines specific interests, ideally in seminar setting. Notes: May be repeated for credit when topic is different with permission of department. Offered by Communication (p. 303). May be repeated within the term.

**Recommended Prerequisite:**

**Schedule Type:** Lecture

COMM 456: *Structure of the Telecommunications Industry.* 3 credits. Explores complex interrelationships that affect modern telecommunications and how major mergers, acquisitions, regulatory decisions, congressional initiatives, or engineering breakthroughs can profoundly affect telecommunications industry at any given time. Notes: Serves as capstone seminar in telecommunications minor. Offered by Communication (p. 303). May not be repeated for credit.

**Schedule Type:** Lecture

COMM 475: *Journalism Law.* 3 credits. Examines law as it relates to working journalist. Topics include libel, invasion of privacy, free press and fair trial, First Amendment, broadcast regulation, access to media, advertising, and effect of new technologies on these issues. Uses case approach to study leading court decisions in mass media law. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** 60 credits or permission of instructor.

**Schedule Type:** Lecture

COMM 480: *College to Career: Strategies for Transition.* 1 credit. Designed to assist soon-to-be graduates in the employment transition process. Fundamental to the course are effective communication skills, creative research, and the desire to actively and aggressively seek meaningful employment. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** 60+ credits or permission of instructor.

**Schedule Type:** Lecture

COMM 487: *Washington Media Institute.* 3 credits. Special topics offered through the Washington Media Institute. Students must be enrolled in the communication department's professional experience in communication minor. Notes: May not be applied to the communication major or minor. Offered by Communication (p. 303). May be repeated within the degree for a maximum 15 credits.

**Schedule Type:** Lecture

COMM 490: *Honors Research Methods in Communication.* 3 credits. Honors version of COMM 400. Notes: Students may not receive credit for both COMM 400 and 490. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to COMM 400.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** Acceptance to pursue honors in the major.

**Schedule Type:** Lecture

COMM 491: *RS: Honors Research Project in Communication.* 3 credits. Completion of independent honors research project under the guidance of the student's faculty sponsor. Offered by Communication (p. 303). May be repeated within the term.

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** Completion of COMM 490 with minimum grade of 3.0 and approval of honors project prospectus.

**Schedule Type:** Lecture

COMM 498: *RS: Research Projects in Communication.* 3 credits. Students plan, execute, and present an empirical research project exploring communication issues of their own choosing. Offered by Communication (p. 303). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive
Recommended Prerequisite: COMM 200, COMM 400.

Registration Restrictions:
Enrollment is limited to students with a major in Communication.

Enrollment limited to students in a Bachelor of Arts degree.

Schedule Type: Independent Study

COMM 499: Independent Study in Communication. 1-3 credits.
Study of a selected area in communication. Independent study application must be processed before start of semester in which work is to take place. Notes: May be repeated for credit with permission of director of undergraduate program. Communication courses at the 500 level open to post-baccalaureate students or advanced undergraduates with permission of department. Offered by Communication (p. 303). May be repeated within the term.

Recommended Prerequisite: 75 credits and permission of department.

Schedule Type: Independent Study

500 Level Courses

COMM 504: Communication and Interpersonal Conflict. 3 credits.
Focuses on interpersonal interactions, including dyadic and small-group levels in various settings such as friendships, marriage, family, and workplace. Examines factors that generate conflicts and communication strategies and skills that help shape conflict interaction toward productive ends. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 506: Communication in International Organizations. 3 credits.
Analyzes communication variables as they relate to organizational and managerial functions in international organizations. Topics include developing understanding of how cultural differences influence managerial activities and learning to deal effectively with differences. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 530: Theories of Small Group Communication. 3 credits.
Advanced-level theory and practice of small group interaction. Examines current research with a focus on learning applications of theories to relevant settings. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

COMM 600: Introduction to Graduate Studies. 3 credits.
Offers a broad introduction to the field of communication in terms of communication-based theories and research. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: Admission to graduate program in communication or permission of graduate program director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Communication.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 601: Communication in Professional Relationships. 3 credits.
Explores theoretical perspectives and relevant research to communication strategies and skills for various professional roles and situations. Relates theoretical foundations to practice, assessing theories and applications in individual professional fields. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
COMM 602: Theories and Research of Mass Communication. 3 credits. Explores theories that have guided development of mass media. Emphasizes major scientific and humanistic approaches to mass media effects. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 604: Communication Research Practicum. 3 credits. Helps communication master's students determine focus for program of study, thesis, and projects. Includes readings in applied communication research and exercises in topic selection, analysis. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 634 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

COMM 605: Intercultural Communication. 3 credits. Analyzes communication variables related to communication across cultures. Topics include nonverbal communication, time conceptualizations, perceptions and attitudes, values, social organization patterns, cultural norms, language, ethics, conflict across cultures, and research in intercultural communication. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 615: Political Communication. 3 credits. Analyzes how political communication messages and strategies shape the development of perceptions and behavior in US presidential elections. Examines the interactions between media content and political action in election campaigns. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 620: Health Communication. 3 credits. Examines interpersonal communicative processes associated with health in consumer-provider, family, and health communication campaign contexts. Focus on understanding cultural differences in perceptions of/communication about health and disease. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

COMM 630: Theories of Public Relations. 3 credits. Provides a survey of public relations theories and major ethical issues. Examines ways theories relate to organizations, mass and international communication research, rhetoric, persuasion, and social movements. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 631: Approaches to Group Facilitation. 3 credits. Introduces various theoretical and practical approaches to group facilitation with in-depth focus and practice in one approach. Students participate in group sessions, analyze videotapes of decision-making groups, and practice methodologies for facilitating group interaction. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 632: Persuasion Theory. 3 credits. Introduces students to the processes and effects of persuasive communication. Covers key theories of persuasion, behavior change, information processing, message effects, as well as important frameworks that guide the practice of persuasion in applied settings. Particular attention is paid to message features that generate predictable effects and how such effects may vary across different communicative
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situations. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 634: Theories of Interpersonal Communication.** 3 credits.
Analyzes contemporary theories, concepts, and approaches to improving interpersonal communication. Examines interpersonal communication research. Offered by Communication (p. 303). May not be repeated for credit.

**Recommended Prerequisite:** COMM 301 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**COMM 635: Organizational Communication.** 3 credits.
Analyzes communication systems, processes in public and private organizations. Topics include conflict management, group decision making, interviewing, technical presentations, and using various channels for improving internal and external communication. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 636: Communication Consulting.** 3 credits.
Investigates theories providing foundation for communication consulting. Provides theoretical information and mechanisms for application necessary to modify communicative behavior within organizations. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**COMM 637: Risk Communication.** 3 credits.
Research on sharing information about physical hazards such as toxic waste, radiation, disease, injury, biohazards. Topics include communication concerning workplace safety, environmental problems, risk assessments, and scientific uncertainties. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 639: Science Communication.** 3 credits.
Reviews research on best practices in science communication for scientists and communication professionals. Explores theory on conceptualizing science communication as disseminating knowledge, promoting informed decision making, involving citizens in scientific research (i.e., citizen science), promoting legislative and individual actions, or creating entertainment. Students practice communicating complex science and designing contexts for public engagement with scientific research. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 640: Controversies in Science Communication.** 3 credits.
Examines the communication implications related to selected current topics of scientific controversy. Offered by Communication (p. 303). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**COMM 641: Advanced Communication Skills for STEM.** 3 credits.
Examines the specific oral, written, and mediated communication competencies needed by STEM professionals in modern society. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**COMM 642: Science and the Public.** 3 credits.
Examines the relationship between science and society, with a particular emphasis on the role of communication in shaping public opinion on issues related to science and technology. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 644: Analysis and Criticism of Science Journalism.** 3 credits.
Examines media coverage of technically complex topics in science, social science, environment, health and medicine, and technology. Explores the influence of institutional media practices on news about science and technology. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 650: Research Methodologies in Communication.** 3 credits.
Introduces various research methods used by communication professionals. Focus on achieving understanding and knowledge of social scientific research, qualitative and quantitative, and critical analysis through use and application. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Communication.

Enrollment limited to students in the MA Communication, MAIS Interdisciplinary Studies or PHD Communication programs.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**COMM 653: Graduate Seminar in Instructional Communication.** 3 credits.
Investigates theoretical and practical implications of instructional communication. Exposes graduate students to communication principles and practices of teaching college courses at upper and lower divisions. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**COMM 655: Theory and Practice of Digital Communication.** 3 credits.
Applies visual communication theory to the production of digital media. Emphasizes theories in nonfiction digital filmmaking, sound theory for audio production, and ethical and aesthetic topics in digital storytelling. Provides a community engaged learning component allowing students to partner with community organizations to produce digital media tools that address issues of social importance. Offered by Communication (p. 303). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 660: Climate Change and Sustainability Communication Campaigns.** 3 credits.
Offers practical application, skill development, and theoretical basis of communication campaigns developed in response to global warming and other threats to sustainability. Focuses on purposive campaigns to promote changes in individual behavior and public policy. Offered by Communication (p. 303). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**COMM 670: Social Marketing.** 3 credits.
Offers conceptual overview of social marketing: marketing methods designed to influence people to behave in ways that benefit society. Develops skills necessary to conduct a social marketing initiative and provides an opportunity for practical application of those skills. Offered by Communication (p. 303). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 690: Special Topics in Communication. 3 credits.
Explores contemporary issues in communication theory, research, and practice. Notes: Topics vary. May be repeated when topic is different. Offered by Communication (p. 303). May be repeated within the term for a maximum 15 credits.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

COMM 694: Communication Internship. 3 credits.
Students work in approved, professional-level communication position, meeting regularly with internship supervisor from department. Requires paper, journal, minimum 60 hours work for each credit of enrollment. Students usually enroll in internships at end of program of study. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: 18 graduate credits and permission of department.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

COMM 696: Directed Readings and Research. 1-3 credits.
Reading and research on specific topic under direction of faculty member. Written report required; oral or written exam may be required. Offered by Communication (p. 303). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Permission of department.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

COMM 697: Independent Production. 1-3 credits.
Media or creative production activities under direction of faculty member. Requires completed production; written report, oral exam may be required. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: Permission of department.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 700: Building Social Science Theory. 3 credits.
Explores the process of developing and testing social science theories. Emphasizes the components and mechanisms of theory - such as variables and causality - in a manner intended to inform rigorous social science inquiry using quantitative or qualitative methods. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 630 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 705: Intercultural Health and Risk Communication. 3 credits.
Examines intercultural health and risk communication interventions; including health communication campaigns, public relations and advertising for health organizations, and how the media and Internet present health information. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 630 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 706: Strategic Communication. 3 credits.
Examines commonalities of strategic communication campaigns across fields (e.g., military, diplomacy, health, politics, marketing, public relations) in order to understand strategic communication, compare fields, and emphasize strategic and evaluative research across fields. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 630 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
COMM 716: International Public Relations. 3 credits.
Provides a survey of international public relations with an emphasis in three areas: applied knowledge for actual international practice, relevant theory, and ethical issues. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to COMM 806.

Recommended Prerequisite: COMM 706 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 720: Consumer-Provider Health Communication. 3 credits.
Explores relational health communication research and practice. Examines the role of interpersonal communication in health care delivery, health promotion, disease prevention, risk communication, and promoting personal and psychosocial well-being. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 721: E-Health Communication. 3 credits.
Explores the use of computer-mediated communication technologies in health care and health promotion, including examination of technology in health information dissemination, health education, health communication interventions, and the management of health care delivery. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 725: Qualitative Methods. 3 credits.
Examines qualitative research in communication. Emphasis is placed on techniques of naturalistic inquiry such as observation, interviewing, focus group methods, and ethnography, as well as tools for analyzing and reporting qualitative data. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 735: Crisis Communication. 3 credits.
Examines crisis communication contexts with a particular emphasis on the role of communication in a variety of crises and how the media and Internet present crisis information to the public. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 750: Research Methods II. 3 credits.
Extends basic research knowledge and skills learned in COMM 650 Research Methods I. Students will be taught to analyze and synthesize literature, develop theoretical linkages, and construct measurement scales. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 650.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 775: Media Content Analysis. 3 credits.
Introduces content analysis, a research technique for making replicable and valid inferences about text in sources such as news articles, advertisements, and television programs. Students design and conduct research using content analysis techniques. Offered by Communication (p. 303). May not be repeated for credit. Equivalent to COMM 675.

Recommended Prerequisite:

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 798: Communication Studies Project. 3 credits.
Final research seminar for all MA in communication students. Students discuss practical and theoretical issues related to project or thesis. Includes readings related to underlying theoretical, methodological, and ethical issues facing contemporary communication researchers and practitioners. Offered by Communication (p. 303). May not be repeated for credit.

Recommended Prerequisite: COMM 600 and COMM 650.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

COMM 799: Master's Thesis. 1-6 credits.
Original research endeavor related to student's concentration in communication under supervision of faculty committee. Offered by Communication (p. 303). May be repeated within the degree.

Recommended Prerequisite: 24 graduate credits and approval of thesis proposal by faculty committee.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis
800 Level Courses

COMM 800: Studies for the Doctor of Philosophy in Education. 3-6 credits. Program of studies designed by student’s discipline director and approved by doctoral committee. Students participate in research activity of discipline director and write paper reporting original contributions. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

COMM 820: Health Communication Campaigns. 3 credits. Explores use of communication campaigns to promote health and reduce health risks; examines how health communication campaigns are designed, implemented, and evaluated; and describes the role of communication research throughout the campaign process. Offered by Communication (p. 303). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

COMM 890: Special Topics in Communication. 3 credits. Selected topics reflecting specialized areas in communication. Notes: Topics vary. May be repeated for credit when topic is different. Offered by Communication (p. 303). May be repeated within the degree.

Recommended Prerequisite: PhD rank or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture


Recommended Prerequisite: Approval of program director.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

900 Level Courses

COMM 998: Doctoral Dissertation Research. 1-15 credits. Research on an approved dissertation topic under the direction of dissertation committee. Notes: No more than 18 credits of COMM 998 and 999 may be applied to doctoral degree requirements. Offered by Communication (p. 303). May be repeated within the degree.

Recommended Prerequisite: COMM 998.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Computational Science and Informatics (CSI)

500 Level Courses

CSI 500: Computational Science Tools. 3 credits. Introduces computer skills and packages commonly used in quantitative scientific research. Notes: CSI 601 and CSI 602, including additional material, have merged to create CSI 500. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: 1 year of college calculus, knowledge of matrix algebra, and computer programming.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 501: Introduction to Scientific Programming. 3 credits. Introduces and reviews programming in C and FORTRAN with emphasis on the aspects used in the computational and data sciences. Conducted through a combination of both lecture and interactive computer laboratory. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 597: Topics in Science and Engineering Simulation. 3 credits. Covers selected topics in Science and Engineering simulation, not covered in fixed content computational sciences and informatics courses. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Recommendations for credit. Equivalent to CSI 729.

Offered by Computational & Data Sciences (p. 650). May not be repeated at atmospheric problems, and flow considerations in molten materials. energy particle jets in astrophysical applications, application to Earth dynamics, algorithms for concurrent machines, formation of high continuum computations, spectral methods in computational fluid hydrodynamics, algorithms for continuum systems, adaptive grids for Possible topics are smooth-particle hydrodynamics, radiation systems not covered in fixed-content courses in dynamical systems. Covers selected topics in the computational aspects of continuum systems not covered in fixed-content courses in dynamical systems.

CSI 629: Topics in Continuum Systems. 3 credits. Covers selected topics in the computational aspects of continuum systems not covered in fixed-content courses in dynamical systems. Possible topics are smooth-particle hydrodynamics, radiation hydrodynamics, algorithms for continuum systems, adaptive grids for continuum computations, spectral methods in computational fluid dynamics, algorithms for concurrent machines, formation of high energy particle jets in astrophysical applications, application to Earth atmospheric problems, and flow considerations in molten materials. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to CSI 729.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

CSI 600: Quantitative Foundations for Computational Sciences. 3 credits. Accelerated review of mathematical tools for scientific applications and analysis. Topics include vectors and matrices; differential and difference equations; linear systems; Fourier, Laplace, and Z-transforms; and probability theory. Notes: Not applicable to 48-credit course total for CSI PhD. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to SYST 500.

Recommended Prerequisite: MATH 213 and 214.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 606: Scientific Graphics and Visualization Tools. 1 credit. An introduction into the use of scientific visualization tools for data analysis. Use of specific packages will be taught. Packages will include PV-WAVE, S-Plus, XV, XMGR, and the ppm tools on a rotating basis. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Competency in Linux of permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 612: Introduction to Space Weather. 3 credits. Introduction to space weather involving systems such as the sun, the heliosphere, and the Earth's magnetosphere and ionosphere. Covers the solar magnetic field, solar flares, coronal mass ejections, particle acceleration mechanisms, the solar wind, and the Earth's magnetic field, radiation belt, geomagnetic storms, and ionospheric disturbances. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: PHYS 303, PHYS 305, PHYS 307, MATH 213, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 670:** Economic Systems Design. 3 credits.
Introduces analytical and engineering principles used to develop exchange systems. Covers behavioral aspects of auction systems; matching, assignment, and transportation problems; and information markets. Introduces methods for testbedding systems using experimental economics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** Course in linear and nonlinear optimization, and course in linear algebra, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 672:** Statistical Inference. 3 credits.
Covers critical aspects of probability, random variables and distributions, characteristic functions, stochastic convergence, optimal estimation, maximum likelihood estimation, asymptotic theory, Bayesian methods, likelihood ratio tests, statistical decision theory, sequential methods. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 652.

**Registration Restrictions:**
**Required Prerequisites:** STAT 544 and 554.

*May be taken concurrently.

**Schedule Type:** Lecture

**CSI 674:** Bayesian Inference and Decision Theory. 3 credits.
Introduction to quantitative measurements by remote-sensing methods covering quantitative spectroscopy, spectral and thermal signatures, atmospheric physics, and the electromagnetic spectrum. Emphasis on the scientific principles involved and the transition of the technology to real-world applications. The requisite materials to begin to understand hyperspectral imaging (HSI) technology and its many civil and military applications are presented. Covers necessary mathematics used in the analysis of n-dimensional data. Topics include hyperspectral concepts, data collection systems, data processing techniques, case studies, and U.S. national policy issues. Data processing techniques include N-dimensional space, scatterplots, spectral angle mapping, spectral mixture analysis, spectral matching, and other techniques. Applications and case studies include environmental, medical, agricultural, and military. Includes ground, airborne, and spaceborne hyperspectral systems. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 664, SYST 664.

**Recommended Prerequisite:** STAT 544 or CSI 672, or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 676:** Regression Analysis. 3 credits.
Simple and multiple linear regression, polynomial regression, general linear models, subset selection, step-wise regression, and model selection. Also covered are multicollinearity, diagnostics, and model building. Both the theory and practice of regression analysis are covered. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 656.

**Registration Restrictions:**
**Required Prerequisites:** STAT 544 and 554.

*May be taken concurrently.

**Schedule Type:** Lecture

**CSI 678:** Time Series Analysis and Forecasting. 3 credits.
Modeling stationary and nonstationary processes; autoregressive, moving average and mixed model processes; hidden periodicity models; properties of models; autocovariance and autocorrelation functions, and partial autocorrelation function; spectral density functions; identification of models; estimation of model parameters, and forecasting techniques. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 658.

**Registration Restrictions:**
**Required Prerequisites:** STAT 544 and 554.

*May be taken concurrently.

**Schedule Type:** Lecture
CSI 685: Fundamentals of Materials Science. 3 credits.
Covers fundamentals of materials science with emphasis on physical topics including crystal structure and symmetry, dislocation theory, theory of interfaces, multicomponent phase diagrams, theory of phase transformations, nano-materials, metallic glasses. Includes a term project, assignments from current literature, and application of computation in materials science. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to PHYS 615.

Recommended Prerequisite: Undergraduate degree in electrical or mechanical engineering, materials science, physics, chemistry or related disciplines; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 687: Solid State Physics and Applications. 3 credits.
Covers crystal structures, binding, lattice vibrations, free electron model, metals, semiconductors and semiconductor devices, superconductivity, and magnetism. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to PHYS 512.

Recommended Prerequisite: PHYS 502 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 690: Numerical Methods. 3 credits.
Covers computational techniques for solving science, engineering problems. Develops algorithms to treat typical problems in applications, emphasizing types of data encountered in practice. Covers theoretical development as well as implementation, efficiency, and accuracy issues in using algorithms and interpreting results. When applicable, uses computer graphical techniques to enhance interpretation. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to CSI 700, MATH 685, OR 682.

Recommended Prerequisite: MATH 203 and 214 or equivalent, and some programming experience.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 695: Scientific Databases. 3 credits.
Study of database support for scientific data management. Covers requirements and properties of scientific databases, data models for statistical and scientific databases, semantic and object-oriented modeling of application domains, statistical database query languages and query optimization, advanced logic query languages, and case studies such as the human genome project and Earth-orbiting satellites. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to CSI 710.

Recommended Prerequisite: INFS 614 or equivalent, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

CSI 701: Foundations of Computational Science. 3 credits.
Covers mapping of mathematical models to computer software, including all aspects of developing scientific software such as architecture, data structures, advanced numerical algorithms, languages, documentation, optimization, validation, verification, and software reuse. Examples in bioinformatics, computational biology, computational physics, and global change demonstrate scientific advances enabled by computation. Class projects involve working in teams to develop software that implements mathematical models, using software to address important scientific questions, and conducting computational experiments with it. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Competency in UNIX and programming at CSI 501 level, and CSI 690; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 702: High-Performance Computing. 3 credits.
Hardware and software associated with high-performance scientific computing. Computer architectures, processor design, programming paradigms, parallel and vector algorithms. Emphasizes importance of software scalability in science problems. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Competency in Linux and programming at CSI 501 level or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
CSI 703: Scientific and Statistical Visualization. 3 credits.
Covers visualization methods used to provide new insights and intuition concerning measurements of natural phenomena and scientific and mathematical models. Presents case studies from myriad disciplines. Topics include human perception and cognition, introduction to graphics laboratory, elements of graphing data, representation of space-time and vector variables, representation of 3-D and higher dimensional data, dynamic graphical methods, and virtual reality. Work on a visualization project required. Emphasizes software tools on Silicon Graphics workstation, but other workstations and software may be used. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: STAT 554 or CS 551, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 709: Topics in Computational Sciences and Informatics. 3 credits.
Covers selected topics in computational sciences and informatics not covered in fixed-content computational sciences and informatics courses. Offered by Computational & Data Sciences (p. 650). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: Admission to the PhD program and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 711: Chemical Thermodynamics and Kinetics. 3 credits.
Advanced study of thermodynamics and kinetics. Covers application of kinetics to elucidation of reaction mechanisms and application of statistical thermodynamics to theory of elementary reaction rates. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to CHEM 633.

Recommended Prerequisite: CHEM 331 and 332.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 712: Introduction to Solid Surfaces. 3 credits.
Includes gas absorption isotherms, surface-area measurement techniques, real and clean surfaces, physisorption and chemisorption, methods of gas absorption and desorption, measurement of heats of adsorption, desorption kinetics, electron spectroscopies and their surface sensitivities, instrumentation needed, and principles of vacuum technology. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to CHEM 728.

Recommended Prerequisite: CHEM 422 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 713: Quantum Chemistry. 3 credits.
Illustrates fundamental concepts of quantum mechanics with applications to chemical systems, including atomic and molecular electronic structure and properties, molecular symmetry, and intermolecular forces. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CHEM 332.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 714: Spectroscopy and Structure. 3 credits.
Covers quantum mechanics of the interaction of atoms and molecules with electromagnetic radiation. Also covers modern spectroscopic methods as applied to the elucidation of molecular structure and dynamics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CHEM 332.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 719: Topics in Computational Chemistry. 3 credits.
Covers selected topics in computational chemistry not covered in fixed-content computational chemistry courses. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 720: Fluid Mechanics. 3 credits.
Covers basic and advanced fluid mechanics and continuous hypothesis to define fluids. Introduces tensor analysis; Euclidean and Lagrangian representations of fluid flow; Laplace’s equation; continuity equation; Navier-Stokes equations; Bernoulli’s theorem and Crocco’s form of the equations; steady and unsteady flows; potential, incompressible, and compressible flows; gravity and sound waves; gas dynamics; and viscous flows. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSI 690 and CSI 780, or permission of instructor.
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 721: Computational Fluid Dynamics I. 3 credits.
Covers fundamentals including spatial and temporal approximation techniques for partial differential equations, solution of large systems of equations, data structures, solvers of the Laplace/ full potential equation, and simple Euler solvers. Includes two major projects: Laplace solver and 2-D Euler solver on unstructured grids. Students expected to write their own codes. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Course in partial differential equations such as MATH 678 or equivalent; knowledge of linear algebra at level of MATH 603 or CSI 740/MATH 625; coding experience in FORTRAN or C; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 722: Computational Fluid Dynamics II. 3 credits.
Covers more advanced topics in computational fluid dynamics, including high-resolution schemes for hyperbolic PDEs, advanced Euler solvers, Navier-Stokes solvers, grid generation, adaptive mesh refinement, efficient use of supercomputing hardware, and future trends. Projects include topics in grid generation and adaptive refinement. Students expected to write their own codes. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSI 721 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 723: Fluid Mechanics II. 3 credits.
Covers gas dynamics, shock waves, method of characteristics, boundary layer flows, instabilities, and turbulence modeling. Special topics include biological, non-Newtonian, and free surface flows; aeroelasticity; and magneto-hydrodynamics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSI 720 or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 724: Linear and Nonlinear Modeling in the Natural Sciences. 3 credits.
Develops tools of mathematical modeling while carrying out numerical simulations. Considers examples from across the sciences. Topics include basic issues such as models, simplification, linearity, and nonlinearity; dimensionless parameters; dimensional analysis; models involving differential equations; examples from population growth and chemical kinetics; models involving partial differential equations; diffusion, transport, nonlinearity and shocks; probabilistic modeling; perturbation methods; extrapolation; and introduction to stability. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 720 or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 721: Computational Fluid Dynamics I. 3 credits.
Covers fundamentals including spatial and temporal approximation techniques for partial differential equations, solution of large systems of equations, data structures, solvers of the Laplace/ full potential equation, and simple Euler solvers. Includes two major projects: Laplace solver and 2-D Euler solver on unstructured grids. Students expected to write their own codes. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Course in partial differential equations such as MATH 678 or equivalent; knowledge of linear algebra at level of MATH 603 or CSI 740/MATH 625; coding experience in FORTRAN or C; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Students in a Non-Degree Undergraduate degree may not enroll.

**Recommended Prerequisite:** MATH 213 and 216, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

**CSI 747: Nonlinear Optimization and Applications.** 3 credits.
Introduction to practical aspects of nonlinear optimization. Covers applications of optimization algorithms to solving problems in science and engineering. Applications include data analysis, materials science, nanotechnology, mechanics, optical design, shape design, and trajectory optimization. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** ASTR 530 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

**CSI 763: Statistical Methods in Space Sciences.** 3 credits.
Covers statistical and data analysis methods applicable to problems in space science, remote sensing, and astrophysics. Includes parametric and nonparametric hypothesis testing, parameter estimation, correlation analysis, time series analysis, spatial analysis, and image reconstruction. Emphasizes imperfect nature of actual data sets and hypothesis. Examples drawn from current space science research. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** ASTR 530.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

**CSI 672: Computational Astrophysics.** 3 credits.
Covers statistical mechanics concepts important in astrophysics. Presents unified approach to particle acceleration and interaction theory based on analytical and numerical analysis of Boltzmann and Liouville equations. Discusses computational methods relevant to particle transport problems, with emphasis on Fokker-Planck and Monte Carlo solution techniques. Applications from space sciences include studies of cosmic ray acceleration, photon comptonization, particle transport in the near-Earth environment, energy transport in stellar atmospheres, and self-gravitating system dynamics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to ASTR 764.

**Recommended Prerequisite:** ASTR 530.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

**CSI 771: Computational Statistics.** 3 credits.
Covers basic computationally intensive statistical methods and related methods, which would not be feasible without modern computational resources. Covers nonparametric density estimation including kernel methods, orthogonal series methods and multivariate methods, recursive methods, cross-validation, nonparametric regression, penalized smoothing splines, the jackknife and bootstraping, computational aspects of exploratory methods including the grand tour, projection pursuit, alternating conditional expectations, and inverse regression methods. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 751.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

**CSI 772b: B- Requires minimum grade of B-.**

Enrollment is limited to Graduate or Non-Degree level students.

**Recommended Prerequisite:** CSI 672b.
Schedule Type: Lecture

CSI 772: Statistical Learning. 3 credits.
Focuses on statistical learning theory by introducing the statistical and optimization background essential for developing new efficient statistical learning algorithms. Also discusses applications of statistical learning algorithms to the solution of important problems in many areas of science. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 772.

Registration Restrictions:
Required Prerequisites: STAT 652B or CS 672B.
B: Requires minimum grade of B.
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 773: Statistical Graphics and Data Exploration. 3 credits.
Exploratory data analysis provides a reliable alternative to classical statistical techniques, which are designed to be the best possible when stringent assumptions apply. Topics include graphical techniques such as scatter plots, box plots, parallel coordinate plots, and other graphical devices; re-expression and transformation of data; influence and leverage; and dimensionality reduction methods such as projection pursuit. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 663.

Recommended Prerequisite: A 300-level statistics course and a programming course, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 775: Graphical Models for Inference and Decision Making. 3 credits.
Theory and methods for inference and decision making in environments characterized by uncertain information. Covers graphical probability and decision models. Studies approaches to representing knowledge about uncertain phenomena, and planning and acting under uncertainty. Topics include knowledge engineering, exact and approximate inference in graphical models, learning in graphical models, temporal reasoning, planning, and decision-making. Practical model-building experience provided. Students apply what they learn to a project of their own choosing. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to OR 719, STAT 719.

Recommended Prerequisite: STAT 652 or STAT 664 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 777: Principles of Knowledge Mining. 3 credits.
Principles and methods for synthesizing task-oriented knowledge from computer data and prior knowledge and presenting it in human-oriented forms such as symbolic descriptions, natural language-like representations, and graphical forms. Topics include fundamental concepts of knowledge mining; methods for target data generation and optimization; statistical and symbolic approaches; knowledge representation and visualization; and new developments such as inductive databases, knowledge generation languages, and knowledge scouts. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: INFS 614 or equivalent, or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 779: Topics in Computational Statistics. 3 credits.
Selected topics in computational statistics not covered in fixed-content computational statistics courses. Offered by Computational & Data Sciences (p. 650). May be repeated within the term.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 780: Principles of Modeling and Simulation in Science. 3 credits.
Applies numerical methods to study of variety of physical systems, with emphasis on modeling and simulation. Develops numerical algorithms and simulation codes to gain understanding of mechanisms, processes in physical systems. Includes several projects drawn from such areas as atomic and molecular interactions, molecular dynamics, lattice dynamics, quantum systems, chaos, percolation, random walks, aggregation mechanisms of soft solids, nanomaterials, and nonlinear dynamics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Competency in programming at CSI 501 level and college physics, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSI 782: Statistical Mechanics for Modeling and Simulation. 3 credits.
Studies microcanonical, canonical, and grand canonical ensembles and fluctuations, as well as Fermi-Dirac and Bose-Einstein statistics. Modeling of ideal, dilute, and diatomic gases, liquids, and crystals. Also covers Liouville equation and simulation in classical statistical mechanics. Introduces Brownian motion, kinetic theory, and transport processes. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSI 690, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 783:** Computational Quantum Mechanics. 3 credits.
Studies fundamental concepts of quantum mechanics from computational point of view, review of systems with spherically symmetric potentials, many electron atom solutions to Schrodinger’s equation, electron spin in many-electron systems, atomic structure calculations, algebra of many-electron calculations, Hartree-Fock self-consistent field method, molecular structure calculations, scattering theory computations, and solid-state computations. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to CHEM 736, PHYS 736.

**Recommended Prerequisite:** PHYS 502 and PHYS 613/ CSI 780, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 785:** Molecular Dynamics Modeling. 3 credits.
Introduces simulation methods in physical chemistry sciences. Covers computational approaches to modeling molecular and condensed matter systems, including interatomic and molecular potentials, molecular dynamics, time averages, ensemble distributions, numerical sampling, thermodynamic functions, response theory, transport coefficients, and dynamic structure. Includes stochastic simulations such as Brownian motion, Langevin dynamics, Monte Carlo methods and random walks, and introduction to cellular automata. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSI 690 or equivalent, CSI 780 or CHEM 633/CSI 711, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 787:** Computational Materials Science. 3 credits.
Covers selected topics in computational aspects of condensed matter, such as methods of electronic structure calculations, surface science, molecular clusters, lattice dynamics, nanomaterials, semiconductors, superconductivity, magnetism, Hubbard model, mesoscopic systems, and liquids. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** PHYS 512/CSI 687 and PHYS 736/CSI 783, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 788:** Simulation of Large Scale Systems. 3 credits.
Study of diverse, large-scale physical systems with emphasis on modeling and simulation. Students will undertake several projects which will draw from such areas as many-body dynamics, atmospheric structure and dynamics, high-temperature plasmas, stellar structure, hydro dynamical systems, galactic structure and interactions, and cosmology. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSI 690 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CSI 793:** Research Project. 1-3 credits.
Research project chosen and completed under guidance of a graduate faculty member, resulting in acceptable technical report. The course is accepted for credit toward the Master in Computational Science (COMP) and is not accepted for the PhD in Computational Sciences and Informatics (CSI). Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** 12 graduate credits in the Master in Computational Science and permission of the graduate coordinator.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis
CSI 799: Master's Thesis. 1-6 credits.
Project chosen and completed under guidance of graduate faculty member, resulting in acceptable technical report (master's thesis) and oral defense. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree.

**Recommended Prerequisite:** Completion of twelve graduate credits and Permission of Instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

### 800 Level Courses

**CSI 854: Hyperspectral Imaging Applications.** 3 credits.
Includes advanced hyperspectral concepts, multisystems tradeoffs, data collection and processing systems, imaging radar systems, laser systems, data fusion, calibration and data compression techniques, remote sensing and U.S. national policy. Applications include environmental, homeland security, medical, military, disaster mitigation, agricultural, and transportation topics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to GGS 840.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CSI 873: Computational Learning and Discovery.** 3 credits.
Presents modern ideas, theories, and methods for computational learning and discovery, along with relevant applications including medical diagnosis, Earth science data analysis, and neuronal modeling. Includes background elucidation of fundamental concepts in computational learning, addressing discovery of equations, theory of causality, and comparison with biological and cognitive models. Students make presentations on topics of their research interest and work on projects involving state-of-the-art systems. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to GGS 763.

**Recommended Prerequisite:** CS 580 or equivalent or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Post-Baccalaureate or Non-Degree Undergraduate degrees may **not** enroll.

**Schedule Type:** Lecture

**CSI 876: Measure and Linear Spaces.** 3 credits.
Covers measure theory and integration, convergence theorems, and the theory of linear spaces and functional analysis, including normed linear spaces, inner product spaces, Banach and Hilbert spaces, Sobolev spaces, and reproducing kernels. Topics include wavelets, applications to stochastic processes, and nonparametric functional inference. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 876.

**Recommended Prerequisite:** IT 776 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CSI 877: Geometric Methods in Statistics.** 3 credits.
Develops foundations of geometric methods for statistics. Topics include n-dimension Euclidian geometry; projective geometry; differential geometry, including curves, surfaces, and n-dimensional differentiable manifolds; and computational geometry, including computation of convex hulls, tessellations of two-, three-, and n-dimensional spaces, and finite element grid generation. Examples include applications to scientific visualization. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 877.

**Recommended Prerequisite:** STAT 690 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CSI 885: Atomic Modeling of Materials.** 3 credits.
Advanced course focusing on utilization of atomistic modeling and computer simulation techniques to analyze structure of crystalline materials. Introduces modern methodology of largescale atomistic simulations and provides hands-on experience through numerous examples and homework assignments based on simulation packages. Provides background knowledge on theory of lattice defects (point defects, interfaces, dislocations) and thermal and mechanical properties of solid materials (plastic deformation, fracture). Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSI 685, 700, and 786, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CSI 898: Research Colloquium in Computational Sciences and Informatics.** 1 credit.
Presentations in specific research areas in computational sciences and informatics by faculty and staff members and professional visitors. Notes: A maximum 3 credits of CSI 898, 899, and 991 may be applied to PhD. Offered by Computational & Data Sciences (p. 650). May be repeated within the term.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**CSI 899: Colloquium in Computational Sciences and Informatics.** 1 credit.
Presentations in specific research areas in computational sciences and informatics by faculty and staff members and professional visitors. Notes: A maximum 3 credits of CSI 898, 899, and 991 may be applied to PhD. Offered by Computational & Data Sciences (p. 650). May be repeated within the term.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture
900 Level Courses

**CSI 971: Probability Theory.** 3 credits.
A rigorous measure-theoretic treatment of probability. Includes expectation, distributions, laws of large numbers and central limit theorems for independent random variables, characteristic function convergence, and Markov chains. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 971.

Registration Restrictions:
Required Prerequisites: STAT 544B and MATH 315C.
B- Requires minimum grade of B-.
C Requires minimum grade of C.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

**CSI 972: Mathematical Statistics I.** 3 credits.
Focuses on theory of estimation, exploring method of moments, least squares, maximum likelihood, and maximum entropy methods. Details methods of minimum variance unbiased estimation. Other topics include sufficiency and completeness of statistics, Fisher information, Cramer-Rao bounds, Bhattacharyya bounds, asymptotic consistency and distributions, statistical decision theory, minimax and Bayesian decision rules, and applications to engineering and scientific problems. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 972.

Registration Restrictions:
Required Prerequisites: (CSI 672B or STAT 652B) and (CSI 876B, IT 876B, STAT 876B, IT 971B or STAT 971B).
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

**CSI 973: Mathematical Statistics II.** 3 credits.
Concentrates on theory of hypothesis testing. Topics include characterizing the decision process; simple versus simple hypothesis tests; Neyman Pearson Lemma; and uniformly most powerful, unbiasedness, invariance, randomized, and sequential tests. Applies testing principles to situations in normal distribution family and other families of distributions. Notes: Continuation of CSI 972. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit. Equivalent to STAT 973.

Registration Restrictions:
Required Prerequisite: CSI 972B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

**CSI 978: Statistical Analysis of Signals.** 3 credits.
Advanced course in analysis of discrete- and continuous-time signals using methods of stochastic differential equation and time series. Presumes familiarity with methods of harmonic analysis and times series modeling. Topics include state-space modeling and eigenvalue processing, nonlinear modeling of signals, non-Gaussian stochastic process structure, detection and estimation of vector-valued signals, robust signal detection, and array processing and target tracking. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: STAT 544 and 658, or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

**CSI 979: Advanced Topics in Computational Statistics.** 3 credits.
Covers selected topics in computational statistics not covered in fixed-content computational statistics courses. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

**CSI 986: Advanced Topics in Large-Scale Physical Simulation.** 3 credits.
Covers simulation of physical systems not covered in fixed-content physical simulation courses. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

**CSI 991: Seminar in Scientific Computing.** 1 credit.
Considers selected topics in specific area of computational sciences and informatics not covered in fixed-content courses or as extension of fixed-content courses. Format for presentation is seminar with student participation. Notes: Maximum 3 credits of CSI 898, 899, and 991 may be applied to PhD. Offered by Computational & Data Sciences (p. 650). May be repeated within the term.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

**CSI 996: Doctoral Reading and Research.** 1-6 credits.
Reading and research on specific topic in computational sciences and informatics under direction of faculty member. May be repeated for a total of 6 credits. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to doctoral program, permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Research

**CSI 998: Doctoral Dissertation Proposal.** 1-12 credits.
Covers development of research proposal under guidance of dissertation director and doctoral committee. Proposal forms basis for doctoral dissertation. Notes: No more than 12 credits of CSI 998 may be applied to
doctrinal degree. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree.

**Recommended Prerequisite:** Permission of advisor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**CSI 999: Doctoral Dissertation.** 1-12 credits.
Involves doctoral dissertation research under direction of dissertation director. Notes: No more than 24 credits in CSI 998 and 999 may be applied to doctoral degree. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non-Degree or Senior Plus.

**Recommended Prerequisite:**
Offered by Computational & Data Sciences. May not be repeated for credit.

**CSS 600: Introduction to Computational Social Science.** 3 credits.
Graduate-level introduction to computational concepts, principles, and modeling approaches in social sciences, emphasizing simulations and elements of complexity theory as they apply to social phenomena. Survey includes system dynamics, cellular automata, and agent-based models. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non-Degree or Senior Plus.

**Recommended Prerequisite:**
CSS 600 or permission of instructor.

**Recommended Prerequisite:**
Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non-Degree or Senior Plus.

**Schedule Type:** Seminar

**CSS 605: Object-Oriented Modeling in Social Science.** 3 credits.
Presents and applies concepts and principles from object-based modeling paradigm. Emphasizes Unified Modeling Language (UML) to render structure and operation of complex social systems and processes. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:**
CSS 600 or approval from instructor or program director. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non-Degree or Senior Plus.

**Recommended Prerequisite:**
Offered by Computational & Data Sciences. May not be repeated for credit.

**CSS 610: Agent-based Modeling and Simulation.** 3 credits.
Provides hands-on examination of agent-based models in social sciences by examining and experimenting with variety of social-simulation projects conducted in modeling environments such as Swarm, Repast, Ascape, and MASON (Multi-Agent Simulator of Networks and Neighborhoods). Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:**
CSS 600 or permission of instructor.

**Registration Restrictions:**
Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non-Degree or Senior Plus.

**Schedule Type:** Seminar

**CSS 620: Origins of Social Complexity.** 3 credits.
Examines when, where, and how social complexity emerged in human societies, emphasizing long-term analysis and comparative information processing in four civilizations of the ancient world: West Asia, East Asia, Andean Peru, and Mesoamerica. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:**
CSS 600 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non-Degree or Senior Plus.

**Schedule Type:** Lecture

**CSS 625: Complexity Theory in the Social Sciences.** 3 credits.
Examines social phenomena including language, terrorism, the Internet, warfare, and wealth based on power laws and far-from equilibrium nonlinear dynamics. Emphasizes data analysis, and modeling and interpreting complexity-theoretic dynamics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:**
CSS 600. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non-Degree or Senior Plus.

**Schedule Type:** Seminar

**CSS 630: Comparative Computational Social Science.** 3 credits.
Applies comparative method for analyzing different types of computational models in the social sciences. Strong crossdomain and interdisciplinary emphasis akin to comparative economic systems,
government, or linguistics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSS 600 or permission of instructor. Concurrent enrollment is also permitted.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CSS 635:** *Cognitive Foundations of Computational Social Science*. 3 credits. Examines cognitive foundations and information processing in computational social agents and compares to human cognitive phenomena, including emotions, trust, and reciprocity. Emphasizes modeling project. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSS 600 and CSS 610 or permission of instructor. Concurrent enrollment is also permitted.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CSS 640:** *Human and Social Evolutionary Complexity*. 3 credits. Examines long-term evolution of human and societal complexity from global and cross-cultural perspective with emphasis on computational aspects leading to today's globalization. Global history from the computational social science perspective. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSS 600, 620, and permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CSS 643:** *Land-Use Modeling Techniques and Applications*. 3 credits. Survey of literature on spatially explicit empirical models of land-use change. Hands-on experience developing and running simple models. Techniques include statistical models, mathematical programming models, cellular automata, agent-based models, and integrated models. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSS 600 (may be taken concurrently) or permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CSS 645:** *Spatial Agent-Based Models of Human-Environment Interactions*. 3 credits. Discusses key challenges in spatial modeling of human-environment interactions. Reviews agent-based modeling applications in urban and rural interactions, agriculture, forestry, and other areas. Hand-on development of simple ABM models. Investigates linkages between GIS and ABM. Notes: CSS 600 may be taken concurrently. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** GGS 631 or CSS 600 (may be taken concurrently) or permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CSS 650:** *Physics Methods for Analyzing Social Complexity*. 3 credits. Surveys complexity theoretic tools including strange attractors, Ising models, correlation functions, ergodic theory, power spectra, meanfield theory, and renormalization group. Emphasizes application to social, economic, or political systems. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CSS 600 and permission of instructor. Concurrent enrollment is also permitted.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CSS 655:** *Social Systems Dynamics*. 3 credits. Introduces systems dynamics modeling of social systems governed by levels/rates or stocks/flows processes, with applications to global modeling, terrorism, urban dynamics, organizations, and social and international conflict. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.
CSS 695: Agent-based Computational Economics. 3 credits. Present lectures on neoclassical economic theory as we investigate how to use agent technology to move beyond neoclassical specifications. Survey the most well-known results in agent-based economics. Read and present papers that are at the research frontier. A semester long research project. Will be the focal point of weekly model development (coding), data analysis, and writing. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSS 610. Undergraduate microeconomics.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CSS 665: Complex Adaptive Systems in Public Policy. 3 credits. Students learn (i) basic concepts of complex adaptive systems (CAS) and how they can be applied to policy analysis, and (ii) how to use agent-based modeling as a tool for policy analysis. Address modeling issues on representing a system, agent decision making, validation, experiment design and analysis, as well as incorporating empirical data and methods to inform agent-based modeling. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSS 692: Social Network Analysis. 3 credits. Methods and applications that examine complex social systems based on relations, structures, connectivity, matrix representations, location, roles, interactions, and other network properties. Applications to terrorism, cognition, organizations, and other social phenomena. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSS 600. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CSS 695: Agent-based Computational Economics. 3 credits. Present lectures on neoclassical economic theory as we investigate how to use agent technology to move beyond neoclassical specifications. Survey the most well-known results in agent-based economics. Read and present papers that are at the research frontier. A semester long research project. Will be the focal point of weekly model development (coding), data analysis, and writing. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSS 610. Undergraduate microeconomics.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSS 710: Advanced Agent-based Modeling and Simulation. 3 credits. Cover topics related to large-scale agent models including how to 1) make use of available compute resources (CPU and memory) through threading and related code parallelization ideas and technologies; 2) sample data from large-scale models and calibrate/estimate such models, and 3) design experiments for models that are expensive to evaluate. Digress into other topics at the frontier of agent modeling. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CSS 610.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSS 739: Topics in Computational Social Science. 3 credits. Selected topics in computational social science not covered in fixed-content computational social science courses. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CSS 796: Directed Reading and Research. 3 credits. Reading and research on specific topic in computational social science under direction of a faculty member. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

CSS 798: Research Project. 3 credits. Project chosen and completed under guidance of graduate faculty member, resulting in acceptable technical report. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 6 credits.
Recommended Prerequisite: 12 graduate core requirement credits and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

800 Level Courses

CSS 898: Research Colloquium in Computational Social Science. 1 credit. Presentations in specific research areas in computational social science by Center for Social Complexity-associated faculty and professional visitors. Notes: Maximum 3 credits of CSS 898 and 899 may be applied toward PhD. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CSS 899: Colloquium in Computational Social Science. 1 credit. Presentations in variety of areas of computational social science by Center for Social Complexity-associated faculty and professional visitors. Notes: Maximum 3 credits of CSS 898 and 899 may be applied toward PhD. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 2 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

900 Level Courses

CSS 909: Advanced Topics in Computational Social Science. 3 credits. Covers selected topics in computational social science and socioinformatics not covered in fixed-content courses. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CSS 996: Doctoral Reading and Research. 1-12 credits. Reading and research on specific topic in computational social science under direction of faculty member. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Admission to the doctoral program and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Research

CSS 998: Doctoral Dissertation Proposal. 1-12 credits. Covers development of research proposal, which forms basis for doctoral dissertation, under guidance of dissertation director and doctoral committee. Notes: Candidates must complete a combined minimum of 12 credits of doctoral proposal (CSS 998) and doctoral dissertation research (CSS 999), of which at least three credits must be of CSS 999. A combined maximum of 24 credits of CSS 998 and CSS 999 may be applied to the degree. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree.

Recommended Prerequisite: Permission of advisor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CSS 999: Doctoral Dissertation. 1-12 credits. Doctoral dissertation research under direction of dissertation director. Notes: Candidates must complete a combined minimum of 12 credits of doctoral proposal (CSS 998) and doctoral dissertation research (CSS 999), of which at least three credits must be of CSS 999. A combined maximum of 24 credits of CSS 998 and CSS 999 may be applied to the degree. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree.

Recommended Prerequisite: Approval of dissertation proposal.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

100 Level Courses

CDS 101: Introduction to Computational and Data Sciences. 3 credits. Introduction to the use of computers in scientific discovery through simulations and data analysis. Covers historical development and current trends in the field. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Recommended Prerequisite: Appropriate score on the math placement test.

Schedule Type: Lecture

CDS 102: Introduction to Computational and Data Sciences Lab. 1 credit. Experiments in computational and data sciences explore the connections between on-going advances in the natural sciences and the rapid advances in computing and data handling. Lab exercises demonstrate the use of computers in analyzing data, in modeling science problems, and in creating numerical simulations across the science disciplines. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Recommended Prerequisite: CDS 101. Concurrent enrollment is permitted.

Schedule Type: Laboratory
**CDS 130: Computing for Scientists.** 3 credits. Covers use of computers to solve practical scientific problems. Topics include creating effective scientific presentations, analysis of experimental data, online literature, data/information ethics, scientific modeling, and communication/collaboration tools. Designed to equip students with the knowledge and confidence they need to use future hardware and software systems both as students and throughout their scientific careers. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Mason Core:** Information Technology: With Ethics (p. 135)

**Recommended Prerequisite:** Passing score on the math placement test for MATH 110 or MATH 113.

**Schedule Type:** Lecture

**CDS 151: Data Ethics in an Information Society.** 1 credit. Examination of ethical issues related to access and use of information and data in the Internet age, for the general student, with special emphasis on ethical issues that apply to the proper use and interpretation of scientific and technical information. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Mason Core:** Information Technology: Ethics Only (p. 135)

**Schedule Type:** Lecture

**200 Level Courses**

**CDS 201: Introduction to Computational Social Science.** 3 credits. Undergraduate-level introduction to computational concepts, principles, and modeling approaches in social sciences, emphasizing simulations and elements of complexity theory as they apply to social phenomena. Survey includes systems dynamics, cellular automata, and agent-based models. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Schedule Type:** Lecture

**CDS 205: Introduction to Agent-based Modeling and Simulation.** 3 credits. Undergraduate-level introduction to Agent-based Modeling. Provides a background onto why agent-based models and hands-on examination of agent-based models in the social sciences by examining and experimenting with a variety of social simulation projects. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Schedule Type:** Lecture

**CDS 230: Modeling and Simulation I.** 3 credits. This course expands upon the foundation provided by CDS 130. Fundamental computational modeling techniques are used in a variety of disciplines with special emphasis on biological systems. Continued development of algorithmic thinking skills will be done using different computational environments. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CDS 130 or permission of instructor.

**Schedule Type:** Lecture

**CDS 251: Introduction to Scientific Programming.** 3 credits. Focuses on elements of programming using the Fortran language and selected elements of the C language with emphasis on the aspects used in the computational and data sciences. Conducted through a combination of lecture and interactive computer laboratory. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CDS 130 or permission of instructor.

**Schedule Type:** Lecture

**CDS 290: Topics in Computational and Data Sciences.** 1-4 credits. Selected topics in Computational and Data Sciences. May be accepted for credit by CDS majors and CDS minors. Offered by Computational & Data Sciences (p. 650). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Independent Study

**CDS 292: Introduction to Social Network Analysis.** 3 credits. An introduction to methods and applications that examine social systems based on relations, structures, connectivity, location, roles, interactions, and other network properties. Example applications of Social Network Analysis covered will include politics, diseases, organizations, along with a variety of other social phenomena. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Schedule Type:** Lecture

**300 Level Courses**

**CDS 301: Scientific Information and Data Visualization.** 3 credits. The techniques and software used to visualize scientific simulations, complex information, and data visualization for knowledge discovery. Includes examples and exercises to help students develop their understanding of the role visualization plays in computational science and provides a foundation for applications in their careers. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CDS 101 or CDS 130 or equivalent, or permission of instructor.

**Schedule Type:** Lecture

**CDS 302: Scientific Data and Databases.** 3 credits. Data and databases used by scientists. Includes basics about database organization, queries, and distributed data systems. Student exercises will include queries of existing systems, along with basic design of simple database systems. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** CDS 101 or CDS 130 or equivalent, or permission of instructor.

**Schedule Type:** Lecture

**CDS 303: Scientific Data Mining.** 3 credits. Data mining techniques from statistics, machine learning, and visualization to scientific knowledge discovery. Students will be given a set of case studies and projects to test their understanding of this field and provide a foundation for future applications in their careers. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CDS 101 or CDS 130 or equivalent, or permission of instructor.

**Schedule Type:** Lecture
400 Level Courses

CDS 410: Numerical Analysis II. 3 credits.
Numerical differentiation and integration, initial-value and boundary-value
problems for ordinary differential equations, methods of solution of
partial differential equations, iterative methods of solution of nonlinear
systems, and approximation theory. Offered by Computational &
Data Sciences (p. 650). May not be repeated for credit. Equivalent to
MATH 447.

Recommended Prerequisite: MATH 214 and MATH 446, proficiency in
at least one computer programming language and computer operating
system; or permission of instructor.

Schedule Type: Lecture

CDS 411: Modeling and Simulation II. 3 credits.
Covers the application of modeling and simulation methods to various
scientific applications, including fluid dynamics, solid mechanics,
materials science, molecular mechanics, and astrophysics. Provides
an introduction to modeling and simulation software, as well as high-
performance computing. Offered by Computational & Data Sciences (p. 650).
May not be repeated for credit.

Recommended Prerequisite: MATH 446, PHYS 262 or PHYS 245, and
a 200- or higher-level computational methods course, or permission of
instructor.

Schedule Type: Lecture

CDS 421: Introduction to Computational Fluid Dynamics. 3 credits.
Covers the governing equations of fluid dynamics; numerical
discretization of the governing equations and popular techniques
for solving flow problems; applications of CFD to some classic fluid
dynamics problems; and setting up the CFD simulation using a CFD
software package. Students will understand the process of developing a
geometrical model of the flow, applying appropriate boundary conditions,
specifying solution parameters, and visualizing the results. Students are
expected to complete several computer projects, including writing their
own CFD computer program to analyze simple fluid flow problems, as
well as setting up the CFD simulation using a CFD software package.
Offered by Computational & Data Sciences (p. 650). May not be repeated
for credit.

Recommended Prerequisite: MATH 446, proficiency in at least one
computer programming language and computer operating system, or
permission of instructor.

Schedule Type: Lecture

CDS 461: Molecular Dynamics and Monte Carlo Simulations. 3 credits.
Covers particle methods to solve variety of physical systems.
Emphasizes study and development of numerical results and
visualization of these results in complex physical systems. Applications
and projects include stellar and galaxy dynamics, smoothed particle
hydrodynamics, plasma simulations, and semiconductor device theory
algorithms on parallel and vectorized systems. Offered by Computational
& Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: Competency in programming at CDS 251
level, college physics, and MATH 214 or MA TH 216, or permission of
instructor.

Schedule Type: Lecture

CDS 486: Topics in Computational and Data Sciences. 3 credits.
Covers selected topics in computational and data sciences not covered
in fixed content courses. Offered by Computational & Data Sciences
(p. 650). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

CDS 487: Electronic Structure Computations. 3 credits.
Covers computational aspects of materials science, such as first-
principles methods of electronic structure calculations of periodic solids,
clusters, and molecules, as well as the use of empirical potentials.
Examples will be drawn from metals, insulators, and semiconductors.
Students will construct simple codes and be guided in the use of the
more sophisticated available computational packages. Offered by
Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: PHYS 308 or PHYS 402.

Schedule Type: Lecture

CDS 490: Directed Study and Research. 1-3 credits.
Students work under the guidance of a faculty member on an
independent study or directed research project in the computational and
data sciences. May be repeated in combination with CDS 491 for a total
of 6 credits between the two classes. Offered by Computational & Data
Sciences (p. 650). May be repeated within the degree for a maximum 6
credits.

Recommended Prerequisite: Students must be CDS majors or minors in
their junior or senior year and have permission of the instructor.

Schedule Type: Independent Study

CDS 491: Internship. 1-3 credits.
On-the-job experience for CDS majors and minors working in industry
and government laboratories, including summer programs. Supervision
and approval of this course must be arranged with department before
registering. May be repeated in combination with CDS 490 for a total
of 6 credits between the two classes. Offered by Computational & Data
Sciences (p. 650). May be repeated within the degree for a maximum 6
credits.

Recommended Prerequisite: Students must be CDS majors or minors in
their junior or senior year and have permission of the instructor.

Schedule Type: Internship

500 Level Courses

CDS 501: Scientific Information and Data Visualization. 3 credits.
Techniques and software used to visualize scientific simulations,
complex information, and data visualization for knowledge discovery.
Includes examples and exercises to help students develop their
understanding of the role visualization plays in computational science
and provides a foundation for applications in their careers. Offered by
Computational & Data Sciences (p. 650). May not be repeated for credit.

Recommended Prerequisite: CDS 130 or CDS 101; or permission of
instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CDS 502: Introduction to Scientific Data and Databases.** 3 credits.
Data and databases used by scientists. Includes basics about database organization, queries, and distributed data systems. Student exercises will include queries of existing systems, along with basic design of database systems. Examples from different disciplines will be given. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** CDS 130 or CDS 101; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students in a Non-Degree Undergraduate degree may not enroll.

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**Computer Forensics (CFRS)**

**500 Level Courses**

**CFRS 500: Introduction to Forensic Technology and Analysis.** 3 credits.
Presents an overview of technologies of interest to forensic examiners. It will provide an introduction to, software, hardware, analysis, and other aspects required for forensic examinations. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CFRS 510: Digital Forensics Analysis.** 3 credits.
Explains computer forensics crime scene procedures, beginning with initial walk-through and evaluation; identification and collection of potential evidence; preparation of intrusion investigation; aspects of working with investigators and attorneys; reverse engineering with file identification and profiling; application of critical thinking in determination of significance of artifacts; and analysis and reporting of evidence. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** TCOM 535 and a working knowledge of computer programming.

**Registration Restrictions:**
Enrollment limited to students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**CFRS 660: Network Forensics.** 3 credits.
Deals with the collection, preservation, and analysis of network-generated digital evidence such that the evidence can be successfully presented in a court of law (both civil and criminal). The relevant federal laws will be examined as well as private sector applications. The capture/intercept of digital evidence, the analysis of audit trails, the recording of running processes, and the reporting of such information will be examined. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** TCOM 535 and a working knowledge of computer programming.

**Registration Restrictions:**
Enrollment limited to students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
School of Business
• Volgenau School of Engineering

Schedule Type: Lecture

CFRS 661: Digital Media Forensics. 3 credits.
Covers the collection, preservation, and analysis of digital media such that the evidence can be successfully presented in a court of law (both civil and criminal). The relevant federal laws and private sector applications will be examined, as well as the seizure, preservation, and analysis of digital media. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to TCOM 661.

Recommended Prerequisite: CFRS 500 and a working knowledge of computer operating systems (e.g. CS 471, IT 342, or equivalent).

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the following colleges:
• College of Science
• Schar School of Policy and Gov
• School of Business
• Volgenau School of Engineering

Schedule Type: Lecture

CFRS 663: Operations of Intrusion Detection for Forensics. 3 credits.
Introduces students to network and computer intrusion detection and its relation to forensics. Addresses intrusion detection architecture, system types, packet analysis, and products. Presents advanced intrusion detection topics such as intrusion prevention and active response, decoy systems, alert correlation, data mining, and proactive forensics. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to TCOM 663.

Recommended Prerequisite: TCOM 509 and TCOM 529, and a working knowledge of computer programming.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the following colleges:
• College of Science
• Schar School of Policy and Gov
• School of Business
• Volgenau School of Engineering

Schedule Type: Research

CFRS 798: Independent Reading and Research. 1-3 credits.
Studies selected area in computer forensics under the supervision of a faculty member. A written report is required. Notes: No more than a total of six credits may be taken from a combination of CFRS 698 and CFRS 798 for credit within the CFRS program. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: At least two core courses in the CFRS program; and permission of instructor

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CFRS 730: Forensic Deep Packet Inspection. 3 credits.
Presents tools, techniques, and methodologies used to conduct deep packet forensic analysis. Application of industry best practices to both the collection and subsequent analysis of network packets with an emphasis on hands-on exercises using various digital analytical tools. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 660.

Registration Restrictions:
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CFRS 664: Incident Response Forensics. 3 credits.
Addresses incident detection, response, and those aspects of computer forensics pertinent to the investigation of trade secret theft, economic espionage, copyright infringement, piracy, and fraud. Procedures for gathering, preserving, and analyzing forensic evidence are discussed in detail and are applied to both computer and network incident response forensics. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to TCOM 664.

Recommended Prerequisite: TCOM 535.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
**Schedule Type:** Laboratory, Lecture

**CFRS 760: Legal and Ethical Issues in IT.** 3 credits. Presents legal and ethics topics in the context of computer forensics. Includes legal principles, types of crimes, witness testimony, and forensics report writing. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**CFRS 761: Malware Reverse Engineering.** 3 credits. Reviews disassembled code for potentially malicious binary, or piece of malware, in order to gain a better understanding of how a binary functions when executed. Analyzes behavioral aspects as they are executed in a controlled environment. Environment changes (file, system, network, process, etc.), network communications, communications with remote devices, and so on, are closely observed for actionable information. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 500 and CFRS 660.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Laboratory, Lecture

**CFRS 762: Mobile Device Forensics.** 3 credits. Reviews forensic evidence contained within mobile devices, including address books, call logs, text messages, video files, audio files, and Internet history. Discusses procedures and technologies associated with mobile devices and how such procedures differ from traditional computer forensics. Analyzes collected data and correlates information with data from carriers. Hands-on exercises included. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 500, CFRS 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**CFRS 763: Registry Forensics - Windows.** 3 credits. Presents the concepts, tools, and techniques used for forensic collection, identification, and analysis of the Windows registry; review the structure and layout of the Windows registry and be introduced to the types of artifacts that can be found within; evaluate and interpret data from the Windows registry with emphasis on hand-on exercises. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 500, CFRS 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Laboratory, Lecture

**CFRS 764: Mac Forensics.** 3 credits. Presents the basic tools and techniques used to conduct a Mac and iOS forensic analysis. Application of industry best practices to both the collection and subsequent analysis of Mac iOS systems with an emphasis on hands-on exercises using currently available open-source and commercial tools. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 500, CFRS 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**CFRS 767: Penetration Testing in Computer Forensics.** 3 credits. Presents the concepts, tools, and techniques used for penetration testing, vulnerability exploitation, assessment, reporting, and forensics; teaches multiple attack vectors as well as the defensive measures protecting against such attacks; focuses heavily on post attack forensics allowing for a complete picture of the attack process. Notes: Course will consist of exercises conducted in a lab environment with concurrent lectures (combined total of 3 credits for lab and lecture exercises). Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 660, CFRS 663.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Laboratory, Lecture
CFRS 768: Digital Warfare. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 660. May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 769: Anti-Forensics. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 660. May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 770: Fraud and Forensics in Accounting. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 771: Digital Forensic Profiling. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 660.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 772: Forensic Artifact Extraction. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 773: Mobile Application Forensics and Analysis. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 660.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 775: Kernel Forensics and Analysis. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 776: Digital Warfare. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 660.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 777: Digital Forensic Profiling. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 660.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 778: Forensic Artifact Extraction. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 779: Mobile Application Forensics and Analysis. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 660.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

CFRS 780: Kernel Forensics and Analysis. 3 credits.
Prepares students to undertake forensic accounting, a specialty practice area of accounting, in order to identify patterns and anomalies in financial data that may be indicative of fraud. Emphasis on the technical aspects of forensic accounting, including the extraction and analysis of digital evidence from various media. Recommended Prerequisite: CFRS 500, CFRS 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Recommended Prerequisite: CFRS 761.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CFRS 780: Advanced Topics in Computer Forensics. 3 credits.
Teaches advanced topics from recent developments and applications in various areas of computer forensics. Enhances the professional engineering community's understanding of breakthrough developments in specific areas of computer forensics. Active participation of the students is encouraged in the form of writing and presenting papers in various research areas of the advanced topic. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CFRS 790: Advanced Computer Forensics. 3 credits.
Capstone course for the MS in computer forensics program. Students will be exposed to case studies and be required to conduct computer forensic investigations of digital media, intercepted packet switched data, and multisource log information to successfully complete each case study. Notes: To be taken in the last year prior to the completion of degree requirement. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: CFRS 660, 661, and (663 or 664), and a minimum of 18 credits in the MS Computer Forensics Program prior to registration.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CFRS 798: Research Project. 1-3 credits.
Conduct a research project to be chosen and completed under guidance of a graduate faculty member that results in an acceptable technical report. Notes: No more than a total of six credits may be taken from a combination of CFRS 698 and CFRS 798 for credit within the CFRS program. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: At least two core courses and a minimum of 12 credits in the CFRS program; permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Thesis

Computer Game Design (GAME)

100 Level Courses

GAME 101: Introduction to Game Design. 3 credits.
Introductory overview of the game development process with an emphasis on game design. Through detailed study of historical and current games, students will learn the language and structure needed to develop their own game ideas. Students will learn the many aspects of a game development team and how each of these roles contributes to a game's overall design. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

200 Level Courses

GAME 210: Basic Game Design. 3 credits.
Introduction to computer game design and development including a brief history of the field and current industry practice and production. Current major game design software, hardware, and associated tools are explored through simple game design projects. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Schedule Type: Lecture

GAME 230: History of Computer Game Design. 3 credits.
History of computer game design including games as a new medium for education, entertainment, and communications. Aspects of the business of computer game publishing, game criticism, storytelling, interactive fiction, violence, and virtual communities will be explored. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Schedule Type: Lecture

GAME 231: Computer Animation for Games. 3 credits.
2D and 3D modeling, character design, and animation projects are constructed using commercial and proprietary software and game design tool kits and engines. Simple texturing and models rigging for game animation will be discussed. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Schedule Type: Studio

GAME 232: Online and Mobile Gaming. 3 credits.
Class covers the history, practice, and design of online and mobile games. Class will discuss the current state of the smartphone applications and study the best practices to be successful in the
applications market. Students will learn the development process for smartphone applications and develop original and innovative applications in a team-based environment. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** GAME 210\(^C\) and 230\(^C\).

\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**GAME 250: Music for Film and Video.** 3 credits.

Selection, editing, processing, and integration of sounds and music (post-production) for film, video, and animation. Time, frequency, and amplitude domain digital post-production techniques will be studied. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Schedule Type:** Lecture

**300 Level Courses**

**GAME 300: Portfolio Preparation.** 1 credit.

Student creates and refines a web portfolio to utilize throughout the course of study in presenting projects to aid in internship application and professional development. Notes: Must have passed GAME 231 and GAME 232 with a C or better. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Schedule Type:** Lecture

**GAME 310: Game Design Studio.** 3 credits.

Studio course that focuses on team-based game design. In collaboration with undergraduate students from VSITE’s CS game design concentration, student teams design and develop complete computer-based and online serious and/or entertainment games. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** GAME 231\(^C\) and 232\(^C\).

\(^C\) Requires minimum grade of C.

**Schedule Type:** Studio

**GAME 320: Digital Painting for Games.** 3 credits.

Students develop observational, sketching, and rendering skills in the digital medium. Students practice digital painting from reference and imagination as they create convincing game surfaces and simple concept drawings. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** GAME 231 AVT 323 or AVT 333.

**Schedule Type:** Lecture

**GAME 330: Computer Game Platform Analysis.** 3 credits.

Current and prototype consumer gaming platforms and consoles. Analysis will include conversion, transposition, and porting game media among most commercially produced platforms for analysis and comparisons. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** GAME 310 and CS 112.

**Recommended Corequisite:** GAME 331.

**Schedule Type:** Studio

**GAME 331: Consumer Gaming Platform Analysis Lab.** 1 credit.

Current and prototype consumer gaming platforms and consoles. Analysis will include conversion, transposition, and porting game media among most commercially produced platforms for analysis and comparisons. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** GAME 310 and CS 112.

**Recommend Corequisite:** GAME 330.

**Schedule Type:** Laboratory

**GAME 332: RS: Story Design for Computer Games.** 3 credits.

Use of narrative structure and new media for designing computer game scenarios and stories. Traditional narrative techniques (text stories, novels, films) will be examined, as well as translations of the traditional to interactive, non-linear modes of communications. Analysis of current computer game story design theories, philosophies, and techniques will be covered. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive, Writing Intensive in the Major

**Recommended Prerequisite:** Completion of 30 credits within major or permission of the instructor.

**Schedule Type:** Lecture

**GAME 367: Writing and Editing Music and Sound.** 3 credits.

Composition, editing, processing, and integration of voice, environmental sounds and music into non-linear computer game environments. Special emphasis will be placed on HD sound and music post-production and mixing (3 & 5 transducer point listening spaces), sequential composition and sample-splicing techniques, and the study of competing compression algorithms for sound and music. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisite:** GAME 250\(^C\).

\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**GAME 398: Advanced Game Design Animation.** 3 credits.

Advanced 2D and 3D animation projects for interactive game scenes and scenarios are built using commercial and proprietary software and game design tool kits. Advanced texturing, rigging, lighting, and perspective manipulation will be covered. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisite:** GAME 231\(^C\).

\(^C\) Requires minimum grade of C.

**Schedule Type:** Studio

**GAME 399: Special Topics.** 1-4 credits.

In-depth presentation and exploration of topical studies in computer game design. Subject matter varies. Notes: May be repeated when topic is different. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 12 credits.

**Schedule Type:** Lecture
400 Level Courses

GAME 400: Game Design Practicum. 3 credits.
Study/lecture course focuses on the design strengths and weaknesses inherent in current entertainment and serious games. UI design, level design and map structure, scoring stratum, on-line support, game ecologies, gaming communities, and designing/writing documentation and specifications will be studied. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: GAME 330, 367 or 398. Must be a Computer Game Design minor.

Schedule Type: Lecture

GAME 410: Advanced Game Design Studio. 3 credits.
In collaboration with undergraduate students from VSITE’s CS game design concentration, student teams design and develop complete computer-based and online serious and entertainment games. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: GAME 310, GAME 330 and GAME 331.
Schedule Type: Studio

GAME 431: Advanced Game Animation I. 3 credits.
Builds advanced 3D character animation skills. Students animate from reference using the principles of weight, follow through, and anticipation. Projects focus on creating interactive motions for characters using commercial software and game engines. Intermediate rigging will also be covered. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: GAME 398.
Schedule Type: Lecture

GAME 489: Pre-Internship Seminar. 1 credit.
Student prepares for interview and application processes associated with securing an internship, finishing the course with a professional resume and portfolio ready for submission to potential employers. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Schedule Type: Seminar

GAME 490: Senior Game Design Capstone. 3 credits.
Student develops a case study of a publicly or commercially published computer game exploring the technical, economic, ethical, social and political ramifications on its intended target market. A public lecture of the case study is required. Notes: Students are required to complete 6 credits for the degree program. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 9 credits.

Mason Core: Capstone, Synthesis (p. 135)

Recommended Prerequisite: Completion of 60 credits in major. Students must be granted permission by the program director to take the course.

Registration Restrictions:
Enrollment is limited to students with a major in Computer Game Design.

Schedule Type: Lecture

GAME 491: Internship. 3-4 credits.
Placement in an appropriate internship within a program approved by a federal, state or commercial game design/publishing agency or firm. Notes: 135 hours of internship on-site work must be completed for 3 credits.180 hours of internship on-site work must be complete for 4 credits. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: GAME 489 and completion of 60 credits in major.

Schedule Type: Internship

GAME 492: Independent Study. 1-6 credits.
Advanced research, computer game design, or exploration of topical studies in computer game design. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 12 credits.

Schedule Type: Independent Study

GAME 499: Advanced Studies in Game Design. 1-4 credits.
Exploration of various issues in computer game design, including theoretical aspects of games studies and production. Notes: Topics and credit vary with instructor. May be repeated when taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: Admittance to BFA Game Design Program or instructor permission.

Schedule Type: Lecture

500 Level Courses

GAME 599: Advanced Studies in Game Design. 1-4 credits.
Exploration of various issues in computer game design, including theoretical aspects of games studies and production. Notes: Topics and credit vary with instructor. May be repeated when taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: Admittance to MA Game Design Program or instructor permission.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

GAME 600: Research Methodologies in Game Design. 3 credits.
Graduate seminar focusing on development of independent research project in student’s area of emphasis. Explores principal methods of researching and documenting game design and game practice. Along with traditional methods of library research, emphasizes new processes of examination and investigation through the use of computer-aided research clouds and systems. Students will research and write a publishable paper following standard scientific research practice. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Admittance to MA Game Design Program or instructor permission.
**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GAME 605: Game Design Graduate Seminar.** 1 credit.
Students present their own research and projects, or the work of contemporary game designers for discussion and peer and faculty critiques. Special focus on developing professional public communication and presentation skills about contemporary issues in the game design and production fields. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** Admittance to MA Game Design Program or instructor permission.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GAME 610: Game Production.** 3 credits.
Studio and lecture course in the history, practice and design and production of computer games with an emphasis on serious games development. Students will research, design and develop a fully functioning game, for desktop, console, and/or mobile platforms in this two-semester course. This course will also support the thesis research and project development. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admittance to the MA Game Design Program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GAME 617: Teaching Practicum.** 3 credits.
Supervised classroom teaching in Mason’s Computer Game Design undergraduate program, or summer Game-focused Potomac Academy Program. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** GAME 605 and 3 credits of GAME 610.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GAME 626: Game Business, Entrepreneurship and Practice.** 3 credits.
Combined lecture and studio course in discovering and developing entrepreneurial skill sets in the game design, production and publishing industry. Special focus will be given to developing communication skills, planning strategies, and nurturing the aptitude and attitudes that enable students to creatively solve problems, identify opportunities, and execute those opportunities in the game design and production industry. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** GAME 605 and GAME 610.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GAME 628: Advanced Game Art.** 3 credits.
Studio and Lecture course in advanced computer game modeling processes and techniques. Advanced topics in modeling interactive characters and environments will be covered, including texture painting, photosourcing, and both low and high-polygon modeling. A broad variety of art styles and game production pipelines will be explored. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admittance to MA Game Design Program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GAME 630: Advanced Game Animation.** 3 credits.
Combined Studio and Lecture course in creating advanced animations for interactive games, with an emphasis on realtime characters. Non-bipedal motions, rotoscoping, rigging, and other advanced topics in animation will also be explored. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admittance to the MA Game Design Program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GAME 635: Issues in Interactive Entertainment. 3 credits.
Studio and lecture course in advanced design concepts for interactive game and entertainment platforms and systems. Microsoft’s Kinect, Nintendo’s Wii U, and Apple’s AirPlay Mirroring will be studied. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: GAME 600, GAME 605 and 3 credits of GAME 610.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GAME 638: Game Studio Management. 3 credits.
Lecture Courses in managerial responsibilities and issues concerning successfully managing a small to mid-size game design studio in today’s game industry marketplace. Human resources and personnel management, investor relations and board management, contract negotiations and development analysis, game design and production team oversight, research and development, budget management and realistic financial projections will be covered. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: GAME 610 and GAME 626.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GAME 650: Advanced Music and Sound for Games. 3 credits.
Combined studio and lecture course that will focus on the composition, editing, processing, mixing, and integration of sound assets, such as sfx, narration, and music into computer games. Time, frequency, and amplitude domain digital production and post-production techniques will be reviewed. Standard 2-channel, and 5.1 channel post-production/mixing, as well as contemporary middleware sound management applications will be studied. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Admittance to the MA Game Design Program or permission of instructor.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GAME 658: Interactive Game Systems Design. 3 credits.
Studio and lecture course in advanced interactive games and simulations. A variety of entertainment platforms, systems, and their unique input devices will be explored, including augmented reality, social networks, and motion controllers. Games developed will use the latest online, mobile, and console platforms, as well as non-commercial prototype platforms. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: GAME 635.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GAME 600 and GAME 605.

700 Level Courses

GAME 710: Graduate Internship. 3 credits.
This course prepares interns to succeed in the game design industry by assisting their placement in an appropriate internship within a program approved public or commercial game design/publishing agency or firm. A total of 180 hours of internship on-site work must be earned within the semester of registration. Each student is assigned a program internship coordinator, and an on-site internship supervisor. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: GAME 610 and GAME 617 and permission of Program Director.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

GAME 796: Directed Reading. 1 credit.
Directed Reading must be taken in the fall of year two. Prior to the end of the first year, each student must identify a faculty member, based on interest and chosen topic that will serve as the student’s faculty mentor for the thesis research and writing, or project development process. Students should also plan to devote the summer between the two academic years of study to focused preliminary reading and research for the thesis paper or project. Notes: Directed Reading is overseen by the chosen faculty mentor, and will be tailored to each student's original thesis research paper or project. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: GAME 600 and GAME 605.
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
GAME 797: Proposal Writing. 1 credit.
Proposal Writing is overseen by the chosen faculty mentor, and will be tailored to each student’s original thesis research paper or project. Prior to the end of the first year, each student must identify a faculty member, based on interest and chosen topic that will serve as the student’s faculty mentor for the Proposal Writing course to prepare for the thesis writing, or project development process. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: GAME 796.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
GAME 798: Project and Applied Research. 3 credits.
The research project and supporting written document must reflect original research, development, and production of a complete serious game for graduate level work. The graduate project will involve a study of historical practice, and suitable for a public viewing experience and presentation. The written component will support the evolution of the creative process, the historical context of the work, the intended purpose and intent, all supported with scholarly citations and references. Faculty mentors will guide the project development process. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Permission of Graduate Faculty Mentor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis
GAME 799: Thesis. 4 credits.
The thesis project and or written document must reflect original research, analysis, and writing appropriate for graduate level work. The thesis written document should be between 85 to 100 pages in length, following university library standards of format for graduate thesis. If a thesis project is chosen, the project should compose a complete game design document, a completed and QA tested functional game using a commercially available engine, and a public presentation. Faculty mentors will guide the thesis development process for each student. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Permission of Graduate Faculty Mentor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

Computer Science (CS)

100 Level Courses

CS 100: Principles of Computing. 3 credits.
This course is intended to help students learn to think in the manner necessary to fully grasp the nature and power of the digital world around us. The early era of the Internet and the personal computer led to the need for "computer literacy." Now, the changing nature of our global society requires that students learn new ways to think about problems and how to solve them, regardless of students’ specific fields of endeavor. Through this course, students will explore major issues related to the "big ideas" of computational thinking (namely, (i) Creativity, (ii) Abstraction, (iii) Data, (iv) Algorithms, (v) Programming, (vi) Internet, and (vii) Societal Impact), as well as how these issues will impact their future lives. Offered by Computer Science (p. 983). Limited to two attempts.

Mason Core: Information Technology: With Ethics (p. 135)

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CS 101: Preview of Computer Science. 2 credits.
Offers a broad overview of computer science designed to provide students with an introduction to the field of computer science and an orientation to the Computer Science department and the computing environment at the university. Includes a project to introduce problem solving using computers. All computer science majors are required to take this course within their first year. Notes: All computer science majors are required to take this course within their first year. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: CS 112 C.
C May be taken concurrently.

Enrollment is limited to students with a major in Applied Computer Science or Computer Science.

Enrollment limited to students in a Bachelor of Science degree.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CS 105: Computer Ethics and Society. 1 credit.
Intensive introduction to legal, social, and ethical issues surrounding software development and computer use. Stresses professional conduct, social responsibility, and rigorous standards for software testing and reliability. Examines issues such as liability, ownership of information, and computer crime. Note: Students who have received credit for CS 305 or 306 should not register for CS 105. No credit will be given for CS 105 if a student has already received credit for CS 305 or 306. Offered by Computer Science (p. 983). Limited to two attempts.

Mason Core: Information Technology: Ethics Only (p. 135)

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
**CS 110: Essentials of Computer Science.** 3 credits.
Offers a broad overview of computer science designed to provide computer science majors with an introduction to their discipline. Fundamental computing concepts such as number representation, programming environments, communication tools, and basic network security measures are covered. Privacy and ethical use of computing are also discussed along with guest lectures to sample current computer science research. Note: All computer science majors are required to take this course within their first year as a computer science major. Offered by Computer Science (p. 983). Limited to two attempts.

**Registration Restrictions:**
Enrollment limited to students in the BS Applied Computer Science or BS Computer Science programs.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

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**CS 112: Introduction to Computer Programming.** 4 credits.
Rigorous introduction to problem solving through development of computer programs. Focuses on identifying algorithmic patterns in problems, describing problem solutions in high-level pseudocode, then implementing in a procedural programming language. Basic programming concepts are covered in detail including expressions, control structures, simple data types, and input/output. Program testing and debugging are discussed to verify that problems are solved correctly. Note: The department will drop students who fail to meet the prerequisites. Lectures and Labs are offered in groups. Students MUST register for a lecture and a lab from the same group. Offered by Computer Science (p. 983). Limited to two attempts.

**Mason Core:** Information Technology: Without Ethics (p. 135)

**Registration Restrictions:**
Required Prerequisites: (minimum score of 65 in 'Math Placement Transcendentals', minimum score of 07 in 'Math Placement Transcendentals', MATH 105C, 105T, 104C, 104T or 113C).

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

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**200 Level Courses**

**CS 211: Object-Oriented Programming.** 3 credits.
Thorough treatment of programming according to object-oriented principles. Introduces classes, interfaces, inheritance, polymorphism, and single dispatch as means to decompose problems. Covers intermediate programming techniques including error handling through exceptions, arrangement of source code into packages, and simple data structures. Intermediate debugging techniques and unit testing are covered. Note: Lectures and labs are offered in groups. Students MUST register for a lecture and a lab from the same group. Offered by Computer Science (p. 983). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisite: (CS 112C).

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

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**CS 222: Computer Programming for Engineers.** 3 credits.
Introduction to C as a second programming language with emphasis on problems and language features relevant to engineers. Topics include basic data types, pointers, elementary data structures, file/output, bitwise operations, and UNIX commands for compilation and debugging. Intended as terminal course in computer programming. Notes: Intended as terminal course in computer programming. Offered by Computer Science (p. 983). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisite: (CS 112C).

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

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**CS 261: Introduction to a Second Language.** 1 credit.
Advanced programming using Java programming language. Other languages may be offered at times. Notes: Not available for credit for CS majors. Offered by Computer Science (p. 983). Limited to two attempts.

**Recommended Prerequisite:** Grade of C or better in CS 211.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

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**CS 262: Introduction to Low-Level Programming.** 3 credits.
Introduction to the language C, as well as operating system concepts, in UNIX, to prepare students for topics in systems programming. Offered by Computer Science (p. 983). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisites: (CS 110C or 101) and (CS 211C or 222C).

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

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**300 Level Courses**

**CS 306: Synthesis of Ethics and Law for the Computing Professional.** 3 credits.
Practical course to become effective computer professional. Examines legal and ethical issues surrounding computer technology and its use, as well as the foundation building that is necessary to deal with those challenges. Applies philosophical bases for ethical decision making to modern concerns raised by computers and technology. Addresses topics covered by CS 105 in a more intensive manner and focuses on the emerging legal and ethical issues involved in e-commerce and widespread use of the Internet. Notes: Computer science majors may use this course to satisfy the Mason Core synthesis requirement, so long as they have not previously taken CS 305 for credit. Offered by Computer Science (p. 983). Limited to two attempts. Equivalent to IT 304.

**Mason Core:** Synthesis (p. 135)

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** Junior standing (at least 60 credit hours).

**Recommended Corequisite:** All required Mason Core courses.
Registration Restrictions: 
Required Prerequisites: ((COMM 100\(^C\) and ENGH 302\(^C\)) or (HNRS 110\(^C\) and 122\(^C\)) or (HNRS 110\(^C\) and 130\(^C\)) or (HNRS 110\(^C\) and 131\(^C\)) or (HNRS 110\(^C\) and 230\(^F\)) or (HNRS 110\(^C\) and 240\(^F\))) and (CS 105\(^C\)).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 310: Data Structures. 3 credits.
Focuses on object-oriented programming with an emphasis on tools and techniques for developing moderate to large programs. Topics include use and implementation of linear and nonlinear data structures and the design and analysis of elementary algorithms. Offered by Computer Science (p. 983). Limited to two attempts.

Required Prerequisites: CS 211\(^C\) and MATH 113\(^C\).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 321: Software Engineering. 3 credits.
An introduction to concepts, methods, and tools for the creation of large-scale software systems. Methods, tools, notations, and validation techniques to analyze, specify, prototype, and maintain software requirements. Introduction to object-oriented requirements modeling, including use of case modeling, static modeling, and dynamic modeling using the Unified Modeling Language (UML) notation. Concepts and methods for the design of large-scale software systems. Fundamental design concepts and design notations are introduced. A study of object-oriented analysis and design modeling using the UML notation. Students participate in a group project on software requirements, specification, and object-oriented software design. Offered by Computer Science (p. 983). Limited to two attempts. Equivalent to SWE 321.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions: 
Required Prerequisites: CS 310\(^C\) and (ENGH 302\(^C\) or (HNRS 110\(^C\) and (HNRS 122\(^C\), 130\(^C\), 230\(^C\) or 240\(^F\)))
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 325: Introduction to Game Design. 3 credits.
Game design, in various electronic entertainment technologies, involves a diverse set of skills and backgrounds from narrative and art to computer programming. Surveys the technical aspects of the field, with an emphasis on programming. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions: 
Required Prerequisite: (CS 211\(^C\)).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 330: Formal Methods and Models. 3 credits.
Abstract concepts that underlie much advanced work in computer science, with major emphasis on formal languages, models of computation, logic, and proof strategies. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions: 
Required Prerequisites: (CS 211\(^C\) and MATH 125\(^C\)).
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Computer Science, Computer Science or Software Engineering.

Enrollment limited to students in a Bachelor of Science or Post-Baccalaureate Certificate degrees.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 332: Object-Oriented Software Design and Implementation. 3 credits.
In-depth study of software design and implementation using a modern, object-oriented language with support for graphical user interfaces and complex data structures. Topics covered will be specifications; design patterns; and abstraction techniques; including typing, access control, inheritance, and polymorphism. Students will learn the proper engineering use of techniques such as information hiding, classes, objects, inheritance, exception handling, event-based systems, and concurrency. Offered by Computer Science (p. 983). Limited to two attempts. Equivalent to SWE 332.

Registration Restrictions: 
Required Prerequisite: (CS 310\(^C\)).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 335: Visual Computing. 3 credits.
Focuses on programming essential mathematical and geometric concepts underlying computer graphics. Covers fundamental topics in computational geometry, 3D modeling, graphics algorithms, and graphical user interfaces using both 2D and 3D implementations. Reinforces object-oriented programming practices. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions: 
Required Prerequisites: (CS 262\(^C\) and 310\(^C\)).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 367: Computer Systems and Programming. 4 credits.
Introduces students to computer systems from a programmer’s perspective. Topics include data representation, assembly and machine-level representation of high-level language programs, the memory hierarchy, linking, exceptions, interrupts, processes and signals, virtual
memory, and system-level I/O. Foundation for courses on compilers;
networks; operating systems; and computer architecture, where a deeper
understanding of systems-level issues is required. Offered by Computer
Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 262C or 222C) and MATH 125C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

CS 390: Research and Project Design Principles in Computing. 3 credits.
This course introduces students to the research and project design
process within the computing field. Students will learn about the tools of
the trade, work through design principles beginning with the articulation
of a question, reviewing methods of exploration, gathering evidence,
communicating results, and assessing and evaluating research or project outcomes. Offered by Computer Science (p. 983). Limited to two attempts.

Specialized Designation: Scholarly Inquiry

Recommended Prerequisite: CS 310 and CS 321.

Registration Restrictions:
Required Prerequisite: CS 262C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 391: Advanced Programming Lab. 1 credit.
Programming-intensive lab course. Students refine problem-solving and
programming skills while gaining experience in teamwork. Focuses on
data structures, recursion, backtracking, dynamic programming, and
debugging. Central focus is applying familiar and new algorithms and
data structures to novel circumstances. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Required Prerequisite: CS 310C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

400 Level Courses

CS 425: Game Programming I. 3 credits.
Introduction to technologies and techniques used in modern computer
games. Teams will explore the various facets of a complete design using
sophisticated tools. Includes a project in which a game is prototyped;
this prototype and initial design will serve as the starting point for the
project in CS 426. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C and 351C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 426: Game Programming II. 3 credits.
Project-orientated continuation of CS 425 with an emphasis on the
implementation of a complete game. Offered by Computer Science
(p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CS 325C and 425C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 440: Language Processors and Programming Environments. 3 credits.
Survey of basic programming language processors and software
development tools such as assemblers, interpreters, and compilers.
Topics include design and construction of language processors, formal
syntactic definition methods, parsing techniques, and code-generation
techniques. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 330C) and (CS 367C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 444: Introduction to Computational Biology. 3 credits.
Introduces computational methods in molecular biology. Covers a broad
array of topics in bioinformatics and computational biology. Organized
as 3 four-week modules intended to capture the current classification of
bioinformatics and computational biology methods, thereby providing
students with a broad view of the field. Offered by Computer Science
(p. 983). Limited to two attempts.

Recommended Prerequisite: C or better in CS 310.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 445: Computational Methods for Genomics. 3 credits.
Fundamental principles and techniques for implementing computational
algorithms to solve problems in biology arising from the need to process
large volumes of genomic information. Topics include sequence analysis,
alignment, and assembly, gene prediction, and knowledge-based protein
structure prediction. Projects involve designing and programming basic
alignment and prediction methods. Offered by Computer Science (p. 983). Limited to two attempts.

Recommended Prerequisite: C or better in CS 310 and STAT 344.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 450: Database Concepts. 3 credits.
Covers basics to intermediate knowledge for the design, implementation,
and use of relational database systems. Topics include the Entity-
Relationship (ER) and Entity-Enhanced Relationship (EER) models for
database design, Relational Algebra (RA), Structured Query Language (SQL), SQL programming techniques, functional dependencies and normalization, object and object-relational databases, and security. Students will practice to design, develop, and implement a relational ORACLE database and use the database for queries, transaction processing, and report generation. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 330C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 451: Computer Graphics. 3 credits.
Basic graphics principles and programming. Topics include scan conversion, transformation, viewing, lighting, blending, texture mapping, and some advanced graphics techniques. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (MATH 203C) and (CS 310C) and (CS 367C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 455: Computer Communications and Networking. 3 credits.
Data communications and networking protocols, with study organized to follow layers of Internet Protocol Suite (TCP/IP family of protocols). Topics include role of various media and software components, local and wide area network protocols, network performance, and emerging advanced commercial technologies. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 367C) and (STAT 344C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 463: Comparative Programming Languages. 3 credits.
Key programming mechanisms described independently of particular machines or languages, including control, binding, procedural abstraction, types, and concurrency. Includes basic programming competence in several different types of programming languages, including a language that provides concurrency. Notes: Students who have taken CS 363 may not receive credit for CS 463. Offered by Computer Science (p. 983). Limited to two attempts. Equivalent to CS 363.

Registration Restrictions:
Required Prerequisites: (CS 330C and 367C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 465: Computer Systems Architecture. 3 credits.

Registration Restrictions:
Required Prerequisite: (CS 367C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 468: Secure Programming and Systems. 3 credits.
Fundamental principles and techniques for implementing secure computer systems. Topics include security and cryptography basics, vulnerability analysis, secure software development, and distributed system security. Projects involve designing and programming basic security tools, secure programs, and distributed systems. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 367C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 471: Operating Systems. 3 credits.
Issues in multiprogramming. Covers concurrent processes and synchronization mechanisms; processor scheduling; memory, file, I/O, and deadlock management; performance of operating systems; and projects dealing with synchronization in multiprogrammed OS and virtual memory management. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 367C) or ECE 445C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 475: Concurrent and Distributed Systems. 3 credits.
Practical issues in designing and implementing concurrent and distributed software. Topics include concurrent programming, synchronization, multithreading, local and wide-area network protocols,
distributed computation, systems integration, and techniques for expressing coarsegrained parallelism at the application level. Projects involve network programming at application level. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 367C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 477: Mobile Application Development. 3 credits.
This project based course will teach fundamental principles of software development for the mobile device environment, emphasizing the application of numerous academic concepts and the new design and programming paradigms that stem from the use of mobile devices. Topics include user interfaces, event-based programming, interprocess communications, networking, mobile-specific capabilities and performance in a resource restricted environment. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CS 310C and 367C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 480: Introduction to Artificial Intelligence. 3 credits.
Principles and methods for knowledge representation, reasoning, learning, problem solving, planning, heuristic search, and natural language processing and their application to building intelligent systems in a variety of domains. Uses LISP, PROLOG, or expert system programming language. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 330C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 482: Computer Vision. 3 credits.
Basic principles of visual perception and their implementation on computer systems. Topics include early visual processing, edge detection, segmentation, intrinsic images, image modeling, representation of visual knowledge, and image understanding. Students complete projects involving real images. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (MATH 203C) and (STAT 344C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 483: Analysis of Algorithms. 3 credits.
Analyzes computational resources for important problem types by alternative algorithms and their associated data structures, using mathematically rigorous techniques. Specific algorithms analyzed and improved. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (CS 330C) and (MATH 125C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 484: Data Mining. 3 credits.
Basic principles and methods for data analysis and knowledge discovery. Emphasizes developing basic skills for modeling and prediction and performance evaluation. Topics include system design; data quality, preprocessing, and association; event classification; clustering; biometrics; business intelligence; and mining complex types of data. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 310C) and (STAT 344C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 485: Autonomous Robotics. 3 credits.
Covers various basic topics in autonomous robotics, such as autonomous architectures and their interaction with physical hardware, elementary kinematics and robot control, motion and trajectory planning, localization, task planning, learning and adaptation, modeling, and sensor fusion. Includes projects involving physical robots. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CS 262C, 310C and MATH 203C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 490: Design Exhibition. 3 credits.
Capstone course focusing on design and successful implementation of major software project, encompassing broad spectrum of knowledge and skills, developed by team of students. Requires final exhibition to faculty-industry panel. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Two other CS 400-level courses; and senior standing.

Registration Restrictions:
Required Prerequisites: (CS 321C or 421C) and (CS 483C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 491: Industry-Sponsored Senior Design Project. 3 credits.
Senior design project course focusing on design and successful implementation of major software project specified by an industry sponsor, encompassing broad spectrum of knowledge and skills, developed by team of students. Requires final exhibition to faculty-
industry panel. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisites: CS 367\textsuperscript{c}, 321\textsuperscript{c} and 483\textsuperscript{c}.
\textsuperscript{a} May be taken concurrently.
\textsuperscript{c} Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Computer Science or Computer Science.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

CS 498: Independent Study in Computer Science. 1-3 credits.
Research and analysis of selected problems or topics in computer science. Topic must be arranged with instructor and approved by department chair before registering. Notes: May be repeated if topics substantially different. Offered by Computer Science (p. 983). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: 60 credits, CS major, and Permission of Instructor.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

CS 499: Special Topics in Computer Science. 3 credits.
Topics of special interest to undergraduates. Notes: May be repeated if topics substantially different. Offered by Computer Science (p. 983). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: 60 credits and permission of instructor; specific prereqs vary with nature of topic.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

500 Level Courses

CS 504: Principles of Data Management and Mining. 3 credits.
Techniques to store, manage, and use data including databases, relational model, schemas, queries and transactions. On Line Transaction Processing, Data Warehousing, star schema, On Line Analytical Processing. MOLAP, HOLAP, and hybrid systems. Overview of Data Mining principles, models, supervised and unsupervised learning, pattern finding. Massively parallel architectures and Hadoop. Notes: This course cannot be taken for credit by students of the MS CS, MS ISA, MS SWE, CS PhD or IT PhD programs. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 530: Mathematical Foundations of Computer Science. 3 credits.
This course focuses on the topics of basic mathematical structures, mathematical logic and probability theory; and application of these concepts to problem solving and formal reasoning through hand-on practice with the use of computational tools. Notes: This course is restricted to provisional students. It must be taken in the first semester at GMU. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: MATH 125 and STAT 344.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 531: Fundamentals of Systems Programming. 3 credits.
Introduces systems and network programming for UNIX and Windows using lectures and hands-on labs. Covers ANSI C programming, system libraries and APIs, forking and threads, interprocess communications, synchronization, Windows API, and code debugging Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to ISA 563.

Recommended Prerequisite: CS 310 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 540: Language Processors. 3 credits.
Basic programming language processors such as assemblers, interpreters, and compilers. Topics include design and construction of language processors, formal syntactic definition methods, parsing techniques, and code generation techniques. Lab includes construction of language processors and experience with programming environments. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: MATH 125 and CS 310 and CS 330 and CS 465.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 550: Database Systems. 3 credits. An introduction to database management with focus on architecting databases and using them in applications. Topics to be covered include: data modeling with the Entity-Relationship model, the relational data model and its formal languages, SQL, the theory of database design, object databases, XML and Web data. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: (CS 310 and CS 330) or (INFS 501 and INFS 515 and INFS 519 and SWE 510).

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 551: Computer Graphics. 3 credits. Graphics principles and programming. Topics include graphics hardware, antialiasing, transformations, viewing, illumination, blending, texture mapping, color models, curves, surfaces, and animation. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to CS 652.

Recommended Prerequisite: CS 310 and CS 367.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 555: Computer Communications and Networking. 3 credits. Techniques and systems for communication of data between computational devices and layers of Internet Protocol Suite. Topics include role of various media and software components, local and wide area network protocols, network design, performance and cost considerations, and emerging advanced commercial technologies.

Emphasizes TCP/IP family of protocols. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: CS 310 and CS 367 and STAT 344.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 571: Operating Systems. 3 credits. Models of operating systems. Major functions including processes, memory management, I/O, interprocess communication, files, directories, shells, distributed systems, performance, and user interface. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: CS 310 and CS 367 and CS 465.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 580: Introduction to Artificial Intelligence. 3 credits. Principles and methods for knowledge representation, reasoning, learning, problem solving, planning, heuristic search, and natural language processing and their application to building intelligent systems in a variety of domains. LISP, PROLOG, or expert system programming language. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: CS 310 and CS 330.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
**CS 583: Analysis of Algorithms.** 3 credits.
Topics include analyzing sequential and parallel algorithmic strategies such as greedy methods, divide and conquer strategies, dynamic programming, search and traversal techniques, and approximation algorithms; and analyzing specific algorithms falling into these classes, NP-Hard and NP-Complete problems. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** CS 310 and CS 330 and MATH 125.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 584: Theory and Applications of Data Mining.** 3 credits.
Concepts and techniques in data mining and multidisciplinary applications. Topics include databases; data cleaning and transformation; concept description; association and correlation rules; data classification and predictive modeling; performance analysis and scalability; data mining in advanced database systems, including text, audio, and images; and emerging themes and future challenges. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to CS 659, CS 750.

**Recommended Prerequisite:** CS 310 and STAT 344.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**600 Level Courses**

**CS 600: Theory of Computation.** 3 credits.
Introduction to logic and proof techniques, formal languages, automata theory, and computational complexity. Specific topics include regular and context-free languages, Turing machines, NP-completeness, and undecidability. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: CS 583^B_. ^B_ Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 611: Computational Methods for Genomics.** 3 credits.
Covers fundamental principles and techniques for implementing computational algorithms to solve problems in biology arising from the need to process large volumes of genomic information. Topics include sequence analysis, alignments, sequence assembly, gene prediction, and protein structure prediction. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: CS 583^B_. ^B_ Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 630: Advanced Algorithms.** 3 credits.
Provides an overview of advanced algorithm design and analysis techniques. Topics include algorithms for hash tables, matrix operations, number theory, string matching, computational geometry, combinatorial optimization, and linear programming; also the areas of NP-completeness and approximation algorithms. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: CS 583^B_. ^B_ Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 633: Computational Geometry.** 3 credits.
Basic principles and methods for computing in field of geometric modeling. Emphasizes data structures used to represent geometric objects and algorithms for manipulating those data structures. Topics include range searching, polygon triangulation, convex hulls, motion-
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment is limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 650: Advanced Database Management. 3 credits.
Study of the internal architecture of database systems. Topics include: physical data organization and indexing, query processing and optimization, transaction processing, database system architectures, Web services and Web data security. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CS 550<sup>B</sup> or INFS 614<sup>B</sup>). B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 657: Mining Massive Datasets with MapReduce. 3 credits.
Covers the techniques to mine large datasets, including Distributed File Systems and Map-Reduce, similarity search, and data stream processing. Covers classic problems in data mining, such as clustering, association rule mining, and others from the point of view of scalability. Includes a final project to exercise concepts covered in class. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to CS 757.

Registration Restrictions:
Required Prerequisite: CS 584<sup>B</sup>.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 658: Networked Virtual Environments. 3 credits.
Networked virtual environment overview, networking and multimedia concepts, virtual simulation concepts, efficiency/performance issues, and online conferencing/virtual classrooms. Course is based around a project with multiple segments, each covering one aspect of networked virtual environments, plus a final session where one- or two-person teams create a minimally functional networked virtual environment over the Internet using multicast network software. Lectures available online/recorded. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CS 555\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 662: Computer Graphics Game Technologies. 3 credits.
Addresses some graphics game techniques including collision detection, levels of detail, physics-based simulations, textures, maps, and shadows. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CS 551\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 667: Biometrics and Identity Management. 3 credits.
Basic principles and methods for automatic authentication of individuals. Technologies include face, fingerprint, and iris recognition; and speaker verification. Additional topics cover multimodal biometrics, system design, performance evaluation, and privacy concerns. Term project required. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CS 580\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 672: Computer System Performance Evaluation. 3 credits.
Theory and practice of analytical models of computer systems. Topics include open and closed multiclass queueing networks, single and multiple class Mean Value Analysis, Markov Chains, performance and availability models of Internet data centers, software performance engineering, and e-commerce performance. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CS 571\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 674: Data Mining on Multimedia Data. 3 credits.
Covers advanced techniques for managing, searching, and mining of various types of data such as text, web links, images, time series, video, and audio. Issues related to handling such data will be discussed, including feature selection, high dimensional indexing, interactive search and information retrieval, pattern discovery, and scalability. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to CS 780.

Registration Restrictions:
Required Prerequisite: CS 584\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 675: Distributed Systems.** 3 credits.
Issues in design and implementation of distributed systems and applications. Topics include distributed communication paradigms, middleware, coordination and synchronization, distributed transactions, consistency and replication, fault-tolerance and reliability, and peer-to-peer systems. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** CS 571\(^B\).
\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 681: Knowledge Engineering.** 3 credits.
Design, construction, and evaluation of software systems that solve problems generally deemed to require human expertise. Topics include modeling expert's knowledge, reasoning based on knowledge and evidence, ontology design and development, rule learning, and knowledge-based maintenance. Programming projects include development of tools or small-scale systems. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** CS 580\(^B\).
\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 682: Computer Vision.** 3 credits.
Study of computational models of visual perception and their implementation in computer systems. Topics include early visual processing, edge detection, segmentation, intrinsic images, image modeling, representation of visual knowledge, and image understanding. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** (CS 580\(^B\) and 583\(^B\)).
\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 683: Parallel Algorithms.** 3 credits.
Examines design and analysis of parallel algorithms. Material focuses on algorithms for both theoretical and practical models of parallel computation. Considers algorithm design and analysis for PRAM and existing SIMD and MIMD type architectures. Topics include sorting, graph algorithms, numerical algorithms, and computational complexity. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** CS 583\(^B\).
\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 684: Graph Algorithms.** 3 credits.
Data structures and analytical techniques to study graph algorithms. Data structures include disjoint sets, heaps, and dynamic trees. Algorithms include minimum spanning trees, shortest path, maximum flow, and graph planarity. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** CS 583\(^B\).
\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 685: Autonomous Robotics.** 3 credits.
Reviews developments in intelligent autonomous systems. Studies applications of artificial intelligence, computer vision, and machine learning to robotics. Topics include analysis and design of algorithms and architectures for planning, navigation, sensory data understanding,
sensor fusion, spatial reasoning, motion control, knowledge acquisition, learning concepts and procedures, self-organization, and adaptation to environment. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisite:** CS 580B.

**B-** Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture


Concepts and techniques in image processing. Discusses methods for image capture, transformation, enhancement, restoration, and encoding. Students complete projects involving naturally occurring images. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisite:** CS 583B.

**B-** Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

CS 687: *Advanced Artificial Intelligence*. 3 credits.

Explores foundational issues of artificial intelligence, such as roles of knowledge and search, formalization of knowledge and inference, and symbolic versus emergent approaches to intelligence. Studies advanced programming techniques for artificial intelligence, relationship to foundational issues, and important application areas for artificial intelligence. Notes: Major programming project required. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisite:** CS 580B.

**B-** Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

CS 688: *Pattern Recognition*. 3 credits.

Explores statistical pattern recognition and neural networks. Pattern recognition topics include Bayesian classification and decision theory, density (parametric and nonparametric) estimation, linear and nonlinear discriminant analysis, dimensionality reduction, feature extraction and selection, mixture models and EM, and vector quantization and clustering. Neural networks topics include feed-forward networks and back-propagation, self-organization feature maps, and radial basis functions. Emphasizes experimental design, applications, and performance evaluation. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** CS 580B or 584B.

**B-** Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

CS 689: *Planning Motions of Robots and Molecules*. 3 credits.

Covers topics from artificial intelligence, algorithms and databases. Presents algorithms that model and simulate physical and biological systems and focuses on motion-planning algorithms for robotic systems in the presence of obstacles. Simple deterministic and sampling-based approaches to motion planning will be covered, as well as advanced planning methods including planning with kinematics and dynamic constraints. Selected topics include sensor-based motion planning, manipulation planning, assembly planning, planning under uncertainty and robotics-inspired methods to compute functionally-relevant motions of molecular chains. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** CS 583B.

**B-** Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture
**CS 695**: Topics in Computer Science. 3 credits.
Special topics in computer science not occurring in regular computer science sequence. Notes: May be repeated for credit when topics are distinctly different. Offered by Computer Science (p. 983). May be repeated within the term.

**Recommended Prerequisite**: Completion of at least two core courses and permission of the instructor.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**CS 697**: Independent Reading and Research. 1-3 credits.
Students may undertake a course of study under supervision of consenting faculty member. Students usually submit written statement of course content and tentative reading list as part of request for approval. Literature review, project report, or other written product usually required. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite**: Completion of at least two core courses, and permission of the instructor.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Research

**700 Level Courses**

**CS 700**: Quantitative Methods and Experimental Design in Computer Science. 3 credits.
Integrated treatment of models and practices in experimental computer science. Topics include scientific methods applied to computing, workload characterization, forecasting of performance and quality metrics of systems, uses of analytic and simulation models, design of experiments, interpretation and presentation of experimental results, hypothesis testing, and statistical analyses of data. Involves one or more large-scale projects. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite**: Doctoral status and at least two 600-level courses offered by the Computer Science Department.

**Registration Restrictions**: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**CS 706**: Concurrent Software Systems. 3 credits.
Topics include concurrent programming languages and constructs, and specification, design, verification, and validation of concurrent programs. Students required to solve concurrent programming problems and check solutions by using verification, testing, and debugging tools. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions**: Required Prerequisite: CS 571[^B^].
[^B^]: Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**CS 710**: Scalable Internet Services. 3 credits.
Discusses, from quantitative point of view, characteristics of most important technologies used to support implementation of e-business sites. Includes topics such as hardware and software architectures of e-business sites, authentication, payment services, understanding customer behavior, workload characterization, scalability analysis, and performance prediction. Notes: Term paper and project required. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions**: Required Prerequisites: (CS 555[^B^] and 571[^B^]).
[^B^]: Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**CS 752**: Interactive Graphics Software. 3 credits.
Advanced graphics methods and tools. Topics include visualization, modeling, rendering, animation, simulation, virtual reality, graphics software tools, and current research topics. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions**: Required Prerequisites: (CS 551[^B^] and 583[^B^]).
[^B^]: Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Schedule Type: Lecture

**CS 755: Advanced Computer Networks.** 3 credits.  
Current and emerging issues in advanced computer networks and applications. Topics include software systems associated with packet and cell-switched networking architectures and protocols, high-performance LANs, scheduling and congestion control, mobile networking, multimedia applications, and next generation of Internet. Offered by Computer Science (p. 983). May not be repeated for credit.

*Registration Restrictions:*
*Required Prerequisite:* CS 555\(^B\).

\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 756: Performance Analysis of Computer Networks.** 3 credits.  
Analytical, measurement, and simulation techniques for modeling and analyzing computer networks. Examines elementary queuing analysis; networks of queues; routing and flow controls; and applications to local and wide area networks, Internet, and emerging networking technologies. A large portion of the course is devoted to projects, normally performed in student teams, who apply the techniques presented. Offered by Computer Science (p. 983). May not be repeated for credit.

*Registration Restrictions:*
*Required Prerequisite:* CS 555\(^B\).

\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 773: Real-Time Systems Design and Development.** 3 credits.  
Real-time systems and principles supporting design and implementation. Emphasizes fundamental results from real-time scheduling theory and relevance to computer system design. Topics include system design issues for real-time applications involving operating systems, communication networks, databases, and multimedia. Offered by Computer Science (p. 983). May not be repeated for credit.

*Registration Restrictions:*
*Required Prerequisite:* CS 571\(^B\).

\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**CS 774: Computational Vision.** 3 credits.  
Studies recent advances in development of machine vision algorithms and knowledge-based vision systems. Topics include scalespace, Gabor and wavelet processing; distributed and hierarchical processing using neural networks; motion analysis; active, functional, and selective perception; object and target recognition; expert systems; data fusion; and machine learning. Emphasizes system integration in terms of perception, control, action, and adaptation. Presents applications to robotics, intelligent highways, inspection, forensic, and data compression. Offered by Computer Science (p. 983). May not be repeated for credit.

*Registration Restrictions:*
*Required Prerequisites:* (CS 682\(^B\) and 686\(^B\)).

\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 775: Advanced Pattern Recognition.** 3 credits.  
Covers statistical pattern recognition, neural network, and statistical learning theory approaches. Topics include decision theory and Bayes’ theorem, density (parametric and nonparametric) estimation, linear and nonlinear discriminant analysis, SVM and kernel methods, SRM and model selection, performance evaluation, mixture of experts (AdaBoost), dimensionality reduction, feature selection and extraction, and clustering. Emphasizes experimental design, applications, and performance evaluation. Offered by Computer Science (p. 983). May not be repeated for credit.

*Registration Restrictions:*
*Required Prerequisite:* CS 688\(^B\).

\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**CS 777: Human-Computer Intelligent Interaction.** 3 credits.  
Current and emerging issues in human-computer intelligent interaction, and human-centered systems and their applications. Topics include video processing, visualization, virtual environments, adaptation and tutoring, image and scene modeling, analysis and synthesis, face and gesture recognition, and speech and natural language processing. Notes: Term project and topical review required. Offered by Computer Science (p. 983). May not be repeated for credit.

*Registration Restrictions:*
*Required Prerequisites:* (CS 580\(^B\) and 551\(^B\)) or (CS 682\(^B\)).

\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 779: Topics in Resilient and Secure Computer Systems. 3 credits.
Covers study of alternate computer security, including how these methods can be combined in a layered defense and factors that affect the selection of the architectures. Reviews recent papers and reports. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CS 571B or ISA 562B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 782: Machine Learning. 3 credits.
Surveys machine learning concerning development of intelligent adaptive systems that are able to improve through learning from input data or from their own problem-solving experience. Topics provide broad coverage of developments in machine learning, including basic learning strategies and multistrategy learning. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: CS 681B, 687B or 688B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 787: Decision Guidance Systems. 3 credits.
Decision-guidance systems support an iterative process of giving actionable recommendations to and extracting feedbacks from human decision-makers, with the goal of arriving at the best possible course of action. Focuses on models, languages, algorithms and applications of Decision-Guidance Management Systems, used for fast development of decision-guidance applications. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (INFS 614B or CS 550B).
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 788: Autonomic Computing. 3 credits.
Studies self-managing, self-optimizing, self-configuring, self-tuning, self-healing, and self-protecting computing systems. This course analyzes many examples of autonomic systems as well as various techniques to design and build such systems. This is a doctoral seminar based on reading and analysis of current papers. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (CS 555B, 571B or ISA 562B).
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 795: Advanced Topics in CS. 3 credits.
Advanced topics not occurring in regular sequence. Notes: May be repeated for credit when subject differs. Satisfies MS breadth requirement only if explicitly stated in syllabus in given section. Only one such course should be used for breadth requirements. Offered by Computer Science (p. 983). May be repeated within the term.

Recommended Prerequisite: Admission into computer science PhD program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

CS 798: Project Seminar. 3 credits.
Master's degree candidates undertake a project using knowledge gained in M.S program. Notes: Topics chosen in consultation with advisor. Meets project or thesis requirement for MS in computer science. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: 18 hours of credit applicable toward the M.S. in computer science.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Thesis

CS 799: Thesis. 1-6 credits.
Original or expository work evaluated by committee of three faculty members. Offered by Computer Science (p. 983). May be repeated within the degree.
**Recommended Prerequisite:** 18 hours of credit applicable toward the M.S. in Computer Science.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Thesis

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### 800 Level Courses

**CS 80:** *Computer Science Colloquium.* 0 credits.
Students are required to attend colloquia including talks by distinguished speakers, faculty candidates, and Mason faculty. Notes: This course introduces PhD students to research topics in computer science. This course can be taken twice for credit. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 2 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Computer Science.

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Volgenau School of Engineering college.

**Schedule Type:** Seminar

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**CS 811:** *Research Topics in Machine Learning and Inference.* 3 credits.
Provides an introduction to key concepts in machine learning and inference. Reviews most known learning and inference systems, discusses strengths and limitations, and suggests most appropriate areas of application. Hands-on experience by experimenting with state-of-the-art learning and inference systems and working on projects tailored to research interests. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** (CS 681\(^B\), 687\(^B\) or 688\(^B\)).
\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**CS 818:** *Topics in Computer Systems.* 3 credits.
Topics vary according to faculty interest. Possible topics include computer architecture, computer organization, computer networks, distributed systems, computer security, high-performance computing, and virtualization. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

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**CS 880:** *Research Topics in Artificial Intelligence.* 3 credits.
Special topics in artificial intelligence not occurring in regular computer science sequence. Notes: Requires substantial student participation. Subject matter may include continuation of existing 600- or 700-level courses in artificial intelligence or other topics. May be repeated for credit when subject matter differs. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**CS 884:** *Advanced Topics in Computer Vision and Robotics.* 3 credits.
Covers recent developments. Topics motivated by applications to autonomous robotic systems, mobile robot navigation, multirobot systems, human-computer-environment interaction, image/video search and analysis, content discovery, and visual surveillance. Topics include 3D structure and motion recovery, motion understanding, map building and localization, object detection and recognition, and target tracking. Projects and experimental evaluation emphasized. Notes: Course may be repeated with change of topic. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
**Required Prerequisites:** (CS 682\(^B\) or 685\(^B\)).
\(^B\) Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

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**CS 895:** *Research Topics in Artificial Intelligence.* 3 credits.
Special topics in artificial intelligence not occurring in regular computer science sequence. Notes: Requires substantial student participation. Subject matter may include continuation of existing 600- or 700-level courses in artificial intelligence or other topics. May be repeated for credit when subject matter differs. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
**Required Prerequisites:** Doctoral status.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**CS 896:** *Directed Reading and Research.* 1-6 credits.
Reading and research on a specific topic under the direction of a faculty member. Notes: Students can sign up for this class only after passing the CS PhD qualifying exams. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 18 credits.

**Registration Restrictions:**
**Recommended Prerequisite:** Permission of Instructor.

Enrollment limited to students in the PHD Computer Science program.
Conflict Analysis and Resolution (CONF)

100 Level Courses

CONF 101: Conflict and Our World. 3 credits.
Brief history of field, survey of key conflict resolution themes and theories, and intervention methods. Overview includes general factors of conflict and its resolution; and nature of conflict in interpersonal, group, organizational, and international situations. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture, Recitation

200 Level Courses

CONF 210: Theories of Conflict Analysis and Resolution. 3 credits.
Students will utilize critical thinking and analytical skills to begin an in-depth examination of the major theories of conflict analysis and resolution. Theories and case studies will include root causes and dynamics of conflict and methods of conflict analysis and resolution. Notes: Required course for all CONF majors (BA and BS) beginning Fall 2011. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Lecture

300 Level Courses

CONF 300: Conflict Resolution Techniques and Practice. 3 credits.
Advanced consideration of CONF 101 topics, introduction of core notion of reflective practice, conflict resolution techniques, practice, third party roles, and ethics. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Lecture

CONF 301: Research and Inquiry in Conflict Resolution. 3 credits.
Introduces social science research methods at undergraduate level. Covers basic epistemology of social research, including quantitative and qualitative methods, emphasizing participatory action research, and evaluation and assessment work. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Lecture

CONF 302: Culture, Identity, and Conflict. 3 credits.
Covers deeply rooted, intractable, or protracted social conflicts around core issues of identity, including race, ethnicity, religion, and nationalism. Explores cultural, symbolic, and discursive approaches to identity conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

CONF 310: Special Topics in Practice. 1-6 credits.
Examines selected topics related to practice in the field of conflict analysis and resolution. Topics vary, but will address practical skills and knowledge base necessary to conflict resolution practice. Notes: May be repeated if topics vary. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 6 credits.
Conflicts are global, and understanding the complexities of international violence and conflict is crucial. This document explores various courses that aim to develop a practical understanding of conflict resolution in different contexts.

**CONF 340: Global Conflict Analysis and Resolution**
3 credits.

Covers conflict at the macro level, introducing theories of international and global violence and conflict, drawing from disciplines of international relations, political science, intercultural communication, and conflict resolution. Covers impact of globalization and structural causes of conflict. Uses class discussions, case studies, and final paper to develop analytical skills to help in analysis of conflict. Prepares for further course work for international conflict concentration. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Lecture

**CONF 341: Simulation in Global Conflict Resolution**
1 credit.

Focuses primarily on global conflict resolution practice. Using the methodologies of dialogue, problem-solving, and intensive simulation, students will increase their theoretical and practical understanding of peace making, peace building, and transformation processes within a specific international case. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 2 credits.

Schedule Type: Laboratory

**CONF 345: Social Dynamics of Terrorism, Security, and Justice**
3 credits.

Presents students with analytical frameworks to account for terrorist acts and organizations and explore social dynamics underlying the development of, and response to, terrorism. Topics may include recruitment into violent groups, counterterrorism and human rights concerns, role of religious and political ideologies in terrorism and counterterrorism, media coverage of terrorism, and effects of terrorism on social structures and processes. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Lecture

**CONF 346: Counterterrorism and International Security**
1 credit.

Covers complex international political, economic, and military dynamics affecting counterterrorism. Theories and practices related to counterterrorism, intelligence, international relations, and security. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Lecture

**CONF 370: Internship Field Experience**
1-9 credits.

Internships will provide an opportunity for students to gain practical experience, reflect on those experiences, and apply academic theories outside of the normal classroom environment. Students will apply academic theories learned in the classroom to situations that arise in the work environment. Students must obtain approval and complete an internship proposal application in order to be registered for the course.

Schedule Type: Internship

**CONF 375: Special Programs Field Experience**
1-6 credits.

Learning experience in the application of conflict analysis and resolution (CAR) skills in special program settings. Provides supervised practice in CAR techniques, leadership, program implementation, and strategies to facilitate conflict resolution in educational institutions or community settings. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Fieldwork

**CONF 385: International Field Experience**
3 credits.

Investigates conflict theory through international field experience including participation in formally organized course offered by Center for Global Education or another form of international field experience approved by program director. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: CONF 101 and permission of advisor.
Conf 386: Context and Synthesis: Study Abroad. 1 credit.
Investigate conflict theory through cross cultural experience which includes participation in formally organized semester abroad programs offered by Center for Global Education or another form of international field experience approved by the program director. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 2 credits.

Schedule Type: Seminar

Conf 393: Philosophy, Conflict Theory, and Violence. 3 credits.
Examines causes, sources, and origins of group violence with particular attention to group violence of ethnicity conflict. Explores alternative proposals that explain why violence becomes primary, or at least viable, form of revolving conflict in some societies. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: Conf 101 or permission of instructor.

Schedule Type: Lecture

Conf 394: Human Rights and Inequality. 3 credits.
Examines inequality, social justice, and human rights in an age of globalization. Topics may include international law and order, welfare-and social policy, regionalism and multilateralism, environmental protection, gender equality, terrorist and transnational criminal networks, human trafficking, modern slavery, world poverty, corporate military firms, governance of global financial institutions, security, and transnational social movements. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Lecture

Conf 397: Study Abroad Special Topics. 1-9 credits.
Transfer credit for relevant coursework taken during direct exchange study abroad trips. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 12 credits.

Schedule Type: Lecture

Conf 398: Special Topics in Advanced Techniques and Practices. 3 credits.
Examines selected topics relating to conflict resolution techniques and practices. Topics vary but may include mediation, negotiation, reflective practice, and facilitation. Notes: May be repeated if topics vary. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 9 credits.

Schedule Type: Lecture

Conf 399: Special Topics in Conflict Analysis and Resolution. 3 credits.
Examines selected topics relating to analysis or resolution of conflict. Topics vary but may include historical examination of conflict, social issues stemming from conflict, ethical issues in intervention, globalization, human rights, sources of conflict, or relationship of particular identity domains to conflict. Notes: May be repeated if topics vary. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 9 credits.

Schedule Type: Lecture

400 Level Courses

Conf 425: Mediating Conflict. 3 credits.
A skill development course connecting conflict resolution theory and practice to the mediation process through lectures, discussion, self-reflection, experiential learning, and role-plays. This course has been approved to meet the 20-hour basic education requirements for mediation certification by the Judicial Council of Virginia and the Office of the Executive Secretary, Supreme Court of Virginia. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Seminar

Conf 435: Building Peace in Divided Societies. 3 credits.
A major challenge to peacebuilding efforts domestically and globally are the boundaries that communities believe separates themselves from others. The boundaries have ethnic, racial, religious or cultural roots, often with long histories of division and violence. This class will examine case studies and strategies from around the globe of peacebuilding in complex communities. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Schedule Type: Seminar

Conf 485: Service Learning Intensive. 1-9 credits.
Provides students with real-world setting to link conflict theory to resolution practice. Students will engage with grassroots organizations in conflict assessment, resolution process designs, trainings, and project implementation in domestic and international settings. Notes: May require additional fees. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 12 credits.

Schedule Type: Fieldwork

Conf 490: RS: Integration. 3 credits.
A capstone course in which students reflect on what they have learned, integrating knowledge from course work and synthesizing it to cogent body of knowledge. Includes class discussion and final project that demonstrates understanding of conflict theory and reflective practice. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Specialized Designation: Research/Scholarship Intensive

Registration Restrictions:
Required Prerequisite: Conf 301C.
C Requires minimum grade of C.

Schedule Type: Seminar

Readings and research conducted on individual basis in consultation with instructor. Notes: Student may not present more than 3 credits for graduation credit. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Independent Study

500 Level Courses

Conf 501: Introduction to Conflict Analysis and Resolution. 3 credits.
Prerequisite or corequisite for all MS CONF majors. Introduces field of conflict analysis and resolution. Examines definitions of conflict and diverse views of its "resolution." Explores thinking about human
behavior, and social systems as they relate to origins of conflict and role of conflict in violent and peaceful social change. Considers appropriate responses to conflict at interpersonal, intergroup, industrial, communal, and international levels. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 502: Intensive Introduction to Conflict Analysis and Resolution. 3 credits.
Introduces field of conflict analysis and resolution. Examines the origins of social conflict, the practices and strategies for responding to conflict, and frameworks for constructive intervention. Considers interpersonal, community, and large-scale intergroup conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 595: Special Topics. 1-3 credits.
Topics vary each semester and are announced each academic year. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

600 Level Courses

CONF 600: Foundations of Conflict Analysis and Resolution. 6 credits.
This course offers an integration of theory, research and practice to investigate the inner workings of our field. It includes conflict theories, models and modes of practice that function as the grounding to subsequent courses in the curriculum, and exploration of some of the key contemporary debates. The course includes opportunities for linking theory to practice with experimental learning activities. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 601: Theories of Conflict and Conflict Resolution. 3 credits.
Examines major theories of conflict causation and motivation. Emphasizes need for theories to inform processes of conflict resolution. Weaves together ideas from conventional disciplines with new approaches, especially with regard to causes and methods of resolving deep-rooted conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 610: Conflict Inquiry. 3 credits.
Introduces students to the philosophies behind social science research and the methods for conducting research in the field of conflict resolution. Focuses on the identification of research problems associated with particular conflict situations, selection of appropriate research methods, and the design of effective research projects. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 600.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 611: MS-Research II. 3 credits.
Guides students through design, execution, interpretation, analysis, presentation, and evaluation of field research in conflict and resolution. Builds on CONF 610. Notes: Builds on CONF 610. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 and 610.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 620: *Reflective Practice in Interpersonal-Multiparty Conflicts*. 3 credits.

Introductory skill-building course integrating conflict theory and practice using reflective practitioner model. Students learn necessary skills for third-party facilitation and mediation, including active listening, empathy, paraphrasing, reframing, and negotiation, in addition to analytical skills of problem solving and creation of transformational processes. Cases for practice focus on interpersonal and intergroup conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit. Equivalent to CONF 713.

Recommended Corequisite: CONF 501.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Laboratory

CONF 621: *Reflective Practice in Organizational or Community Conflict*. 3 credits.

Moves from conflicts that are simply described to those with multilevel components, such as community and organizational conflicts. Expands skills acquired in CONF 620 by adding recording chronology, identifying roles played by various participants, observing turning points in process, and precisely stating agreed-on solution. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Corequisite: CONF 501 and CONF 620.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Laboratory

CONF 622: *Reflective Practice in International Conflict and Civil Strife*. 3 credits.

Continues study of resolution processes as applied to highly complex systems, especially where one party denies legitimacy of existing political authority. Considers third-party options for intervention in revolutionary and international conflicts, building communication and trust among parties, and implementing agreements. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Corequisite: CONF 501 and CONF 620.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Laboratory

CONF 625: *Engaging Conflict*. 3 credits.

This course will provide students an experiential opportunity to consider the relationship between social science theories and conflict analysis and resolution work; and engagement in a variety of forms with real world conflict. Each course will provide students the opportunity to engage in research and practice activities, choosing the appropriate modalities for the conflict they are engaging with. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: CONF 600.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Fieldwork

CONF 642: *Integration of Theory and Practice*. 3 credits.

Taken in last semester of master's student course work. Assists in developing students' own theories of conflict and conflict resolution by reviewing and integrating prior course work. Students expected to demonstrate holistic comprehension by writing major essay of publishable quality. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501, 601, 610, 713. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.
Enrollment is limited to Graduate or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 643: Practicum: Conflict Analysis and Resolution. 3 credits. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501, 613, 623, 633, and permission of instructor. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 650: Conflict Analysis and Resolution Advanced Skills. 3 credits. Introduces innovative practices and provides structure to reflect on and improve ability to work within conflict settings. Considers the intersection of theory and practice, with special attention to the challenges of translation, adaptation, and transfer of skills and models. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or CONF 502. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 651: Collaborative Community Action & Participatory Governance. 3 credits. Covers designing collaborative processes to work with diverse stakeholders to build meaningful and lasting shared agreements. Considers applications in land use, development, or other community planning contexts. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or CONF 502. Concurrent enrollment is also permitted.

Specialized Designation: Green Leaf Course

CONF 652: Conflict Analysis and Resolution for Prevention, Reconstruction, and Stabilization Contexts. 3 credits. Considers conflict analysis and resolution approaches to designing, implementing, and evaluating holistic cross-sectoral, conflict-sensitive initiatives in areas of potential violence and postconflict reconstruction and stabilization contexts. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or CONF 502. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 653: World Religions, Diplomacy, and Conflict Resolution. 3 credits. Analyzes ways world religions play role in conflicts, war, diplomacy, peacemaking, and conflict resolution. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or CONF 502. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 656: Integrating Complementary Approaches in Conflict Analysis and Resolution. 3 credits. Considers designs and methods for conflict analysis and resolution that integrate multiple approaches, stakeholders, and methods. Applies to
social conflicts in local and international contexts. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or CONF 502. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 657:** Facilitation Skills. 3 credits.
Covers range of skills in group facilitation processes, with emphasis on conflict analysis and resolution approaches to improve group communication. Includes skill-building exercises. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 502. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 658:** Diversity and Difference in Conflict Analysis and Resolution. 3 credits.
Covers elements of cultural diversity, understanding, and awareness, as well as creative ways of approaching issues of diversity, identity, worldviews, and territory. Considers individuals, organizations, communities and nations. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or CONF 502. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution colleges.

**Schedule Type:** Seminar

**CONF 659:** Leadership in Conflict Analysis and Resolution. 3 credits.
Covers roles and styles of leadership in interpersonal, organizational, community, group, and international conflicts. Considers cultural roles of leaders as insider-partialis, negotiators, facilitators, and mediators. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or CONF 502. Concurrent enrollment is also permitted

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 660:** Conflict Assessment and Program Evaluation. 3 credits.
Covers assessment methods appropriate to conflict contexts and related evaluation approaches and techniques for use in areas of peace building, community processes, or interpersonal conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 502. Concurrent enrollment is also permitted

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution colleges.

**Schedule Type:** Seminar

**CONF 665:** Special Topics in Conflict Analysis and Resolution. 3 credits.
In-depth study of contemporary areas of conflict resolution practice. 
Notes: Fulfills elective requirement for certificate program. Topics vary. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** CONF 502, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.
Enrollment limited to students in the Conflict Analysis Resolution college.

**Schedule Type:** Seminar

**CONF 668:** Applied Integration for Graduate Certificates. 3 credits. Capstone course facilitating integration of learning in the graduate certificate programs and appropriate mentored application and experiential learning. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 502; CONF 660; and CONF 650, 651, 652, or 653.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Coll Nursing Health Science or Conflict Analysis Resolution colleges.

**Schedule Type:** Seminar

**CONF 682:** Principles of Environmental Conflict Resolution. 3 credits. Explores the nature and characteristics of environmental conflict and efforts to manage, resolve or transform it. Students will develop a capacity to assess the strengths and weaknesses of environmental conflict resolution processes while learning about best practices for preventing, preparing for, and addressing environmental conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit. Equivalent to EVPP 682.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** CONF 501 and CONF 502, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree, Undergraduate or Washington Consortium level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 683:** Environmental Conflict Resolution: Situation Assessment, Process Design and Best Practices. 3 credits. Explores best practices for managing, resolving, and transforming environmental conflict using environmental conflict resolution (ECR) processes. Nature and dynamics of environmental disputes, methods for assessing conflict situations, and methods for conducting various forms of ECR processes will be covered in the context of selected case studies with emphasis on student involvement. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit. Equivalent to EVPP 683.

**Recommended Prerequisite:** CONF 682 or EVPP 682, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 684:** Environmental Conflict Resolution and Collaboration: Leadership Practicum/Capstone. 3 credits. Capstone course for the Graduate Certificate in Environmental Conflict Resolution and Collaboration. Under supervision of the instructor, students will undertake an assessment of an active environmental conflict and recommend a range of processes that promote identified goals for preferred conflict outcomes. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit. Equivalent to EVPP 684.

**Recommended Prerequisite:** CONF 682 or EVPP 682 and CONF 683 or EVPP 683.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 690:** Practicum in Conflict Analysis and Resolution. 3 credits. In-depth field study of ongoing conflict situations, and design and delivery of intervention processes to manage or resolve conflicts. Notes: Two semesters, 3 credits per semester. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** CONF 501 or 801, 713 (714 or 715 recommended but not required) or permission of instructor. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type: Fieldwork**

**CONF 694: Internship.** 1-6 credits.

Students are expected to mesh theory and practice through observation and experience. Includes comprehensive report analyzing experiences. For 3 credits of internship students must complete 160 hours of work on site. Students must receive permission of the Internship Coordinator prior to registering. Notes: Under direction of internship coordinator, students spend at least 160 hours on project involving study, resolution of conflict for each 3-credit internship. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** 21 credits, including CONF 620.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type: Internship**

**CONF 695: Selected Topics.** 3 credits.

Topics vary; announced each academic year. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** CONF 501 or 801 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type: Seminar**

**CONF 697: Directed Readings and Research.** 1-3 credits.

Independent reading at master’s level on specific topic related to conflict analysis and resolution, as agreed to by student and faculty member. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type: Research**

**700 Level Courses**

**CONF 702: Peace Studies.** 3 credits.

Examines diverse meanings of peace, conflict, and violence, and then reviews different issues relevant to understanding peace and conflict, including the sources of war, poverty and economic disparities, and ecological degradation. Other topics to be covered are peace keeping, peace building, sustainable development, ecological preservation, nonviolence, and peace movements. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** CONF 501 or 801, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type: Seminar**

**CONF 704: Narrative Approaches to Conflict Analysis.** 3 credits.

This course provides participants with the analytic tools needed to conduct their own research on conflict and conflict resolution, using a narrative perspective. This course enables students to a) review the key narrative research in the field of conflict resolution; b) design a narrative analysis of conflict; c) conduct a narrative analysis of conflicts. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Corequisite:** CONF 501, 801, or permission by instructor.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Conflict Analysis Resolution college.

**Schedule Type: Seminar**

**CONF 705: Conflict and Discourse Analysis.** 3 credits.

The study of discourse, culture, narratives and public interpretations are becoming ever more important to the field of Conflict Analysis and Resolution. In this class we explore these concepts as they have been used in cutting edge approaches to the analysis and resolution of conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Corequisite:** CONF 501, 801, or permission by instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the Conflict Analysis Resolution college.
violence, terrorism, revolution, and warfare. Applies insights from study of
applies them to variety of cases: family abuse, religious and ethnic
Considers various theories, causes, and conditions of violence, and

Schedule Type: Seminar
CONF 706: Ethics and Conflict. 3 credits.
Students explore issues and controversies in our field about what is just
and unjust, morally right and wrong, and good and bad. Such issues are
relevant to analysis and practice before, during, after the occurrence of
conflict; the major topics include: validity of pacifism, the notions of a
just war, the challenges of genocide prevention, non-violent resistance,
humanitarian interventions, and human rights activism. Offered by
Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or
Health and Human Services colleges.

Schedule Type: Seminar
CONF 707: Gender and Violence. 3 credits.
This course will address gendered dimensions of violent conflict and
and its transformation. Key themes to be explored include gender and post-
conflict justice and reconciliation; the gendered politics of memory,
speech and representation; militarism and masculinity; sexual violence
and discourses of trauma, victimization and agency; and the ethics and
politics of analytic and practice approaches. Case studies will include the
partition of India/Pakistan; wartime sexual assault in Bosnia/the DRC;
and domestic violence in the U.S. and South Asia. Offered by Conflict
Analysis & Resolution (p. 882). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or
Health and Human Services colleges.

Schedule Type: Seminar
CONF 708: Identity and Conflict. 1-3 credits.
Explores complex interrelations of social identity and postmodern
conflicts in society. Emphasizes the role of identity in processes of
conflict resolution and transformation. Critical rethinking of ethnic,
national, and religious identities as both generators and outcomes of
conflict are an important part of the course. Extends knowledge on
structure and dynamics of identity-based conflicts and develops a
framework for their resolution. Course includes lectures, simulations, and
case studies. Offered by Conflict Analysis & Resolution (p. 882). May not
be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution college.

Schedule Type: Seminar
CONF 709: War, Violence, and Conflict Resolution. 3 credits.
Considers various theories, causes, and conditions of violence, and
applies them to variety of cases: family abuse, religious and ethnic
violence, terrorism, revolution, and warfare. Applies insights from study of
initiation, escalation, management, resolution, and prevention of violence
to theories about resolving deep rooted conflicts. Offered by Conflict
Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict
Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 720: Ethnic and Cultural Factors in Conflict Resolution. 1-3 credits.
Examines the role culture plays in genesis, structuring, and resolution
of processes of conflict within and between groups. Special attention
to ethnicity and other subcultural markers of identity in complex social
systems as generators and outcomes of conflict. Explores relevance of
variables to success or failure of conflict resolution. Offered by Conflict
Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict
Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 721: Conflict and Race. 3 credits.
Addresses historic analyses of racial and ethnic identity conflicts and
their resolution. Offered by Conflict Analysis & Resolution (p. 882). May
not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801; 720 recommended.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict
Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 722: Conflict and Religion. 3 credits.
Explores role of religious ideas, practices, and organizations in conflict,
war, peace making, and conflict resolution. Offered by Conflict Analysis &
Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict
Analysis Resolution or Health and Human Services colleges.
Students in a Non-Degree Undergraduate degree may enroll.

Enrollment is limited to Graduate or Non-Degree level students.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 723: Conflict and Gender. 3 credits.
Examines constructs of gender and conflict as they relate to critical analysis of theory and practice. Reviews feminist theories for contributions to social and conflict theories. Uses narratives to explore how gender, power dynamics interact in conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 724: Conflict and 'Isms'. 3 credits.
Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801; 720 recommended.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 725: Conflict and Spirituality. 3 credits.
Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 726: Moral and Philosophical Foundations of Conflict. 3 credits.
Explores major historical and contemporary positions on the intellectual, moral, and religious foundations for analyzing and resolving conflict. Enhances critical abilities in metacritique, dialectics, and intellectual self-appropriation. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 727: Ethnographic Methods for Conflict Analysis and Resolution. 3 credits.
Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 728: Human Rights Theory and Practice in Comparative Perspective. 3 credits.
Introduces major controversies and debates surrounding use of human rights theory and practice cross-culturally. After basic study of human rights philosophy, uses case studies from around the world to examine problems and potential of human rights in today's globalized world. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 729: Approaches to Violence. 3 credits.
Explores violence from variety of intellectual and political perspectives. Readings are wide-ranging and interdisciplinary, addressing levels of analysis from biological to nation-state and transnational processes. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar
CONF 730: Structural Sources of Conflict. 3 credits.
Examines how structures and institutions affect behavior and give rise to conflictual relationships at all social levels, from interpersonal to the international. Explores role of conflict resolution as political process.
providing opportunities for nonviolent system change. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801 and 601 for MS or 803 for PhD.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 731: Conflict in Organizations.** 3 credits.
Explores intersection and dynamics of organizational behavior and dimensions of conflict. Involves theoretical perspectives and cases examining conflict analysis and resolution. Practices strategies for prevention and intervention. Field research in greater metropolitan area integrates course content. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 732: Conflict in Development.** 3 credits.
Examines the relationship between processes of political and economic change and conflict; the relationship between democratization and conflict; the relationship between structural adjustment policies and conflict; and the challenges of postconflict reconstruction. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 733: Law and Justice from a Conflict Perspective.** 1-3 credits.
Contrasts legal processes and institutions with alternative approaches to dispute resolution. Defines and distinguishes among law, "alternative dispute resolution," and problem-solving analysis as methods for resolving rather than controlling conflict. Examines to what extent legal procedures are truly applicable to resolving deep-rooted conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 734: Conflict and Crime.** 3 credits.

**Recommended Prerequisite:** CONF 501 or 801 or Permission of Instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 735: Global Context of Conflict.** 3 credits.
Advances skills and knowledge base in critical analysis and creative problem-solving. Examines root causes of conflict in global context in terms of gender inequality, cultural differences, unequal North and South relations, militarism, economic oppression, genocide, maldevelopment, religious and ethnic struggles, and environmental scarcity. Students develop their own conceptual tool boxes to analyze conflicts in different parts of the world. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801; 730 recommended.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 736: Globalization and International Conflict.** 3 credits.
Explores economic, political, social, and cultural meanings of globalization; how they affect conflict processes at international level; and when and under what conditions globalization promotes cooperation or conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar
CONF 737: Societies, Globalization and Conflict. 3 credits.
Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 739: Collective Action, Social Movements, and Globalization. 3 credits.
Explores how people translate underlying grievances into collective action. Examines how groups organize, frame, and develop strategies and tactics to pursue agendas, and how processes of globalization have influenced social movement dynamics. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 740: Conflict Roles, Resources, and Ethics. 3 credits.
Analyzes and critiques nature and roles in conflicts. Uses theoretical perspectives, case histories to understand how settings affect roles. Includes ethical assessment of interventions in variety of conflict settings. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801, 713.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 741: Negotiations. 3 credits.
Uses negotiating experiences to construct framework for thinking about and analyzing negotiation processes. Framework then used to organize review of research literature on rhythms and patterns of negotiation and to analyze actual cases. Interweaves exercises, class projects with state-of-the-art concepts and findings. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 742: Environment and Policy. 3 credits.
Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801 or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 743: Dynamics of Conflict Termination. 3 credits.
Investigates a number of themes relating to war termination with an emphasis on contemporary civil wars. Considers the nature of civil war, focuses attention on a number of contemporary cases, raises questions relating to settlement and series of themes relating to peace implementation and peace building. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 744: Peace Keeping. 3 credits.
Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 501 or 801.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 745: Leadership Roles in Conflict and Conflict Resolution. 3 credits.
Leadership responses to conflict are affected by several variables, including race, ethnicity, and gender. Explores roles of leadership decision-making styles as agents of conflict across range of conflict scenarios at interpersonal, community, organizational, and international
levels. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801; 740 recommended.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

CONF 746: *Peace Building*. 3 credits.
Building on initiatives of United Nations and other multilateral organizations, explores dynamics of post-conflict peace building. Prepares students of conflict resolution to play innovative roles in reconstruction of civil societies. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

CONF 747: *Reconciliation*. 3 credits.
Explores processes of acknowledgment, reconciliation, forgiveness, and restitution. Reviews literature, case studies, and other research to assess applicability and impact of these efforts. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

CONF 748: *Comparative Peace Processes*. 3 credits.
Compares case studies drawn from actual peace processes, both successful and unsuccessful, to illuminate principles and complexities. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501, 601, 801, 603, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

CONF 749: *World Religions, Violence, and Conflict Resolution*. 1-3 credits.
Examines how world religions play a role in conflict and conflict resolution. Investigates how values, world view, and hermeneutics influence strategies for successful conflict interventions. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

Examination of models and methodologies for evaluation of conflict resolution initiatives. Evaluation approaches taught will include action evaluation, program evaluation, formative evaluation, and summative evaluation. Students will be expected to complete an evaluation design for an actual conflict resolution-related initiative as the major course requirement and participate in the class evaluation project. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 501 or 801. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

CONF 751: *Political Economy of Civil War and Peacebuilding I*. 3-6 credits.
The course will cover the latest research, theories, and case analysis on civil wars and peacebuilding, including topics such as: The social, economic, and political institutional origins of conflict; The roles of resources, institutions, and social formations in shaping dynamics of civil war and other related forms of contentious politics; War termination and comparative peace processes; Components and dynamics of peacebuilding and the relationships among peacebuilding, democratization, and state-building; Roles of third parties in promoting negotiations, peace implementation and sustainable peacebuilding and reconciliation. Case studies of contemporary civil wars will be used to illustrate and test these conceptual frameworks. This course is the first in a year-long seminar. Students are required to take the second course in the seminar CONF 752. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 752: Political Economy of Civil War and Peacebuilding II. 3-6 credits.
The course will cover the latest research, theories, and case analysis on civil wars and peacebuilding, including topics such as: The social, economic, and political institutional origins of conflict; The roles of resources, institutions, and social formations in shaping dynamics of civil war and other related forms of contentious politics; War termination and comparative peace processes; Components and dynamics of peacebuilding and the relationships among peacebuilding, democratization, and state-building. Roles of third parties in promoting negotiations, peace implementation and sustainable peacebuilding and reconciliation. Case studies of contemporary civil wars will be used to illustrate and test these conceptual frameworks. This course is the second in a year-long seminar. Students are required to have taken CONF 751 in the previous semester. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 751.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 753: Post-Conflict Contexts: Between Global and Local. 3 credits.
Focuses on the aftermath of violent conflict, attending to issues of structural inequality, memory, narrative, gender, trauma, culture and identity. Critically evaluates theories and practices of transitional justice and post-conflict peacebuilding, including justice, reparation, truth-telling, reconciliation, memorialization and psychosocial repair. Considers forms of social change and governance that emerge through post-conflict interventions, and explores dynamic frictions between globalizing models and local concerns. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 754: Micro-theories of Conflict. 3 credits.
The goal of this course is to explore theoretical approaches to psychological processes, personality, in-group and intergroup dynamics, and social processes in the society as a whole with the emphasis on their role in the processes of conflict resolution and transformation. Critical understanding of psychological and socio-psychological phenomena as both generators and outcomes of conflict will be an important part of the course. This course has three main parts: psychological processes, approaches to person, and group processes and society. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Corequisite: CONF 501.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 755: Transforming Conflict through Insight. 3 credits.
The Insight approach is best understood as an applied human science. Like other applied sciences, it requires students to master an explanatory framework that enables them to frame their questions, formulate their hypotheses, verify their findings, and plan their actions. Thus, the course is designed follow an activity-based, problem-solving approach to learning and using the Insight approach. The objective is to enable students to master the Insight approach by putting it to work, with course meetings build around analytical exercises and activities designed to illuminate assigned readings. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Corequisite: CONF 501.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 756: Addressing Intractable Conflict. 3 credits.
This course is about the biggest problems facing our communities, our nation, and our world today. Our communities, our nations (the US and others), and the world have proven remarkably unable to "solve" any of these problems. Why? We assert it is because they are all underlain by a more fundamental problem the inability to constructively deal with difficult and intractable conflicts. These conflicts prevent us as individuals, organizations, and governments (at all levels) from making wise decisions or taking effective action that will address any of these pressing problems. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Corequisite: CONF 501.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 757: Conflict and Literature. 3 credits.
The purpose of this course is to teach students to read/interpret written and oral texts; explore what imaginative literature can teach us about the causes, motives, dynamics, and possibilities of resolving violent social conflicts; deepen our understanding of the human dimensions of conflicts involving mass movements for social transformation; and
practice creating imaginative works of our own. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Corequisite:** CONF 501.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution college.

**Schedule Type:** Seminar

**CONF 758: Social Dynamics of Terrorism.** 3 credits.

Presents students with analytical frameworks to account for terrorist acts and organizations and explore social dynamics underlying the development of, and response to, terrorism. Topics may include recruitment into violent groups, counterterrorism and human rights concerns, role of religious and political ideologies in terrorism and counterterrorism, media coverage of terrorism, and effects of terrorism on social structures and processes. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Corequisite:** CONF 501 or CONF 801.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 795:** Professional Development Seminars. 1-2 credits.

These 1- and 2-credit courses are scheduled non-conventionally using weekends, concentrated presentations, and intersession periods to develop advanced professional skills. Possible topics include marketing conflict resolution services, academic course design, training design, mediation, facilitation, family practice, fundraising, writing for publication, advanced field research techniques, and grassroots applications of conflict resolution. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** CONF 501 or 801, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 797:** Proposal Development. 1 credit.

Covers development of research proposal for master’s thesis, including framing a question, literature review, and designing appropriate methodology. Students form master’s thesis committee and review Human Subjects Review Board’s guidelines and procedures. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Corequisite:** CONF 501 and 610

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Thesis

**CONF 799:** Thesis. 1-6 credits.

Two semesters, usually taken as 3 credits per semester. Original research or analysis under direction of thesis committee. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Thesis

**800 Level Courses**

**CONF 801:** Introduction to Conflict Analysis and Resolution. 3 credits.

Introduces field of conflict analysis and resolution for doctoral students. Examines definitions of conflict and diverse views of resolution. Explores thinking about human behavior and social systems as they relate to origins and role of conflict in violent and peaceful social change. Considers appropriate responses to conflict at interpersonal, intergroup, industrial, communal, and international levels. Notes: Prerequisite or corequisite for all PhD CONF students. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 802:** Theories of the Person. 3 credits.

Understanding human conflict requires knowledge of human behavior, motivation, and perception. Reviews and critically analyzes several psychological theories for application to conflict analysis and resolution theory and practice. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 801. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.
Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 803: Structural Theories.** 3 credits.
Understanding social conflict and potential for conflict resolution requires that both conflict and cooperation be perceived in relation to patterns of social change. Reviews and critiques significant theories of social change to establish a basis for creative conflict analysis and resolution. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 801. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 804: Alternate Theoretical Foundations.** 3 credits.
Familiarizes students with the ideas generated by the Frankfurt School of social theorists and others who have extended or altered these ideas. Students will use these insights to deepen an understanding of serious social conflicts and to explore the implications of critical theories for conflict resolution processes. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Corequisite:** CONF 801.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Conflict Analysis Resolution college.

**Schedule Type:** Seminar

**CONF 811: Quantitative Foundations.** 3 credits.
Building on logic of inquiry, introduces steps in research process to prepare dissertation and implement published research. Covers wide array of quantitative research approaches in social sciences, with emphasis on conflict analysis. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 711, 801, and 810.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 812: Qualitative Foundations: Social Sciences.** 3 credits.
Continuation of steps in research process to prepare dissertation and implement published research. Builds on CONF 811 by examining qualitative research approaches used in social sciences, with emphasis on conflict analysis. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 711, 801, and 810.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 813: Qualitative Foundations: Humanities.** 3 credits.
Explores qualitative research design as it pertains to the humanities, including the methods and epistemology behind the various issues likely to emerge in the process of conducting research. In addition to material on research design and methodology, reading assignments include several monographs that employ different qualitative methodologies. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

**Recommended Prerequisite:** CONF 801. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

**Schedule Type:** Seminar

**CONF 820: Reflective Practice in Interpersonal-Multiparty Conflicts.** 3 credits.
Introductory skill-building course integrating conflict theory and practice using reflective practitioner model. Students learn necessary skills for third-party facilitation and mediation, including active listening, empathy, paraphrasing, reframing, and negotiation, in addition to analytical skills of problem solving and creation of transformational processes. Cases for practice focus on interpersonal and intergroup conflict. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit. Equivalent to CONF 713.

**Recommended Corequisite:** CONF 801.

**Registration Restrictions:**
Enrollment limited to students in the PHD Conf Analysis Resolution program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.
Schedule Type: Laboratory

CONF 821: Reflective Practice in Organizational or Community Conflict. 3 credits.
Moves from conflicts that are simply described to those with multilevel components, such as community and organizational conflicts. Expands skills acquired in CONF 820 by adding recording chronology, identifying roles played by various participants, observing turning points in process, and precisely stating agreed-on solution. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Corequisite: CONF 801 and CONF 820.

Registration Restrictions:
Enrollment limited to students in the PHD Conf Analysis Resolution program.
Enrollment is limited to Graduate level students.
Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Laboratory

CONF 822: Reflective Practice in International Conflict and Civil Strife. 3 credits.
Continues study of resolution processes as applied to highly complex systems, especially where one party denies legitimacy of existing political authority. Considers third-party options for intervention in revolutionary and international conflicts, building communication and trust among parties, and implementing agreements. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Corequisite: CONF 801 and CONF 820.

Registration Restrictions:
Enrollment limited to students in the PHD Conf Analysis Resolution program.
Enrollment is limited to Graduate level students.
Enrollment limited to students in the Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 900: Integrating Theory, Practice, and Method in Conflict Analysis. 3 credits.
Analyzes theoretical basis undergirding methods of research in conflict resolution. Explores how theory is built through reciprocal influence of research and practice. Assists students to fill in gaps in their knowledge and prepare for comprehensive examinations. Prepares students to write integrated research proposals. Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 801, 802 and at least 9 further credits in the doctoral core program.

Registration Restrictions:
Enrollment limited to students in the PHD Conf Analysis Resolution program.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Research

CONF 901: Theory Development. 3 credits.
Offered by Conflict Analysis & Resolution (p. 882). May not be repeated for credit.

Recommended Prerequisite: CONF 801, 802, or Permission of Instructor.

Registration Restrictions:
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Seminar

CONF 998: Doctoral Dissertation Proposal. 1-6 credits.
Work on research proposal that forms basis for doctoral dissertation. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree.

Recommended Prerequisite: Successful completion of comprehensive exam.

Registration Restrictions:
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Dissertation
CONF 999: Doctoral Dissertation Research. 1-12 credits.
Research on approved dissertation topic under direction of committee. Student's dissertation proposal must be approved before registering for 999. Notes: At least 12 credits of 998 and 999 must be accumulated toward degree. Offered by Conflict Analysis & Resolution (p. 882). May be repeated within the degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Coll Nursing Health Science, Conflict Analysis Resolution or Health and Human Services colleges.

Schedule Type: Dissertation

Conservation Studies (CONS)

100 Level Courses

CONS 100: Introduction to Field Conservation Ecology. 2 credits.
In this immersive 1-week experience, students will acquire firsthand exposure to fieldwork in conservation and how conservation professionals contribute to survival of species in natural habitats. Through a combination of lectures, discussions, fieldwork and outdoor adventure students will be introduced to major concepts of ecology (including diversity, succession, species interactions, communities, populations and ecosystems) in the context of species and habitat conservation. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Participation in the Washington Youth Summit on the Environment.

Schedule Type: Lecture

CONS 110: Special Topics in Conservation. 1-3 credits.
Students acquire first-hand exposure to a specific topic in conservation and how conservation professionals contribute to the long-term survival of species. Through a combination of lectures, discussions, and field/lab work, students explore current questions, methods and applications related to a particular topic in conservation. Course Format: Sections of this Smithsonian-Mason School of Conservation course will be taught as an intensive, mixed-format (lectures, lab exercises, field exercises) offerings, in residential, full-day, 1-3-week sessions held at the 3,200 acre Smithsonian Conservation Biology Institute in Front Royal, VA. Students may also be required to complete pre-course reading assignments, and carry out and submit final projects during (or within six weeks after) the onsite session. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

300 Level Courses

CONS 320: Conservation in Practice. 3 credits.
Work with a conservation mentor in a practicum experience. Create a portfolio documenting professional development. Notes: Must be taken concurrently with CONS 401, CONS 402, CONS 410, and CONS 490 or CONS 403, CONS 404, CONS 411, and CONS 491. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Junior standing and a college level biological or

Recommended Corequisite: environmental science course. CONS 401, CONS 402, CONS 410, and CONS 490.

Schedule Type: Laboratory, Lecture

CONS 400: Conservation Seminar. 1-3 credits.
Introduces the field of conservation biology and science-based management of threatened wildlife, habitats, and human landscapes. Provides theoretical background for understanding the importance of biodiversity conservation and sustainability. Notes: Must be taken concurrently with CONS 320, CONS 320, CONS 410, and CONS 490. Only offered through the Smithsonian-Mason Semester. Students cannot get credit for this course and Biology 318 or NCLC 401. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or equivalent course or INTS 401, and EVPP 301 and 302 or equivalent or permission of instructor.

Schedule Type: Seminar

CONS 401: Conservation Theory. 3 credits.
Introduction to Field Conservation Ecology. A practical scientific approach to the nature of biodiversity and species loss. Students participate in field conservation exercises in a variety of settings, as well as endocrine and reproductive technology labs. Students apply field and laboratory experiences to understanding science's connection to management decision-making for conservation. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 410, and CONS 490. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Junior standing and a college level biological or

Recommended Corequisite: environmental science course. CONS 320, CONS 401, CONS 410, and CONS 490.

Schedule Type: Laboratory, Lecture

CONS 402: Applied Conservation. 4 credits.
A practical scientific approach to the nature of biodiversity and species loss. Students participate in field conservation exercises in a variety of settings, as well as endocrine and reproductive technology labs. Students apply field and laboratory experiences to understanding science's connection to management decision-making for conservation. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 410, and CONS 490. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Junior standing and a college level biological or

Recommended Corequisite: environmental science course. CONS 320, CONS 401, CONS 410, and CONS 490.

Schedule Type: Laboratory, Lecture

CONS 403: Ecology and Conservation Theory. 3 credits.
Students learn ecological theories that underlie successful conservation practice. Content includes an in-depth examination of factors that influence the distribution and abundance of organisms within landscapes
Conservation Biology.

**Course Information:**
- **Course Code:** CONS 404
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Corequisite:** CONS 320, CONS 401, and CONS 490
- **Specialized Designation:** Green Leaf Course

**Course Description:** Focuses on the assessment, monitoring, and conservation of species and habitats as well as the tools for sampling species and habitats and the evaluation of those tools' effectiveness. Students use this practical, hands-on knowledge to prepare a series of reports and recommendations for future work. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Laboratory, Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 405
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** BIOL 308 or equivalent course or INTS 401 and EVPP 301 and 302 or equivalent, or permission of instructor.

**Course Description:**
Identify and characterize patterns in landscapes, investigate how they form and change over time, and consider anthropogenic influences. Model populations and communities across landscapes, and consider ways of managing them to achieve goals in managing species and ecosystem processes at local, regional, and continental scales. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Laboratory, Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 406
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** BIOL 308 or equivalent course or INTS 401, and EVPP 301 and 302 or equivalent, or permission of instructor.

**Course Description:**
Investigates species vulnerability to extinction and the methodologies of preserving genetic diversity in small populations, both in the wild and in captivity. Teaches modeling and laboratory techniques that promote successful captive breeding, such as hormone analysis and assisted reproductive techniques. Examines captive species in the Smithsonian Conservation Biology Institute to learn husbandry practices and skills from keepers and biologists. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

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**Course Information:**
- **Course Code:** CONS 410
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Junior standing or a college level biological or

**Course Description:**
Provides sociological, local and global perspectives on conservation issues including adaptive management, conflict resolution, environmental economics, sustainability, public policy, environmental values and public opinion, and conservation ethics. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 402, and CONS 490. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

**Specialized Designation:** Green Leaf Course, Research/Scholarship Intensive

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**Course Information:**
- **Course Code:** CONS 420
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Course Description:**
Covers the impact of human-wildlife conflict on conservation efforts and human health and well-being. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 490
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Course Description:**
Integrates the course work of the Smithsonian-Mason Semester through study of current conservation issues. Students incorporate interdisciplinary aspects of conservation into a summative group case study on a chosen conservation issue and present formally before a faculty panel. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 402, and CONS 410. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 411
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Junior standing or permission of instructor.

**Course Description:**
Addresses the need for clear, direct and proactive communication of scientific processes. Students design communication strategies for diverse audiences and learn skills to engage stakeholders in dialogue related to specific conservation issues. Through individual and group activities that emphasize written, visual and oral communications techniques, students learn how the messages can affect people. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 421
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Course Description:**
Covers the assessment, monitoring and conservation of species and habitats as well as the tools for sampling species and habitats and the evaluation of those tools' effectiveness. Students use this practical, hands-on knowledge to prepare a series of reports and recommendations for future work. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Laboratory, Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 490
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Course Description:**
Integrates the course work of the Smithsonian-Mason Semester through study of current conservation issues. Students incorporate interdisciplinary aspects of conservation into a summative group case study on a chosen conservation issue and present formally before a faculty panel. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 402, and CONS 410. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 420
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Junior standing or permission of instructor.

**Course Description:**
Addresses the need for clear, direct and proactive communication of scientific processes. Students design communication strategies for diverse audiences and learn skills to engage stakeholders in dialogue related to specific conservation issues. Through individual and group activities that emphasize written, visual and oral communications techniques, students learn how the messages can affect people. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 421
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Course Description:**
Covers the assessment, monitoring and conservation of species and habitats as well as the tools for sampling species and habitats and the evaluation of those tools' effectiveness. Students use this practical, hands-on knowledge to prepare a series of reports and recommendations for future work. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Laboratory, Lecture

**Specialized Designation:** Green Leaf Course

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**Course Information:**
- **Course Code:** CONS 490
- **Schedule Type:** Lecture
- **Credits:** 3

**Prerequisites:**
- **Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Course Description:**
Integrates the course work of the Smithsonian-Mason Semester through study of current conservation issues. Students incorporate interdisciplinary aspects of conservation into a summative group case study on a chosen conservation issue and present formally before a faculty panel. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 402, and CONS 410. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Class Information:**
- **Schedule Type:** Lecture

**Specialized Designation:** Green Leaf Course
CONS 491: RS: Conservation Management Planning. 4 credits.
Explores strategies and decisions that help secure the long-term survival of threatened species and habitats. Focuses on the planning tools necessary to define and set conservation goals and quantitatively assess species and areas of conservation value and prioritization. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Mason Core: Encore:Sustainability, Synthesis (p. 135)

Specialized Designation: Green Leaf Course, Research/Scholarship Intensive

Recommended Prerequisite: BIOL 308 or equivalent or INTS 401 and EVPP 301 and 302 or equivalent, or permission of instructor.

Schedule Type: Lecture

CONS 496: Research in Conservation. 5 credits.
One-on-one research experience with a conservation practitioner over 5 weeks (about 36 hours per week) on a conservation research project associated with that practitioner's program. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 (or equivalent course) or INTS 401, and EVPP301 and 302 (or equivalent) or permission of instructor.

Schedule Type: Independent Study

CONS 497: Special Topics in Conservation. 1-3 credits.
Topics of current relevance to the field of conservation. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 9 credits.

Schedule Type: Lecture

CONS 498: Internship. 1-3 credits.
Directed readings and final reflective paper or project in conjunction with an internship subject to instructor approval. Permission to enroll must be obtained from the Mason Center for Conservation Studies at least two weeks prior to the start of the semester. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 9 credits.

Schedule Type: Internship

CONS 499: Independent Study/Research. 1-3 credits.
An independent project or directed exploration into an area of conservation not covered by other courses. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Permission of instructor.

Schedule Type: Independent Study

600 Level Courses

Teaches students to use spatial ecology, geospatial analysis, and remote sensing tools to assess and model species distribution and habitat use in dynamic landscapes. Includes computer and field labs with examples using data from Smithsonian research. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CONS 625: Statistics for Ecology and Conservation Biology. 3 credits.
Provides an overview of experimental design and analysis techniques used in cutting-edge ecological research and conservation. Focuses on increasing knowledge of statistical tests, interpretation of results, and ability to disseminate and clearly explain these results. Students gain an overview of applied monitoring and analysis techniques such as distance sampling, genetic analysis, niche and species distribution modeling, and spatial analysis. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Basic statistics course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CONS 630: Species Monitoring & Conservation. 3 credits.
Explores monitoring and conservation research methods and approaches for specific taxa through lectures, case studies, lab exercises, and field work. Focuses on conservation science and conservation outreach techniques. Notes: May be repeated for credit with approval of the Mason Center for Conservation Studies. A maximum of 6 credits may be applied to the Applied Conservation Science Certificate. Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: A general biology (or relevant species-related) course and a statistics course, or permission of instructor. Prior coursework in environmental science, zoology and ecology recommended.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
**Schedule Type:** Lecture

**CONS 635: Non-Invasive Genetic Techniques in Wildlife Conservation.** 2 credits.
Introduces the benefits, drawbacks and applications of non-invasive genetic techniques to wildlife conservation, focuses on answering questions in animal behavior, population biology, and population management, particularly for vertebrate populations; provides hands-on experience relating to all stages of a research project utilizing modern noninvasive methods from sample collection to data analysis and interpretation. Notes: This course is taught as an intensive, mixed-format (lectures, discussions, lab and computer exercises) offering, in a residential, full-day, 1-week session held at the Smithsonian Conservation Biology Institute in Front Royal, VA. Students also complete pre-course reading assignments, and prepare and submit final projects after the intensive onsite session has concluded. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Recommended Prerequisite:** College-level Genetics Course AND College-level Ecology/Evolution Course.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**CONS 640: Adaptive Management for Conservation Success.** 3 credits.
Sound training in adaptive management is essential for conservationists dealing with the challenges of a changing planet. In groups, students develop a management plan for a real-world conservation project using the adaptive management framework of the Open Standards for the Practice of Conservation. Students can extend the techniques to their own work after the course. Notes: This Smithsonian-Mason Conservation Studies Program course is an intensive 2-week fulltime residential session, incorporating lectures, discussions, and student exercises on group projects. This course will be held at the Smithsonian Conservation Biology Institute's 3,200 acre facility in Front Royal, VA, USA. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CONS 645: Estimating Animal Abundance and Occupancy.** 3 credits.
Provides a strong theoretical and analytical background to the current and accepted methods of estimating population parameters including abundance, survival, and population change. The course teaches study design, implementation and analysis of data from distance sampling, mark-recapture, and occupancy modeling techniques, with a strong focus on the practical use of field data in the programs DISTANCE MARK and PRESENCE. Notes: Course Format: This course is taught as an intensive, mixed format (lectures and computer work) offering, in a residential full-day (8:30am-6pm), 2-week session held at the Smithsonian Conservation Biology Institute in Front Royal, VA. Students complete pre-course reading assignments, and are graded in participation, computer exercises and a final exam. Some night sessions occur throughout the two weeks as well. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Recommended Prerequisite:** College-level introductory statistics course.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CONS 660: Effective Conservation Leadership.** 3 credits.
Teaches effective leadership and management through individual assignments and group exercises. Explores international environmental and conservation case studies, offers hands-on experience to help students develop their own leadership styles. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Recommended Prerequisite:** Students should have a basic background in conservation, ecology, environmental sciences, or similar field.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**CONS 665: Conservation Conflict Resolution.** 3 credits.
Focuses on approaches to cultivating sustainable conservation solutions, including determining root causes of complex conflict dynamics, designing decision-making processes to address conflict, and building mutual respect and trust among stakeholders. Employing principles and strategies developed by the Human-Wildlife Conflict Collaboration (HWCC), students learn how to resolve current conservation conflicts, anticipate arising ones, and reconcile old conflicts that impede new progress. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

CONS 697: Special Topics in Conservation. 1-3 credits.
Topics of current relevance to the field of conservation. Notes: May be repeated for credit with approval of the Mason Center for Conservation Studies. A maximum of 6 credits may be applied to the Applied Conservation Science Certificate. Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student’s program. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Counseling and Development (EDCD)

500 Level Courses

EDCD 525: Advanced Human Growth and Development. 3 credits.
Covers human development throughout the life span, including emotional, physical, and cognitive development; and emphasizes personal adjustment and achievement. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCD 525: Advanced Human Growth and Development. 3 credits.
Covers human development throughout the life span, including emotional, physical, and cognitive development; and emphasizes personal adjustment and achievement. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommendations: required.
Recommended Prerequisite: EDCD 602 (may be taken concurrently).

EDCD 601: Introduction to Research in Counseling. 3 credits.
Enhances knowledge of and involvement in counseling research by introducing techniques and principles to design, implement, and evaluate research projects and program development in community and school settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

600 Level Courses

EDCD 604: Assessment and Appraisal in Counseling. 3 credits.
Prepares students to become informed about psychological and educational tests and assessment procedures that are used and applied in a counseling context. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Recommended Prerequisite: EDCD 601
Required Prerequisite: EDCD 601

EDCD 601: Introduction to Research in Counseling. 3 credits.
Enhances knowledge of and involvement in counseling research by introducing techniques and principles to design, implement, and evaluate research projects and program development in community and school settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

EDCD 603: Counseling Theories and Practice. 3 credits.
Covers major theoretical approaches to counseling from a multicultural perspective and provides supervised introduction to basic skills. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDCD 602 (may be taken concurrently).

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCD 604: Assessment and Appraisal in Counseling. 3 credits.
Prepares students to become informed about psychological and educational tests and assessment procedures that are used and applied in a counseling context. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Recommended Prerequisite: EDCD 601
Required Prerequisite: EDCD 601

EDCD 601: Introduction to Research in Counseling. 3 credits.
Enhances knowledge of and involvement in counseling research by introducing techniques and principles to design, implement, and evaluate research projects and program development in community and school settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

EDCD 603: Counseling Theories and Practice. 3 credits.
Covers major theoretical approaches to counseling from a multicultural perspective and provides supervised introduction to basic skills. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDCD 602 (may be taken concurrently).

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

EDCD 604: Assessment and Appraisal in Counseling. 3 credits.
Prepares students to become informed about psychological and educational tests and assessment procedures that are used and applied in a counseling context. Offered by Graduate School of Education (p. 155). May not be repeated for credit.
Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCD 606: Counseling Children and Adolescents.** 4 credits.

Presents theories, techniques, and counseling issues relevant to children and adolescents. Counseling lab provides practice with an emphasis on process and culturally competent counseling strategies. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 525 and EDCD 603.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

**EDCD 608: Group Processes and Analyses.** 4 credits.

Presents theories appropriate to various types of groups and descriptions of group practices, methods, dynamics, and facilitative skills. Focuses on applying theory to practice. Includes lab. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 603; and EDCD 606 or EDCD 609.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education, Post-Masters Counseling Lic or Psychology.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

**EDCD 609: Advanced Counseling Skills and Strategies.** 4 credits.

Covers counseling skills, process and strategies associated with major counseling theories. Provides intensive practice in both technical and conceptual skills with emphasis on self-awareness, case conceptualization, racial-cultural considerations, and supervised practice in a community setting. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 525 and EDCD 603.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education, Post-Masters Counseling Lic or Psychology.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCD 610: Career and Educational Counseling.** 3 credits.

Presents theories and counseling issues relevant to career counseling in schools and community agencies. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 603, 606 or 609.

**Recommended Corequisite:** EDCD 604.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education, Post-Masters Counseling Lic or Psychology.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCD 611: Introduction to Ethical and Legal Issues in School Counseling.** 2 credits.

Introduces principles, practices, and application of ethical and legal issues in school counseling. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 626.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCD 626: Principles and Practices of School Counseling.** 3 credits.

Introduces school counseling program development at K-12 levels. Presents philosophy, principles, and practices of effective school counseling. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 602 (may be taken concurrently).

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCD 628: Counseling and Social Justice.** 3 credits.
Discusses the Counseling and Development program's mission statement of Social Justice, Multiculturalism, Internationalism, Advocacy and Leadership. Provides an overview of theories and models of social justice, advocacy, and leadership. Examines theories and models from a multicultural perspective and discusses within the context of counseling in school and community settings. Examines the role of counselors as change agents, leaders, and advocates. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 603, and 626 or 654.

**Recommended Corequisite:** EDCD 660.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCD 654: Counseling, Ethics, and Consultation in Community Agencies.** 3 credits.
Provides a foundation for engaging in counseling, consultation, and ethical decision making within agency settings. Examines the role of the community agency counselor, with attention to multicultural and social justice perspectives. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 603 or concurrent enrollment.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCD 652: Introduction to Substance Abuse Counseling.** 3 credits.
Introduces substance abuse counseling. Covers addiction issues, diagnosis and treatment planning, and individual and group counseling strategies with diverse populations. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 603 or concurrent enrollment.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCD 656: Diagnosis and Treatment Planning for Mental Health Professionals.** 3 credits.
Introduces students to fundamental concepts in the classification of psychopathology as well as the clinical interviewing skills necessary to apply DSM-5 diagnoses to clients in a sound and ethical manner. Incorporates an explicit focus on the role of race and culture in diagnosis and treatment. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 603 (may be taken concurrently).

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCD 658: Couples and Family Counseling.** 3 credits.
Introduces major approaches to counseling couples and families. Uses case studies and simulations to facilitate transition from theory to practice. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCD 609 (may be taken concurrently).

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCD 660: Multicultural Counseling.** 3 credits.
Examines multicultural issues in counseling and explores the complexities of culture and its influence on the client/counselor relationship. Promotes awareness and understanding of cultural differences and their effect on the counseling relationship. Investigates variables that interact with culture that may interfere with the counseling
relationship, such as historical, political, socioeconomic, psychosocial adjustment, racism, prejudice, discrimination, and oppression. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDCD 608<sup>B</sup>.  
<sup>B</sup> Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

### 700 Level Courses

**EDCD 755: Practicum in Counseling.** 3 credits.  
Provides supervised practice in a counseling setting similar to the setting in which the student may work with an emphasis on the counseling process. Notes: Weekly graduate class emphasizes site processing. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Completion of CNDV program course work except for EDCD 610 or electives (total credits cannot exceed 3 credits); overall GPA of 3.00; no grade lower than B in skills courses EDCD 603, 606/609 and 608; no more than two grades of C in any other graduate course work required by CNDV program; permission of advisor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**EDCD 791: Internship in Counseling.** 3 credits.  
Provides supervised practice in a counseling setting similar to the setting in which the student may work with an emphasis on the counseling process. Builds on previous practicum experiences. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Completion of CNDV program course work except for electives; overall GPA of 3.00; no grade lower than B in skills courses EDCD 603, 606/609, 608 and 755; no more than two grades of C in any other graduate course work required by CNDV program; permission of advisor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Counseling and Development, Education or Post-Masters Counseling Lic.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**EDCD 797: Advanced Topics in Education.** 1-6 credits.  
See EDUC 797. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
**Required Prerequisite:** EDCD 603<sup>B</sup>.  
<sup>B</sup> Requires minimum grade of B.

Enrollment is limited to students with a major in Counseling and Development.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

### 800 Level Courses

**EDCD 894: Advanced Family and Systems Counseling.** 3 credits.  
Develops advanced level skills and competencies in the practice of family and systems counseling. Multiple theoretical models for practice in a multicultural society will be explored, as will the applications of those models in multiple professional settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD in Counseling and Development Program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDCD 895: Emerging Issues in Counseling and Development.** 3 credits.  
Examines issues in counseling profession, including counseling theory and methodology, development of client groups, new roles and settings for counselors, emerging assessment procedures, new understanding of diagnosis; and impact of societal changes on counseling profession. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the PhD program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDCD 896: Advanced Multicultural Counseling.** 3 credits.  
Focuses on advanced issues in multicultural counseling, including multicultural counseling theories, skills, assessment, supervision, research, and ethics. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Masters degree in counseling or related counseling field from an accredited institution of higher education and EDCD 660, or equivalent; EDCD 895; admission to Counseling and Development Doctoral Program, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

**EDCD 897: Advanced Group Counseling.** 3 credits. For doctoral students who have had experience and training in group work. Provides greater understanding and advanced skill application in group dynamics, group process, and group leadership. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Masters degree in counseling or related counseling field from an accredited institution of higher education and EDCD 608 or equivalent; EDCD 895; permission to the Counseling and Development Doctoral Program, or Permission of Instructor.

**Registration Restrictions:** Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

**EDCD 898: Grant Writing and Publishing.** 3 credits. Focuses on grant writing and publishing in counseling and psychology. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Masters degree in counseling or related counseling field from an accredited institution of higher education; EDCD 895; admission to the Counseling and Development Doctoral Program, or Permission of Instructor.

**Registration Restrictions:** Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

**EDCD 899: The Theory and Practice of Counseling Supervision.** 4 credits. Explores counseling supervision theory from a multicultural and social justice perspective. Students will apply these theories by supervising Master’s level community agency and school counseling practicum students under the supervision of the instructor. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD in Counseling and Development Program; Master’s degree in Counseling or related field, or permission of the instructor.

**Registration Restrictions:** Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

**EDCD 900: Leadership and Advocacy in the Counseling Profession.** 4 credits. Introduces students to broad theoretical concepts, strategies, and skills related to leadership and advocacy within the counseling profession, and will help students integrate leadership and advocacy into their professional identity. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to PhD in Counseling and Development Program.

**Registration Restrictions:** Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

**EDCD 990: Advanced Internship in Counseling Leadership.** 3 credits. Provides supervised practice in counseling leadership setting or position. Emphasizes counseling leadership in practice. Notes: Biweekly class emphasizes site processing, leadership skills, and topical seminars. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Ph.D. in Education program, Counseling and Development specialization; EDCD 628 or equivalent; EDCD 895.

**Registration Restrictions:** Enrollment is limited to students with a major in Education.

Enrollment is limited to students in a Doctor of Philosophy degree.

Schedule Type: Internship

**EDCD 991: Advanced Internship in Counseling.** 6 credits. Provides an intensive multicultural social justice oriented field based supervised experience. Emphasizes intensive use of multicultural competencies in practice, supervision, and program development and evaluation in order to address social justice issues for clients in school or community settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Ph.D. in Education program, Counseling and Development specialization, EDCD 628 or equivalent, EDCD 895 and EDCD 896.

**Registration Restrictions:**

Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Internship

**EDCD 992: Advanced Internship in Social Justice.** 3 credits. Provides opportunities to implement programs and strategies to affect social justice for clients in school or community settings. Notes: Biweekly class emphasizes topical seminars and supervision. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the PhD in Education program, Counseling and Development specialization; EDCD 628 or equivalent; EDCD 895.

**Registration Restrictions:** Enrollment is limited to students with a major in Education.

Enrollment is limited to students in a Doctor of Philosophy degree.
Criminology (CRIM)

100 Level Courses

CRIM 100: Introduction to Criminal Justice. 3 credits.
Overview of the American system of criminal justice, covering theories of justice, criminal law, policing, courts and associated pre and post-trial legal processes, punishment and corrections, and juvenile justice. Required for all criminology majors and minors. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Required for all criminology majors and minors. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Specialized Designation: Discovery of Scholarship

Schedule Type: Lecture

200 Level Courses

CRIM 210: Introduction to Criminology. 3 credits.
Explores and evaluates how crime is defined and measured, and examines crime patterns and trends. Provides an overview and critical assessment of the major theories of crime causation. Notes: CRIM majors who are concentrating in criminal justice are strongly encouraged to take this course before or during the first semester of taking upper-level courses in the concentration. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

CRIM 220: Introduction to Law and Society. 3 credits.
Introduces the relationship between law and society. Discusses theoretical perspectives from a number of social science disciplines. Promotes a foundational understanding of the concept of law and the origins, development, and role of law in society, particularly outside of formal legal institutions. Topics covered may include legal mobilization, law and social change, social movements, law and inequality, and law's relationship to social control. Notes: CRIM majors who are concentrating in Law and Society are strongly encouraged to take this course before or during the first semester of taking upper-level courses in the concentration. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

CRIM 230: Introduction to Homeland Security. 3 credits.
Introduces fundamental concepts of homeland security. Examines governmental actions designed to prevent, prepare for, respond to, and recover from man-made and natural disasters. Focuses on efforts to align preparedness, incident management, and emergency response plans from various agencies (federal, state, local, tribal, private sector, and non-governmental). Notes: CRIM majors who are concentrating in homeland security and justice are strongly encouraged to take this course before or during the first semester of taking upper-level courses in the concentration. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

300 Level Courses

CRIM 301: Public Law and the Judicial Process. 3 credits.
Covers American judicial organization and operation, role of the Supreme Court in policy formation, and selected constitutional principles. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to GOVT 301.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 302: Delinquency. 3 credits.
Examines the significance of juvenile delinquency and societal reactions to it, gender differences in rates and types, historical overview, development of juvenile justice system, and critical assessment of juvenile justice and its alternative. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 304: Computer Crime, Forensics, and Auditing. 3 credits.
Covers computer crime, relevant laws, agencies, standards, auditing, logging, forensics, and related software. Explores legal principles such as chain of evidence, electronic document discovery, eavesdropping, and entrapment. Hands-on experience with forensics tools. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to IT 357.

Recommended Prerequisite: IT 103 and 223.

Schedule Type: Lecture

CRIM 305: Crime and Crime Policy. 3 credits.
Examines the development of crime policy, including the influence of crime trends, politics, public opinion, media, criminological theory, and empirical research. Considers the effectiveness of crime policy. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 306: Criminal Justice Ethics. 3 credits.
Analyzes ethical principles relevant for those working in criminal justice. Required for all criminology majors. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 307: Social Inequality, Crime, and Justice. 3 credits.
Explores the significance of social inequality (especially race and gender inequality) for several crime and criminal justice issues. Examines variations in criminal offending and victimization, and explores disparities in criminal justice processing. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture
CRIM 308: Human Rights and Justice. 3 credits.
Studies the norms, laws, and systems for the promotion and protection of human rights. Provides a foundation for understanding historical, legal, political, economic, and ethical aspects of human rights. Examines ideological and cultural perspectives, sources of violations, the United Nations, regional and national mechanisms, special issues (e.g., women, torture, children, minorities), and the role of nongovernmental organizations. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 310: Introduction to the Intelligence Community. 3 credits.
Introduces students to the structure, function, and process of the intelligence community including the basic skills in writing, research, and presentation used in intelligence analysis. Required for all intelligence analysis minors. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Schedule Type: Lecture

CRIM 312: Intelligence Analysis Techniques. 3 credits.
Introduces the key analytical techniques used by entry-level analysts in the Intelligence community. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CRIM 310D.
D Requires minimum grade of D.

Schedule Type: Lecture

CRIM 315: Research Methods and Analysis in Criminology. 3 credits.
Provides an introduction to research design, methods, and analysis in the field of criminology. Students learn to understand, interpret, and critique quantitative and qualitative research approaches, and become intelligent consumers of research. Notes: This course does not meet the College's IT requirements. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to CRIM 300.

Specialized Designation: Scholarly Inquiry

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

CRIM 320: Crime and Place. 3 credits.
Focuses on the analysis of locations that attract and repel crime, displacement of crime, and identifying and measuring crime concentrations. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

CRIM 325: Hate Crime. 3 credits.
Provides an introductory understanding of the definitions of hate crime; extremist groups and individuals; reporting, investigation, and prosecution of hate crimes; and hate crime policy and legislation. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

CRIM 350: Counterintelligence. 3 credits.
Introduces the legal authority, objectives, and guidelines of the counterintelligence discipline. Covers the investigative, defensive, offensive, and collection activities of the counterintelligence function. Notes: Elective course for the Intelligence Analysis minor. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: CRIM 310C.
C Requires minimum grade of C.

Schedule Type: Lecture

400 Level Courses

CRIM 400: Applied Criminal Psychology. 3 credits.
Uses overview of psychological and criminological theories to apply behavioral science theory to practical application in forensic settings. Focuses on analysis of various crime scenes and characteristics of offenders. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Schedule Type: Lecture

CRIM 401: Policing in America. 3 credits.
Fundamental issues relevant to contemporary public policing in America: role and history of police; impact on crime, disorder, and other social problems; discretion and its control; moral hazards; police legitimacy and public support; police culture and the police organization; and community policing. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 402: Punishment and Corrections. 3 credits.
Covers theories on forms of punishment systems; punishment and corrections as a product of historical, cultural, and political changes; differences by race and gender in punishment and corrections; problems of social control and violence in prisons; alternative rehabilitation; and community prevention strategies. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 403: Community Corrections. 3 credits.
Studies the purposes and goals of community-based corrections and its various components, including pretrial diversion, probation, parole, and emerging alternatives to traditional incarceration. Addresses issues related to offenders returning to the community and critical issues facing jails, community corrections, and the management of offenders in community settings. Examines the role of community corrections within the broader correctional system. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture
CRIM 404: Crime Victims and Victimization. 3 credits.
Explores experiences of crime victims, distribution of the risks of victimization, and causes and consequences of victimization. Also considers nature and influence of victim’s rights advocates. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 405: Law and Justice around the World. 3 credits.
Comparative inquiry into the models of legal and justice systems around the world. Considers how social and legal norms are created, and how different societies exercise powers of social control. Evaluates justice models in action, including law and courts, policing, corrections, and juvenile justice. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 406: Family Law and the Justice System. 3 credits.
Introduction to the elements of family law, and exploration of its influence on American social life and contemporary notions of justice. Topics include marriage and parenting, divorce, custody and support, nontraditional families, and domestic violence. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 407: Advanced Topics in Law and Society. 3 credits.
Provides an in-depth examination of the law’s role in social life to deepen students’ appreciation of the law in action. Focuses on scholarly research that describes and explains how legal actors, processes, and institutions operate in the world. Topics include: theories of legal change, law’s relationship to class, gender, and race, and law, culture, and identity. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100 or GOVT 301

Schedule Type: Lecture

CRIM 408: Criminal Courts. 3 credits.
Studies the workings, advantages, and frailties of criminal courts, and explores whether the system works effectively and efficiently. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100 or GOVT 301

Schedule Type: Lecture

CRIM 409: Community Policing. 3 credits.
Study of community policing, particularly in the United States. Covers history and development of community policing, community relations, problem solving, and issues of organizational change. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 410: Criminal Investigations. 3 credits.
Focuses on criminal investigations and the role of the criminal investigator in the criminal justice system. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 411: Innovations in Policing. 3 credits.
New developments in law enforcement’s response to technical, legal, and social change. Examines law enforcement policies and practices in the past and present, and directions for the future. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 422: Controversial Legal Issues. 3 credits.
Focuses on the study of law as an institution that continuously interacts with other social institutions at the individual, community, state, and federal levels. Examines how constitutional and statutory laws are interpreted by the courts to determine and define the law through contemporary, controversial, legal issues. Explores how the courts, using the law, resolve today’s most controversial issues. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 423: Constitutional Law: Civil Rights and Liberties. 3 credits.
Studies First Amendment freedoms of speech, press, assembly, association, and religion; the right to privacy; and Fourteenth Amendment right to equal protection. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to GOVT 423.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 424: Constitutional Law: Criminal Process and Rights. 3 credits.
Studies constitutional law pertaining to the rights of the criminally accused from investigation and evidence through attorney, trial, and punishment stages at federal and state levels. Required for all criminology majors. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to GOVT 424.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 425: Criminal Justice Management. 3 credits.
Explains the management function for current and future criminal justice managers. Emphasizes communication, leadership skills, and organizational development. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: D or higher in CRIM 100

Schedule Type: Lecture
CRIM 430: Criminal Law. 3 credits.
An overview of the definitions and elements of crimes, defense strategies, and the differences in criminal law across states. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

CRIM 460: Surveillance and Privacy in Contemporary Society. 3 credits.
Philosophical perspectives, historical context, technological developments, and institutional changes that surround controversies about privacy and surveillance in contemporary society. Explores public and private institutions conducting surveillance, how they calculate and manage risk, and legal constraints on surveillance activities. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Seminar

CRIM 462: Law Enforcement and Homeland Security. 3 credits.
Examines the effect of 9/11 on law enforcement organizations in the United States and explores the evolving relationship between the military, federal, state, and local law enforcement agencies in the post-9/11 era. Emphasis on understanding the entire framework of homeland security in the United States and the unique issues faced by local law enforcement. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 471: Prevention and Deterrence of Crime. 3 credits.
Theoretical and practical strategies for crime prevention and deterrence. Discusses social, environmental, and mechanical developments, police courts, and correctional elements of law enforcement in terms of current effectiveness and future potential for crime prevention. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to SOCI 471.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 475: Theory and Politics of Terrorism. 3 credits.
Explores origins of terrorism, tracing development from early states to a modern mode of conflict. Presents national, regional, and global perspectives. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 479: Preparation for Internship. 3 credits.
Preparation for internship in a justice organization or justice-related work activity. Students develop a relationship with a prospective internship sponsor and develop a plan for the internship and the research to be reported. Notes: This course is only open to students majoring in Criminology, Law and Society, and should only be taken by students who intend to complete an internship. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 480: Internship. 6-12 credits.
Application of classroom learning to an applied justice setting. Students maintain daily journals, conduct research, and deliver written and oral reports. Notes: Before enrolling, students must have a plan approved by the instructor. Seminars are held three times during the semester for discussion and oral presentation. Minimum of 45 hours of on-the-job work time required for each credit. Offered by Criminology, Law and Society (p. 321). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: CRIM 100, 306, 315, 479, and approval of department.

Schedule Type: Internship

CRIM 485: Study Abroad. 1-12 credits.
Study Abroad. Course topics, content, and locations vary. Offered by Criminology, Law and Society (p. 321). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

CRIM 490: Special Topics. 1-3 credits.
Recent developments in the field. Notes: Topics vary. May be used to fulfill requirements for different concentrations in the BS in criminology, law, and society depending on the topic. May be repeated when topic is different. Offered by Criminology, Law and Society (p. 321). May be repeated within the term for a maximum 15 credits.

Recommended Prerequisite: CRIM 100

Schedule Type: Lecture

CRIM 491: Honors Seminar I. 3 credits.
Course includes readings, individual or group projects, and discussion of seminar papers. Notes: First of a two-course sequence; subject varies. May be repeated when topic varies. Offered by Criminology, Law and Society (p. 321). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Research Associated

Recommended Prerequisite: Acceptance to pursue honors in the major.

Schedule Type: Seminar

CRIM 492: RS: Honors Seminar II. 3 credits.
Course includes readings and discussion of seminar papers, leading to a research project under the direction of a faculty member. Notes: Second of a two-course sequence. Subject varies. Oral exam on the research and report may be required. May be repeated when topic varies. Offered by Criminology, Law and Society (p. 321). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: CRIM 491.

Schedule Type: Seminar
CRIM 495: Capstone in Criminology, Law and Society. 3 credits.
Provides an in-depth examination of a historical and contemporary issues facing criminology and law and society scholars. Focuses on the philosophies, practices, and procedures used by individuals and organizations and uses a variety of materials, experiences and resources. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Specialized Designation: Scholarly Inquiry, Writing Intensive in the Major

Recommended Prerequisite: CRIM 100, ENGL 101/ENGH 101; ENGL 302/ENGH 302; COMM 100, or 104; 60 credits.

Schedule Type: Lecture, Recitation

CRIM 498: Research Practicum. 1-3 credits.
Supervised research experience with a professor in a non-classroom setting. Offers students an opportunity to gain valuable research experience and training in research. Students are required to work 45 hours (across the semester) per credit. Notes: Open to majors in CRIM with 60 credits and permission of instructor and department. Offered by Criminology, Law and Society (p. 321). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: CRIM 100 and CRIM 315.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Criminology, Law and Society.

Schedule Type: Independent Study

CRIM 499: Independent Study. 1-3 credits.
Reading and research on a specific topic under the direction of a faculty member. Notes: Open to majors in CRIM with 90 credits and permission of instructor and department. Written report is required; an oral exam or report may also be required. Degree requirements to be fulfilled by a particular independent study determined by student’s advisor. Offered by Criminology, Law and Society (p. 321). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: CRIM 100 and 90 credits.

Schedule Type: Independent Study

500 Level Courses

CRIM 509: Justice Organizations and Processes. 3 credits.
Examines structures, practices, and performance of organizations involved in administration of justice: law enforcement, courts and legal agencies, corrections, regulatory and related agencies, and private organizations. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to PUAD 509.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 510: Policing in a Democratic Society. 3 credits.
Fundamental issues in policing a democratic society: police mission, subculture, performance measurement, moral hazards, discretion, impact on crime and disorder, legitimacy, community policing, and other reforms. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 511: Evidence-based Crime and Justice Policy. 3 credits.
Examines the role that science and research play in criminal justice agencies, policies and practices. Includes understanding the strengths and limitations of the evidence-based practices framework, reviewing evidence about the effectiveness, fairness, theoretical underpinnings, and efficiency of various policies and practices to deal with crime and justice issues, and understanding how research is translated into policy and practice. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 512: Implementing Crime and Justice Policy. 3 credits.
Introduces students to the art and science behind implementing policies in today's criminal justice organizations. While considering effective, best, and evidence-based practices, students will learn about both processes and outcomes related to adopting, adapting, implementing and sustaining reform in justice agencies. Key concepts include technology transfer, transportability, uptake, diffusion, fidelity, and change. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 513: Leadership in Justice Organizations. 3 credits.
Explores theory and evidence of various approaches to leadership and management as applied in justice organizations. Examples of leadership approaches include, trait, skills, style, contingency, path-goal, transformational, servant, team, and psychodynamic. Practical aspects of coping with the risks of leadership are included. Involves case studies
and student self analysis using diagnostic tools. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CRIM 514: Legal and Ethical Issues in Criminal Justice.** 3 credits.
Legal and ethical issues in the making and administration of criminal justice policy in the United States. Covers the legal framework governing each issue, competing values influencing policies and practice, and the history of legal reforms in the criminal justice system. Recurrent underlying themes are legalized discretion, gender and racial equality, due process, and procedural justice. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CRIM 515: Criminal Justice Research Methods and Data Analysis.** 3 credits.
Methods of scientific inquiry applied to criminal justice issues. Includes formulation of research questions, logic of inquiry, research design, observation, measurement, and introduction to social statistics and applications to criminal justice data analysis. Learn to critique research and present data in agency reports. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

The major principles and approaches of program evaluation applied to crime and justice policies. Presents a conceptual framework for problem evaluation. Explores issues and methods for developing evaluation questions and assessing various aspects of program theory, operation and outcomes. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Recommended Prerequisite:** CRIM 515.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CRIM 517: Research Practicum in Justice Policy and Practice.** 3 credits.
Student-initiated research project supervised by instructor. Student will identify a client criminal justice organization or stakeholder group and conduct useful research on an issue of interest to that organization or group, producing a policy-oriented white paper suitable for delivery to the organization or group. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Recommended Prerequisite:** CRIM 515, CRIM 516.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

Focuses on understanding legal doctrines that form basis of U.S. constitutional criminal procedural rights and how doctrines develop, why courts rule as they do, and evaluating strengths, weaknesses of rights. For MS Students. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CRIM 523: Law and Social Control.** 3 credits.
Competing conceptions of law, political systems, and social control. Intellectual traditions behind social control, its definitions, and mechanisms for regulating public and private behavior, by both individuals and organizations in society. For MS Students. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**CRIM 541: Conduct of Justice Organizations at the Street Level.** 3 credits.
How justice organizations behave at lowest levels, where service is delivered and discretion is greatest (suspects, victims, witnesses, police
officers, prison guards, parole officers, attorneys, and others who interact with the justice system). For MS students. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 544: Corrections. 3 credits.
Covers the social institutions and processes involved in punishment, control, and behavior change. Reviews the consequences of different policies and organizational approaches. For MS students. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 545: Crime Analysis. 3 credits.
History, theory, and techniques of crime analysis and crime mapping. Includes routine activities, pattern, and rational choice theories. Review of data types. Application of crime analysis to crime control tactics, strategies, and administration. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 561: Politics of Crime Policy. 3 credits.
Explores political context of crime policy. Examines influence of public opinion, interest groups, scientific community, and other political forces. In-depth, case-study comparison of several crime policies. For MS students. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 562: Crime and Place. 3 credits.
Examines the concentration of crime at places, including geographic, environmental, and sociological features that attract or repel crime. Discusses theoretical explanations, crime prevention strategies, and the measurement of crime concentrations. For MS students. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 595: Special Topics. 3 credits.
Recent developments in the field or topics not covered by regularly listed courses. The course content varies. For MS students. Offered by Criminology, Law and Society (p. 321). May be repeated within the term for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

700 Level Courses

CRIM 700: Theories of Justice. 3 credits.
Overview of ancient and modern theories of justice with application to contemporary issues involving justice system, and other social and political institutions. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to GOVT 726.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 720: Behavior of Law. 3 credits.
Examines development of law and law’s effect on human behavior. Reviews theories of law’s meaning and aims. Examines construction of law and investigates consequences of law and legal decisions. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to GOVT 728.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar
Focuses on understanding legal doctrines that form basis of U.S.
constitutional procedural rights and how doctrines develop, why courts
rule as they do, and evaluating strengths, weaknesses of rights. Offered
by Criminology, Law and Society (p. 321). May not be repeated for credit.
Equivalent to GOVT 713.

**Recommended Prerequisite:** CRIM 720 or GOVT 728, or permission of
instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

CRIM 723: *Law and Social Control*. 3 credits.
Competing conceptions of law, political systems, and social control.
Intellectual traditions behind social control, its definitions, and
mechanisms for regulating public and private behavior, by both
individuals and organizations in society. Offered by Criminology, Law and
Society (p. 321). May not be repeated for credit.

**Recommended Prerequisite:** CRIM 720 or GOVT 728, or permission of
instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

CRIM 730: *Courts and Constitutional Law*. 3 credits.
Role, influence, and effects of U.S. courts in creating constitutional
norms and interpreting them. Special attention to First and Fourteenth
Amendments, Commerce Clause. Analyzes leading court cases. Offered
by Criminology, Law and Society (p. 321). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

CRIM 740: *Justice Organization and Administration*. 3 credits.
Examines organization and administration of justice and security
organizations. Covers organization theory and behavior as applied to
justice and security organizations. Offered by Criminology, Law and
Society (p. 321). May not be repeated for credit. Equivalent to PUAD 790.

**Recommended Prerequisite:** CRIM 740 or PUAD790, or permission of
instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

Examines leadership theories, and explores fundamental questions
about leadership in justice and security organizations today. Offered by
Criminology, Law and Society (p. 321). May not be repeated for credit.

**Recommended Prerequisite:** CRIM 740 or GOVT 790, or permission of
instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

Examines challenges of changing justice organizations, how changes
have been successfully and unsuccessfully implemented in the past,
and what change strategies appear to be the most effective. Offered by
Criminology, Law and Society (p. 321). May not be repeated for credit.
Equivalent to PUAD 797.

**Recommended Prerequisite:** CRIM 740 or PUAD790, or permission of
instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

CRIM 744: *Corrections*. 3 credits.
Covers the social institutions and processes involved in punishment,
control, and behavior change. Reviews the consequences of different
policies and organizational approaches. Offered by Criminology, Law and
Society (p. 321). May not be repeated for credit.

**Recommended Prerequisite:** CRIM 740.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

Explores relationship between crime policy and empirical evidence
about etiology of crime. Includes crime measurement and trends in
crime over time, effectiveness of various policy interventions. Offered by
Criminology, Law and Society (p. 321). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Schedule Type: Seminar

CRIM 761: Politics of Crime Policy. 3 credits.
Explores political context of crime policy. Examines influence of public opinion, interest groups, scientific community, and other political forces. In-depth, case study comparison of several crime policies. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 760/GOVT 792 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 762: Crime and Place. 3 credits.
Examines the concentration of crime at places, including geographic, environmental, and sociological features that attract or repel crime. Discusses theoretical explanations, crime prevention strategies, and the measurement of crime concentrations. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 760.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 764: Sentencing. 3 credits.
Explores theories of punishment and sentencing practices. Examines political, sociological, criminological, and organizational influences on sentencing processes and decisions. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 760.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 780: Research Methods. 3 credits.
Introduces logic and methods of scientific inquiry in justice, law, and crime policy. Includes conceptualization of research questions, observation, measurement, research design, and principles of causality. Evaluation of extant research according to scientific principles. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: Undergraduate course in social science research methods or statistics, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 781: Justice Program Evaluation. 3 credits.
Practical exploration of assessment techniques used in evaluating need for and consequences of justice programs and policies. Design and measurement, interpreting and presenting results. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit. Equivalent to PUAD 791.

Recommended Prerequisite: PUAD 511/612, CRIM 780, or two graduate-level statistics courses; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 782: Statistics I. 3 credits.
Focuses on descriptive and inferential statistical methods and theory with application to problems within the justice field. Explores the logic of inferential statistical methods in general and null hypothesis significance testing in particular. Covers widely used statistical procedures within the applied social sciences. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: An undergraduate social science research methods course or an undergraduate statistics course.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 783: Statistics II. 3 credits.
Focuses on the theory and application of multivariate regression methods as applied within the justice field. Topics include tests for and consequences of violating assumptions of the generalized linear model, dummy coding of categorical variables, testing of interaction effects, logistic regression, ordered and multinominal logit, and missing data analysis. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 782 or a comparable course.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 784: Experimental Criminology. 3 credits.
Discusses the methodological, statistical, ethical, and practical concerns associated with experimental research designs in criminology. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 780.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar
CRIM 790: Capstone in Policy and Practice. 3 credits.
Student-initiated research project supervised by instructor. Students must work with a justice organization to conduct useful research and produce a policy-oriented white paper. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Recommended Prerequisite: CRIM 780 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

CRIM 795: Special Topics. 3 credits.
Recent developments in field, or topics not covered by regularly listed courses. Notes: Topics vary. May be repeated when topic is different. Offered by Criminology, Law and Society (p. 321). May be repeated within the term for a maximum 15 credits.

Recommended Prerequisite: Successful completion of 12 graduate level CRIM credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 796: Directed Reading. 1-3 credits.
Independent reading at doctoral level on specific topic related to justice, law, or crime policy as agreed to by student and faculty member and approved by coordinator of CRIM program. Offered by Criminology, Law and Society (p. 321). May be repeated within the term for a maximum 15 credits.

Recommended Prerequisite: Successful completion of 12 graduate level CRIM credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

CRIM 797: Professionalization Seminar. 0 credits.
Introduces doctoral students to research, scholarship and teaching practices in the field to promote their professional development. Notes: Required for Ph.D. students. Offered by Criminology, Law and Society (p. 321). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

CRIM 799: Master's Thesis. 1-6 credits.
Research on approved master's thesis topic under direction of thesis committee with approval of chair. Notes: Minimum 3, maximum 6 credits for doctorate. Maximum of 6 credits of CRIM 799 applicable to masters degree requirements. Offered by Criminology, Law and Society (p. 321). May be repeated within the degree.

Recommended Prerequisite: Submission and approval of thesis proposal.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

900 Level Courses
CRIM 998: Doctoral Dissertation Proposal. 1-6 credits.
Work on a research proposal forming basis for doctoral dissertation. Notes: Minimum 3, maximum 6 credits for doctorate. Maximum of 27 credits of CRIM 998/CRIM 999 applicable to doctoral degree requirements. Offered by Criminology, Law and Society (p. 321). May be repeated within the degree.

Recommended Prerequisite: Students must complete all core analytical course degree requirements.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

CRIM 999: Doctoral Dissertation Research. 1-21 credits.
Doctoral dissertation research and writing under direction of student’s dissertation committee. Notes: Minimum 12, maximum 21 credits for doctorate. Maximum of 27 credits of CRIM 998/CRIM 999 applicable to doctoral degree requirements. Offered by Criminology, Law and Society (p. 321). May be repeated within the degree for a maximum 21 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Cultural Studies (CULT)
300 Level Courses
CULT 320: Globalization and Culture. 3 credits.
Examines cultures in globalization, with special attention to the role of technologies and new media. Provides historical and contemporary contexts for understanding the relationships among circuits of production and consumption; population flows; social inequalities and collective identities; globalizations from “above” and “below;” built and natural environments. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: GLOA 101 or SOCI 120

Registration Restrictions:
Students with a class of Freshman may not enroll.

Schedule Type: Lecture

CULT 390: Topics in Cultural Studies. 1-3 credits.
Topics of current interest in interdisciplinary cultural studies, covering such fields as media, popular culture, political economy, social identities, or regions in globalization. Notes: May be repeated for credit when topic is different. Offered by Cultural Studies (p. 506). May be repeated within the term for a maximum 9 credits.

Schedule Type: Lecture
800 Level Courses

CULT 802: Histories of Cultural Studies. 3 credits.
Historical survey of principal works and theories in the development of cultural studies. Notes: This course is designed for PhD level students. Students in a related MA program may take this course as the capstone to their MA as they are about to matriculate into the PhD in cultural studies. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: Admission to doctoral program, related master's degree, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

CULT 804: Histories of Cultural Studies II. 3 credits.
Continues the historical survey of cultural studies up to the present and assesses possibilities for future development. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: Admission to a PhD program and CULT 802 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CULT 806: Research Seminar in Cultural Studies. 3 credits.
Introduces research methods in cultural studies. Notes: Specific topics vary. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral; completion of CULT 802, CULT 804.

Registration Restrictions:
Enrollment is limited to students with a major in Cultural Studies.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

CULT 808: Student/Faculty Colloquium in Cultural Studies. 1 credit.
Forum for presentation of original and current research in cultural studies. Notes: Students register for 1 credit per semester over a three-semester period. Offered by Cultural Studies (p. 506). May be repeated within the degree for a maximum 4 credits.

Recommended Prerequisite: Admission to doctoral program.

Registration Restrictions:
Enrollment is limited to students with a major in Cultural Studies.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

CULT 810: Culture and Political Economy. 3 credits.
Surveys social science and humanities classics that relate cultural production and consumption to underlying political economic conditions. Includes Marx, Lukacs, Frankfurt School, semiotic neo-Marxism, productivist theories of power indebted to Foucault, Baudrillard, Bourdieu, Harvey, Jameson, Mauss, Mil, Polanyi, Sahlins, A. Smith, and Weber.

Notes: This course is designed for the PhD student. Those students not admitted to a PhD program are required to contact the instructor. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral program, or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Cultural Studies.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CULT 812: Visual Culture. 3 credits.
Examines theories, production, consumption, and reception of visual culture. Covers film, video, visual arts, music, display, ritual, performance, performativity, and theories of the aesthetic. Includes key readings from theorists such as Adorno, Artaud, Benjamin, Brecht, Bryson, Doane, Fiske, Heath, Marcuse, Merleau-Ponty, and Sartre. Notes: This course is designed for the PhD student. Those students not admitted to a PhD program are required to contact the instructor. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral program or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Cultural Studies.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CULT 814: Gender and Sexuality. 3 credits.
Investigates notion of gender functions in maintaining and analyzing issues of social and cultural power. Examines conflicting notions of sexuality and their role in cultural signification. Seeks to explicate relationship of sexuality, gender. Notes: This course is designed for the PhD student. Those students not admitted to a PhD program are required to contact the instructor. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral program, or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Cultural Studies.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

CULT 816: Science/Technology. 3 credits.
Considers theories and major debates on culture of science, social construction of nature, and effects of technology on modern cultural forms. Includes readings from theorists such as Nietzsche, Heidegger, Horkheimer, Feyerabend, Bahro, Haraway, and Latour. Notes: This course is designed for the PhD student. Those students not admitted to a PhD program are required to contact the instructor. Offered by Cultural Studies (p. 506). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral program, or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Cultural Studies.

Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**CULT 818: Social Institutions.** 3 credits.
Considers theories of institutional practice and social structures, from Max Weber to Michel Foucault. Covers prisons, bureaucracies, museums, schools, political parties, and social movements. Notes: This course is designed for the PhD student. Those students not admitted to a PhD program are required to contact the instructor. Offered by Cultural Studies (p. 506). May not be repeated for credit.

**Recommended Prerequisite:** Admission to a doctoral program, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Cultural Studies. Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**CULT 820: After Colonialism.** 3 credits.
Surveys racial, ethnic, caste, and national identities in colonial contexts; scientific racism in periphery and core sites; subsequent history of race, ethnic, national identities and conflicts; classical and contemporary texts by authors such as DuBois, Fanon, Gilroy, and Spivak; and particular place of issues of national, racial, and ethnic identities in contemporary cultural studies. Notes: This course is designed for the PhD student. Those students not admitted to a PhD program are required to contact the instructor. Offered by Cultural Studies (p. 506). May not be repeated for credit.

**Recommended Prerequisite:** Admission to a doctoral program, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Cultural Studies. Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**CULT 860: Special Topics in Cultural Studies.** 3 credits.
Specialized interdisciplinary topics in cultural theory and analysis. Notes: These courses are designed for the PhD student. Those students not admitted to a PhD program are required to contact the instructor. Topics vary. May be repeated for credit when topic is different. Offered by Cultural Studies (p. 506). May be repeated within the term.

**Recommended Prerequisite:** Admission to a doctoral program, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Cultural Studies. Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**CULT 880: Field Concentration.** 3 credits.
Intensive research course, resulting in a Field Statement and oral defense. Notes: Requires permission of field advisor. Offered by Cultural Studies (p. 506). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Admission to cultural studies doctoral program, successful completion of core courses, and an additional 18 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Cultural Studies. Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**CULT 998: Doctoral Dissertation Proposal.** 1-6 credits.
Develop research proposal that forms basis for doctoral dissertation. Notes: A maximum of 6 credits may be applied to the degree. Subject to continuous registration requirement. Offered by Cultural Studies (p. 506). May be repeated within the degree for a maximum 24 credits.

**Recommended Prerequisite:** Admission to a PhD program, successful completion of all core courses, or permission of director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy. Enrollment is limited to students with a major in Cultural Studies. Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**CULT 999: Doctoral Dissertation.** 1-12 credits.
Doctoral dissertation research and writing under direction of dissertation committee. Offered by Cultural Studies (p. 506). May be repeated within the degree.

**Recommended Prerequisite:** CULT 998.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy. Enrollment is limited to students with a major in Cultural Studies. Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**Curriculum and Instruction (EDCI) 300 Level Courses**

**EDCI 370: Young Adult Literature in Multicultural Settings.** 3 credits.
Examines literary works written for and about young adults, introduces critical issues surrounding teaching of young adult literature in multiculturally diverse schools, and requires reading and review of young
adult literature. Notes: Significant online work is required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**EDCI 372:** Teaching Mathematics in the Secondary School. 3 credits.
Covers curricula, current issues, and research literature in secondary school mathematics. Emphasis is on developing different styles of teaching. Field experience is required for those seeking initial teacher licensure. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDUC 422

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**400 Level Courses**

**EDCI 469:** Teaching English in Secondary School. 3 credits.
Provides study of advanced methods, materials, content, and organization of English programs in secondary school. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 422. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**EDCI 472:** Advanced Methods for Teaching Mathematics in the Secondary School. 3 credits.
Focuses on learning processes for mathematics. Introduces national and state standards regarding content and methodologies for teaching mathematics. Examines instructional methods and materials in relation to secondary mathematical content, curriculum, and assessment. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 372, EDUC 422.

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**EDCI 473:** Teaching Science in the Secondary School. 3 credits.
Builds fundamental knowledge of science teaching and learning including standards-based curriculum design and research-based teaching strategies. Notes: School-based field experience required for those seeking initial teacher licensure. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Secondary Education Program.

**Recommended Corequisite:** EDCI 470.

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**EDCI 479:** Advanced Methods of Teaching English in the Secondary School. 3 credits.
Guides students in working effectively with national and local standards for teaching secondary English. Continuation course in methods from EDCI 469. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDCI 669.

**Recommended Prerequisite:** EDCI 469.

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**EDCI 483:** Advanced Methods of Teaching Science in Secondary School. 3 credits.
Provides advanced study of teaching and curriculum development based on research and current issues. Emphasizes integrating science and technology, adapting instruction to needs of diverse learners, and promoting safety. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 473.

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**EDCI 490:** Student Teaching in Education. 6 credits.
Provides intensive, supervised clinical experience in approved school for fall or spring semester. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** Completion of licensure and all endorsement course work.

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**EDCI 491:** Internship Seminar in Secondary Training. 2 credits.
Focuses on critical reflection regarding effects of teacher actions others; develops skills as reflective practitioner; presents research-based rationales for instructional decision-making. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the professional semester.

**Recommended Corequisite:** EDCI 490.

**Schedule Type:** Seminar

**500 Level Courses**

**EDCI 510:** Linguistics for PreK-12 ESOL Teachers. 3 credits.
Examines language as a system, with particular focus on teaching culturally and linguistically diverse students in grades PreK-12. Considers teaching implications of phonology, morphology, syntax, semantics, and...
pragmatics. Requires 20 hours of PK-12 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 537 and EDRD 515.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in English as a Second Language or Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDCI 516: *Bilingualism and Language Acquisition Research*. 3 credits.
Examines research in first and second language acquisition, including interaction of bilingual person's two languages with application for the classroom. Requires 20 hours of PK-12 classroom fieldwork. Notes: School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 537 and EDRD 515. May be taken concurrently with EDRD 515.

**Recommended Corequisite:** EDCI 560.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDCI 519: *Methods of Teaching Culturally & Linguistically Diverse Learners*. 3 credits.
Examines approaches, methods, and techniques for teaching culturally &linguistically diverse learners in bilingual & ESL classrooms, as well as resources available in the field. Critically analyzes and demonstrates teaching approaches based on second language acquisition research, including teaching language through content. Requires 20 hours of PK-12 classroom fieldwork in public schools. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 516, EDCI 519.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDCI 520: *Assessment of Language Learners*. 3 credits.
Examines innovative approaches to assessing language learners. Topics include identification, placement, monitoring of student progress, development of authentic performance-based measures, design of portfolios, application of measurement concepts, analysis of assessment instruments, and linking assessments to instruction. Requires 20 hours of PK-12 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 519 or EDCI 560.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDCI 521: *Curriculum Development for Language Learners*. 3 credits.
Examines current approaches to curriculum development for second language learners and language minority students. Participants review, evaluate, and develop curricular materials, with emphasis on learner-centered activities, cooperative learning, interdisciplinary and thematic approaches, authentic and problem-based learning, integration of language and content, and linking assessment and instruction. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 516, EDCI 519.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDCI 544: *Curriculum and Methods of Teaching in Elementary Education*. 3 credits.
Introduction to general methods of teaching in elementary schools focusing on planning, teaching strategies, management, assessment, and differentiation. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Elementary Education graduate program; must be taken in programmatic sequence.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
EDCI 545: Assessment and Differentiation. 3 credits.
Provides a research-based introduction to differentiated instruction for children in grades PK-6. Emphasis on the assessment of learners and differentiation of instruction to meet the needs of all learners. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission into the Elementary Education graduate program, must be taken in programmatic sequence.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 546: Integrating Technology in Elementary Classrooms: Literacy. 1 credit.
Studies the development and integration of technology in the elementary education literacy curriculum. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission into Elementary Education graduate

Recommended Corequisite: program. EDCI 556.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 547: Integrating Technology in Elementary Classrooms: Mathematics. 1 credit.
Studies the development and integration of technology in the elementary education mathematics curriculum. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission into Elementary Education graduate

Recommended Corequisite: program. EDCI 552.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 548: Integrating Technology in Elementary Classrooms: Social Studies and Fine Arts. 1 credit.
Studies the development and integration in the elementary education social studies and fine arts curriculum. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission into Elementary Education graduate

Recommended Corequisite: program. EDCI 554.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 552: Mathematics Methods for the Elementary Classroom. 1-3 credits.
Introduces methods for teaching all children topics in arithmetic, geometry, algebra, probability, and statistics in elementary grades. Focuses on using manipulatives and technologies to explore mathematics and solve problems. Notes: Requires field experience in public schools. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Admission to the Elementary Education licensure program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 553: Science Methods for the Elementary Classroom. 1-3 credits.
Develops skills and abilities in science teaching methods, applications of technology, safety practices, and creation of integrated science curriculum. Examines science teaching based on contemporary theory, practice, and standards. Notes: Requires field experience in public schools. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Admission to the Elementary Education licensure program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCI 554: Methods of Teaching Social Studies and Integrating Fine Arts in the Elementary Classroom.** 3 credits.
Foci on the design and delivery of standards-based integrated curriculum centered on the social sciences. Includes integration of fine arts and examines the central role of the arts in learning. Notes: School-based field experience required. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Admission into Elementary Education licensure program; must be taken in programmatic sequence.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**EDCI 555: Literacy Teaching and Learning in Diverse Elementary Classrooms I.** 3 credits.
Provides research-based introduction to literacy teaching and learning for younger children. Emphasizes language development; reading and writing processes; emergent literacy; culture, families, and literacy; and literacy integration in the curriculum. Notes: School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Elementary Education licensure program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**EDCI 556: Literacy Teaching and Learning in Diverse Elementary Classrooms II.** 1-3 credits.
Provides research-based introduction to literacy teaching and learning for older children. Emphasizes literacy and language processes and development; connections among cultures, families, and literacy; and literacy integration in curriculum. Notes: School-based field experience required. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Admission to the Elementary Education Licensure program.

**EDCI 557: Integrating Technology in PreK-6.** 3 credits.
Studies the development and integration of technology in the elementary education curriculum including the use of technology to address the reading needs of diverse students. Notes: School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Elementary Education licensure program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**EDCI 559: Research and Assessment in Elementary Education.** 3 credits.
Provides teacher candidates an understanding of research paradigms utilizing systematic evidence to improve practice and further skills in assessment of learning outcomes. Emphasizes linking research and practice, making instructional decisions based on systematically collected data. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission into Elementary Education graduate program; capstone course for degree must be taken last in programmatic sequence.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**EDCI 560: Methods of Teaching in Foreign/World Languages.** 3 credits.
Covers approaches, theories, and methods of teaching foreign and second languages, with practical application to classroom. Students demonstrate teaching strategies, develop lesson and unit planning skills, and evaluate curricula and materials. Notes: Requires field experience in
schools. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDCI 516.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

Provides teacher candidates an introduction to methods, frameworks, and practices of teaching social studies in secondary schools. Notes: Requires 15 hours of school-based field experience. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 522. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduation Deadline Extended, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Provides study of advanced methods, materials, content, and organization of English programs in secondary school. Notes: 15 hours school-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 522. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 570: *Teaching Young Adult Literacy in a Multicultural Setting.* 3 credits.
Examines literary works written for and about young adults. Introduces critical issues surrounding teaching young adult literature in multiculturally diverse public schools and requires reading and reviewing young adult literature from several genres. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Emphasizes developing different styles of teaching. Notes: 15 hours school-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 522. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Provides study of methods, materials, content, and organization of science programs. Emphasizes curriculum planning, current methodologies, safety, and trends in secondary schools. Notes: 15 hours school-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** EDUC 522. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 597: *Special Topics in Education.* 1-6 credits.
Provides advanced study on selected topic or emerging issue in American or international education. Notes: May be repeated for credit with GSE permission. Offered by Graduate School of Education (p. 155). May be repeated within the degree.

**Recommended Prerequisite:** Admission to program in GSE.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Literacy/Reading, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - Science or Curriculum and Instruction.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

### 600 Level Courses

**EDCI 600: Workshop in Education.** 1-6 credits.
Offers full-time workshops and weekend seminars on selected topics in education and education tour seminars. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**EDCI 603: Trends, Issues, and Research in Early Childhood Education.** 3 credits.
Examines trends, issues, research findings, and resulting program development. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDUC 895.

**Recommended Prerequisite:** Admission to GSED.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.


Enrollment is limited to students with a Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCI 614: Curriculum and Assessment in Early Childhood Education I.** 3 credits.
First of two-course sequence addressing current thinking about curriculum and assessment in programs for preschool through third grade. Gives overview of effective ways to plan and implement integrated curriculum; special focus on content, subject matter. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.


Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCI 617: Using Digital and Popular-Culture Media with Grades 4-12.** 3 credits.
Exposes students to recent knowledge on how middle and high school teachers can use digital media and popular culture texts to engage students in subject area learning or literacy development. Focus is on grades 4-12. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to a GSE licensure, Master's, or doctoral program and at least one year of PK-12 teaching experience, completion of EDCI 569, EDCI 567, EDCI 572, EDCI 573, or EDCI 544, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCI 618: Introduction to Gifted and Talented Learners.** 3 credits.
Examines nature and needs of gifted and talented learners. Participants become knowledgeable about characteristics of gifted and talented students, and examine role of culture in manifestation of gifts and talents as well as gifted behaviors in special populations. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to a GSE licensure, Master's, or doctoral program and at least one year of PK-12 teaching experience, completion of EDCI 569, EDCI 567, EDCI 572, EDCI 573, or EDCI 544, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.


Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDCI 622: Curriculum Differentiation for Diverse Learners.** 3 credits.
Develops personal and professional rationale for differentiating instruction in mixed-ability classrooms, as well as skills and knowledge of strategies to utilize pre-assessment data and plan for and implement
differentiated instruction. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Edu, Gifted Child Edu, ASTL - History, ASTL-Instructional Technology, ASTL - Literacy/Reading, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - Science or Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCI 623: Models and Strategies for Teaching Gifted Learners.** 3 credits. Provides framework to examine and apply curriculum models and instructional strategies advocated for use with gifted students according to national and state standards that reflect best practices in gifted education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCI 624: Assessment, Identification, and Evaluation of Gifted Learners.** 3 credits. Examines broad understandings of intelligence and assessment. Provides techniques to identify gifted students. Develops specific understandings of assessment techniques and awareness of the influences of language, culture, ethnicity, gender, and exceptionality on recognition and subsequent identification of giftedness. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCI 625: Contemporary Issues and Trends in Gifted Education.** 3 credits. Focuses on research, trends, issues, legislation, and litigation concerning gifted and talented children. Provides professionals in gifted education and related fields with knowledge and skills to serve as advocates for gifted-child education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 621, 622, 623, and 624.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.


Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCI 626: Action Research in Gifted Education.** 3 credits. Opportunity to identify and investigate school-based problem and apply inquiry, writing, and research skills to relevant issue or concern in gifted education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Edu, Gifted Child Edu, ASTL - History, ASTL-Instructional Technology, ASTL - Literacy/Reading, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - Science or Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDCI 627: Advanced Practicum in Gifted Education.** 3 credits. Intensive supervised clinical experiences for one semester in accredited elementary or secondary school. Students supervised in setting that includes scheduled observations and seminar experiences. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 621, 622, 623, and 624.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Edu, Gifted Child Edu, ASTL - History, ASTL-Instructional Technology, ASTL - Literacy/Reading, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - Science or Curriculum and Instruction.
EDCI 646: **Mathematics Learning and Assessment (K-8)**. 3 credits. Introduces students to learning theories and associated assessment practices specific to mathematics education. Intended for mathematics specialists and teachers interested in problems of learning and assessment across K-8 settings in mathematics education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MEd in Education Leadership, Mathematics Education Leadership concentration

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction or Education Leadership.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Research

EDCI 645: **Curriculum Development in Mathematics Education**. 3 credits. Analysis, design, and evaluation of school mathematics curricula. Notes: Yearlong seminar for master's-level students in mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Mathematics Education Leadership Masters Degree Program or permission of the instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction or Education Leadership.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Research

EDCI 646: **Mathematics Education Leadership for School Change**. 1-3 credits. Surveys current literature and large-scale studies in mathematics education. Engages students in research, study, and discussion of factors that affect teaching and learning of mathematics in school settings. Notes: Yearlong seminar for master's-level students in mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 567 and EDUC 522.
Recommended Corequisite: EDRD 619.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 669: Advanced Methods of Teaching English in the Secondary School. 3 credits.
Continuation course in methods (See EDCI 569). Guides students in working effectively with national and local standards for teaching secondary English. School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDCI 479.

Recommended Prerequisite: EDCI 569 and EDUC 522.

Recommended Corequisite: EDRD 619.

EDCI 670: Advanced Methods in Science Teaching. 3 credits.
Application of major principles of education and psychology for the improvements of science teaching in secondary schools. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 671: Innovations in Science Teaching. 3 credits.
Focuses on the development and selection of teaching materials that reflect concepts of technology innovation with an emphasis on middle and secondary school science. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

EDCI 672: Advanced Methods of Teaching Mathematics in the Secondary School. 3 credits.
Focuses on learning processes for mathematics. Introduces national and state standards regarding content and methodologies for teaching mathematics. Examines instructional methods and materials in relation to secondary mathematical content, curriculum, and assessment. School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDCI 572, EDUC 522.

Recommended Corequisite: EDRD 619.

EDCI 673: Advanced Methods of Teaching Science in the Secondary School. 3 credits.
Provides advanced study of teaching and curriculum development based on research and current issues. Emphasizes integrating science and technology, and adapting instruction to the needs of diverse learners. School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDCI 573 and EDUC 522.

EDCI 674: Advanced Methods of Teaching Foreign/Second Languages in PK-12 Schools. 3 credits.
Blends theoretical knowledge and practical application. Provides advanced study of second language pedagogy and teaching trends. Topics include multiple learning styles, alternative forms and assessment, and teaching diverse populations. Notes: Requires school-based field experience. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDCI 560 or permission of instructor.

EDCI 684: Advanced Methods of Teaching Foreign/Second Languages in PK-12 Schools. 3 credits.
Blends theoretical knowledge and practical application. Provides advanced study of second language pedagogy and teaching trends. Topics include multiple learning styles, alternative forms and assessment, and teaching diverse populations. Notes: Requires school-based field experience. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDCI 560 or permission of instructor.

Recommendation Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

EDCI 702: Internship in Mathematics Education. 3 credits.
Offers practical experiences and professional challenges for mathematics leaders in authentic educational settings. Activities emphasize school-based and classroom based research and leadership. Develops the skills and abilities of the mathematics leaders to analyze classroom practice, investigate teaching and disseminate information about mathematics education in professional development settings for teachers. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Curriculum and Instruction or Education Leadership.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

EDCI 725: National and International Leadership Issues in Mathematics Education. 3 credits.
Students study research on mathematics teaching and learning, including current issues and trends in mathematics education leadership at national and international levels. Notes: Yearlong seminar for PhD students in the mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the Mathematics Education Leadership PhD program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 726: State and Local Leadership Issues in Mathematics Education. 3 credits.
Students study issues and policies that affect mathematics teaching and learning, including current trends in mathematics school reform at state, district, and individual school levels. Notes: Yearlong seminar for PhD students in the mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the Mathematics Education Leadership PhD program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

EDCI 772: Consultation & Collaboration in Diverse K-12 Settings. 3 credits.
Focuses on ways in which practicing education professionals collaborate in serving diverse learners and their families. Explores methods for co-planning and co-teaching in the general education classroom and their families. Explores methods for co-planning and co-teaching in the general education classroom and ways for sharing responsibilities for instruction and assessment. Includes ways for dealing with difficult interactions are part of understanding how to implement collaborative and inclusive models of education for diverse learners. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Completion of 12 credits in concentration.

Recommendation Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

EDCI 777: Research to Practice. 3 credits.
Provides culminating experience that synthesizes and applies essential elements of teaching culturally & linguistically diverse and exceptional learners in international contexts. Emphasizes teacher as change agent through critical inquiry into practice. Promotes collaboration among teachers and school professionals to advance achievement of diverse learners. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Completion of all other program requirements.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 784: Capstone Seminar in Early Childhood Education. 3 credits.
Culminating seminar devoted to analyzing and synthesizing knowledge and skills gained through graduate course work as it applies to early childhood education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the Mathematics Education Leadership PhD program.

Registration Restrictions:
Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Literacy/Reading, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - Science or Curriculum and Instruction.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDCI 790: Internship in Education. 1-6 credits.
Intensive, supervised clinical experience for full semester in accredited school. Students must register for appropriate section. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: EDUC 522, EDUC 672, two methods classes in content area; passing Praxis II and VCLA, completing all endorsements.

Recommended Corequisite: EDCI 791.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

EDCI 791: Internship Seminar in Secondary Teaching. 2 credits.
Focuses on critical reflection regarding effects of teacher actions on others; develops skills as a reflective practitioner; presents research-based rationales for instructional decision-making. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the professional semester.

Recommended Corequisite: EDCI 790.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

EDCI 797: Advanced Topics in Education. 1-6 credits.
Advanced study of selected topics in education for students preparing for doctoral studies or who have been admitted to the PhD program in education. Notes: May be repeated for credit with CEHD approval. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

800 Level Courses

EDCI 810: Foundations of Science Education Research. 3 credits.
Explores and analyzes the range of research designs currently utilized by science education researchers. Develops an understanding of the assumptions and frameworks of different types of science education inquiry through an examination of ways of knowing. Examines historical trends that have taken place in science education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Permission of instructor.

Recommended Corequisite: EDUC 800.

Registration Restrictions:
Enrollment is limited to students with a concentration in Science Education Research.

Enrollment limited to students in the PHD Education program.

Enrollment is limited to Graduate level students.

Schedule Type: Internship

EDCI 813: Focused Science Education Research. 3 credits.
Provides an opportunity for students to gain hands-on experience designing and conducting a research study in science education that leads to publication and/or conference presentations. The scholarship embodied in student development to this point in the doctoral program will lead students to work with a science education faculty member of their choice to development and seek to answer a research question of interest. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDCI 810.

Registration Restrictions:
Enrollment is limited to students with a concentration in Science Education Research.

Enrollment limited to students in the PHD Education program.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDCI 815: Mathematics Education Research on Teaching and Learning. 3 credits.
Students survey most current research literature in mathematics education and engage in research, study, and discussion of mathematics education research on teaching and learning in school settings. Notes: Yearlong seminar for PhD students in the mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the Mathematics Education Leadership Ph.D. program.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Research

EDCI 855: Mathematics Education Curriculum Design and Evaluation. 3 credits.
Students engage in research, analysis, design, and evaluate school mathematics curricula. Notes: Yearlong seminar for PhD students in the mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the Mathematics Education Leadership PhD program.

Registration Restrictions:
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

EDCI 857: Preparation and Professional Development of Mathematics Teachers. 3 credits.
Students study attributes of effective professional development in mathematics education, develop expertise in designing and teaching mathematics methods courses, and learn to create and teach professional development experiences for practicing teachers. Notes: Yearlong seminar for PhD students in the mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Mathematics Education Leadership PhD program.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

EDCI 858: Mathematics Education Research Design and Evaluation. 3 credits.
Students review methods of research appropriate for mathematics education settings and develop theoretical framework and action plan for conducting research project. Notes: Yearlong seminar for PhD students in the mathematics education leadership cohort program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Mathematics Education Leadership PhD program.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

## Cyber Security Engineering (CYSE)

### 100 Level Courses

**CYSE 101: Introduction to Cyber Security Engineering.** 3 credits.
Provides comprehensive introduction to the principles, applications, and practice of cyber security engineering. Students learn the basic concepts and terminology of cyber security and how cyber security is commonly addressed after the design and implementation phases. Students are introduced to the systems engineering and design processes and learn to integrate and apply cyber security tools and techniques in these processes. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**CYSE 205: Systems Engineering Principles.** 3 credits.
Introduction to systems engineering with a focus on cyber security engineering. Emphasize development of analytical, technical, management, and teamwork skills through exercises in planning, documentation, presentation, and the creative process of IT engineering design. Analyze case studies involving systems engineering role in cyber security. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CYSE 211: Operating Systems and Lab.** 3 credits.
Addresses basic issues such as virtual memory, kernel and user mode, system calls, threads, context switches, interrupts, interprocess communication, coordination of concurrent activities. May also address: concurrency, processes and multi-threading, context switching, synchronization, scheduling, and deadlock. Memory management, dynamic memory allocation, address translation. Management of file systems, storage devices, directories, protection, scheduling and crash recovery. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**CYSE 220: Systems Modeling.** 3 credits.
Introduces modeling of dynamical systems. Formulation of mathematical models from system descriptions, including computer, economic, transportation, electrical power and mechanical systems. Analytical and numerical methods for solving models and studying their behavior. Discrete-time and continuous time systems. Linear and nonlinear systems. Introduction to computer modeling using MATLAB. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** MATH 203C and PHYS 160C.
Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**CYSE 230: Computer Networking.** 3 credits.
Introduces network concepts; OSI reference model and layering; data coding; analog/digital communications review; physical layer and data link control; Data Link Layer Control protocols; flow control; error control; link management; common link protocols. LAN and WAN; connection-oriented and connectionless packet switching; circuit-switched networks and control signaling; congestion control and traffic management; transport layer client-server model; domain name systems, routing methods. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Recommended Prerequisite:** CS 112.

**Registration Restrictions:**
CS 112.

**Schedule Type:** Laboratory, Lecture

### 200 Level Courses

**CYSE 301: Digital Systems.** 3 credits.
Introduces digital circuits, systems and computers. Topics include binary systems and codes, digital logic gates and circuits, microelectronics and integrated circuits, and analog-to-digital converters, and elementary
computer architecture. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts. Equivalent to ECE 301.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

**CYSE 325: Discrete Events Systems Modeling.** 3 credits. Introduces basic modeling of the dynamics of discrete event systems. Both analytical and simulation techniques for the modeling and analysis of such systems are considered. Relevant concepts from discrete mathematics are included and appropriate software tools are used to examine different engineering applications. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
**Required Prerequisite:** STAT 344.  
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

**CYSE 330: Introduction to Network Security.** 3 credits. Introduces cryptography and its applications in networks. Reviews basic firewalls architectures and VPNs. Overview of current network security protocols, security of routing protocols, the DNS, and e-mail security. Discuss threat of attacks that use viruses, worms, rootkits, botnets and countermeasures; distributed denial of service attacks and spam countermeasures. Introduces basic concepts of security of wireless networks. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
**Required Prerequisites:** CYSE 101, CS 222 and CYSE 230.  
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**400 Level Courses**

**CYSE 411: Secure Software Engineering.** 3 credits.
This course provides a foundation for building secure software by applying security principles to the software development lifecycle. Topics covered include: security in requirements engineering, secure designs, risk analysis, threat modeling, deploying cryptographic algorithms, defensive coding, penetration testing, fuzzing, static analysis, and security assessment. Students will learn the practical skills for developing and testing secure software. Notes: This course may be of interest to students specializing in software aspects of cyber security engineering. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
**Required Prerequisite:** CS 222.  
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture


Registration Restrictions:
**Required Prerequisites:** CYSE 220, 230 and 301.  
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CYSE 424: Embedded and Real Time Systems.** 3 credits. Presents design methodology, principles and practice for the development of real-time embedded systems and their application to robotics, mechatronics, sensing, signal processing, and control. They include automated sensors, switches and PLCs. Topics include system decomposition, multi-tasking, task communication and synchronization, system modeling, time analysis, principles of filter and controller implementation, ‘fuzzy’ engineering, and multimicrocontroller systems. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
**Required Prerequisite:** CYSE 301.  
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

**CYSE 425: Secure RF Communications.** 3 credits.

Registration Restrictions:
**Required Prerequisites:** CYSE 230 and CS 222.  
C Requires minimum grade of C.
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Lecture

**CYSE 430: Critical Infrastructure Protection.** 3 credits.
Consists of a four week lecture course followed by ten weekly seminars presented by students. The lecture part provides a description of US Designated Critical Infrastructure Sectors and a corresponding list of federal sector specific agencies (SSAs). Each student selects a sector, develops and presents a seminar talk on critical cyber security issues involved in a given sector. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Lecture

**CYSE 445: System Security and Resilience.** 3 credits.
Focusses on modeling and evaluation of the engineering systems that are expected to operate in a contested cyber environment. Covers architectures and modeling, uses a variety of techniques, establishing measures of performance that are relevant to the domain of operation, evaluating the security or vulnerability of the system to cyber exploits, and then assessing its resilience. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Recommended Corequisite**: CYSE 450.

**Registration Restrictions:*
Required Prerequisites: CYSE 325^C or 330^C.

C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Lecture

**CYSE 450: Cyber Vulnerability Lab.** 1 credit.
Lab for CYSE 445. Provides hands-on experience in security issues of network systems. Issues in ethical hacking, penetration testing, forensics and incident handling and response will be discussed. Notes: This is a hands-on lab course, with short lecture introductions. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Recommended Corequisite**: CYSE 445.

**Registration Restrictions:*
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Laboratory

**CYSE 460: Power Systems and Smart Grid.** 3 credits.
Covers fundamentals of power systems; basics of electricity, electricity generation, economics of supply and demand, and electricity market operations in regulated and deregulated environment. The other part of the course will cover Smart Grid and its impact on the energy industry. Also includes Energy policy modeling and analysis. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Lecture

**CYSE 461: Power Grid Security.** 3 credits.
Overview of integrating smart grid into the current system. Includes the seven domains (bulk generation, transmission, distribution, customer, operations, markets, and service providers) as well as the electrical and communication interfaces that connect the layers and domains. Focuses on monitoring equipment in the smart grid. Provides an overview of security principles and approaches for applying them to the smart grid. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisite: CYSE 460^C.

C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Lecture

**CYSE 462: Mobile Devices and Network Security.** 3 credits.
Embedded security features of hand-held wireless devices. Data link layer encryption and authentication protocols applied in mobile devices. Security factors in the decisions on configuring wireless mobile devices and network infrastructure. Robust cryptography that is needed to attain the highest levels of integrity, authentication, and confidentiality. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Lecture

**CYSE 465: Transportation Systems Design.** 3 credits.
Discusses common elements and differences among problems that occur securing road, rail, air and sea transportation systems. Covers threats to control systems. Introduces control measures. Discusses past, present and future of in-vehicle and on-road safety systems, and cyber threats to emerging autonomous cars. Analyzes cyber threats to aviation and sea transportation security and available countermeasures. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type**: Lecture

**CYSE 467: GPS Security.** 3 credits.
Provides background in long-range navigation developments; early global systems; space based systems; GPS and GLONASS systems;
system architecture; spacecraft and earth station characteristics; design concepts of the CA and P GPS signal modes; frequencies, modulation, and other design aspects; clock issues; range and accuracy calculations and limitations; advanced concepts. Explains advanced concepts in global navigation satellite systems. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: CYSE 425C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CYSE 470: Human Factors and Cyber Security Engineering. 3 credits.
This course explores the human factor in cyber security engineering. The focus is on understanding human performance characteristics and limitations, and the various research, design, and evaluation methods needed to address them when engineering secure systems. Topics include, for example, perception, cognition, memory, situation awareness, decision making, stress, automation, and human-computer display and interaction design principles. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CYSE 205C and STAT 344C.
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CYSE 475: Cyber Physical Systems. 3 credits.
Introduces cyber physical systems as an integration of physical processes, computation, and networking. Discusses modeling and simulation of cyber physical systems, system design and implementation. Analyze such systems based on abstractions for modeling physical systems and abstractions for modeling data transformations. Covers security issues in cyber physical systems and applications selected from infrastructure, energy, transportation, robotics, manufacturing, and communications domains. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CYSE 330C, 421C and 450C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CYSE 476: Cryptography and Computer Network Security. 3 credits.
Covers basic concepts of cryptography, types of cryptosystems, implementation of security services, key management, public key certificates, public key infrastructure, e-mail and web security. Discusses modern secret-key ciphers, modes of operation, hash functions, message authentication codes, public key cryptography, and digital signature schemes. Covers cryptographic standards and secure internet protocols. Introduces educational and public domain software implementing modern cryptographic algorithms. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CYSE 101C and 330C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CYSE 477: Intrusion Detection. 3 credits.
The objective of this course is to provide an in depth introduction to the science and art of intrusion detection. The course covers methodologies, techniques, and tools for monitoring events in computer systems or networks, with the objective of preventing and detecting unwanted process activity and recovering from malicious behavior. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CYSE 478: Cyber Security Audit and Compliance. 3 credits.
Fundamental concepts of the Cyber Security Compliance and Testing process. This will revolve around defining a control framework, the attendant control objectives and the reporting system for an organization. Covers the process of creating a control structure with goals and objectives, audit a given cyber infrastructure against it, and if found inadequate, establish a systematic remediation procedure. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: CYSE 421C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CYSE 479: Methods of User Authentication. 3 credits.
Discusses limitations of passwords and PINs and introduces alternatives. Covers user authentication based on security tokens and smart cards. Introduces basics of biometric systems, based on information such as fingerprints, facial features, iris, and voice. Discusses the use and security of electronic ID cards and passports. Covers methods of distinguishing human from internet bots over the network, such as CAPTCHA’s. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CYSE 211C, 301C and 330C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
CYSE 480: Malicious Software and Hardware. 3 credits.
Introduces various types of malicious software (malware). Discusses malware analysis using virtual machines, sandboxes, process monitors, packet sniffers, de-obfuscation, etc. Introduces hardware Trojans and other forms of malicious hardware. Discusses prevention techniques at the design, fabrication, and post-fabrication level. Introduces various countermeasures against malicious software and hardware. The course
has a lab with Windows and Android operating systems. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** CYSE 211\(^C\) and 301\(^C\).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**CYSE 491:** Engineering Senior Seminar. 2 credits.
This course covers a variety of responsibilities of cyber security engineers including: engineering ethics, government policies, laws and regulations affecting cyber security engineering, industry practices, entrepreneurship. Effective technical communications. Incorporates global implications of cyber security engineering. Speakers include faculty, invited guests from industry and government, as well as students. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Corequisite:** CYSE 492.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CYSE 492:** Senior Advanced Design Project I. 2 credits.
First semester of a two semester capstone course in the Cyber Security Engineering program. Development of a design project by a team of students. Conception of the project and determination of its feasibility. Work includes developing preliminary design and implementation plan. Projects will aim at the integration of the technical material learned in several courses and incorporation of industry input. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Recommended Corequisite:** CYSE 491.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Cyber Security Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CYSE 493:** Senior Advanced Design Project II. 3 credits.
Second semester of a two semester capstone course in the Cyber Security Engineering program. Project includes designing a cyber-physical security system, writing required software, assembling hardware if needed, conducting experiments or studies, and testing the complete system. Requires oral and written reports during project and at completion. Offered by Volgenau School of Engineering (p. 953). Limited to two attempts.

**Mason Core:** Capstone (p. 135)

**Registration Restrictions:**
**Required Prerequisite:** CYSE 492\(^C\).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**CYSE 499:** Special Topics in Cyber Security Engineering. 3 credits.
Special Topics in the Cyber Security Engineering area, with different content in different terms. Offered by Volgenau School of Engineering (p. 953). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** 60 credits towards BS in Cyber Security Engineering.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**Dance (DANC)**

**100 Level Courses**

**DANC 101:** Dance Appreciation. 3 credits.
Introduces dance as universal human activity, expression of cultural identity, and art form. Survey of global dance includes folk, ceremonial and ritual, trance, court, classical, and theatrical. Offered by School of Dance (p. 802). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Schedule Type:** Lecture

**DANC 114:** Rhythmic Analysis and Music Resources for Dance. 3 credits.
Introduces rhythmic structure, notation, and basic forms of music. Offered by School of Dance (p. 802). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Dance.

**Schedule Type:** Lecture

**DANC 118:** World Dance. 3 credits.
Performance of a world dance form through presentation of fundamental techniques, music and culture. Area of concentration may vary to include an array of world dance forms. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 6 credits.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Studio

**DANC 119:** Dance in Popular Culture: Afro-Latino Dance. 3 credits.
Performance of a popular dance form through presentation of fundamental techniques, music, and culture. Area of concentration may vary to include an array of popular dance forms. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Arts (p. 135)

**Schedule Type:** Studio

**DANC 120:** Special Topics in Dance. 1-3 credits.
Rotating topic. Introduction and exploration of topical studies in dance or related study areas; topic depends on instructor. Notes: May be repeated
if course content differs. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 9 credits.

Schedule Type: Studio

DANC 125: Modern/Contemporary Dance I. 3 credits.
Introduces fundamentals of modern dance technique. Emphasizes improving anatomical awareness and alignment, increasing strength and flexibility, and developing rhythmic sensitivity. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts, Encore:Well-Being (p. 135)

Schedule Type: Studio

DANC 131: Beginning Jazz Technique. 3 credits.
Introduces fundamental elements of jazz technique and vocabulary. Stresses learning vocabulary and movement characteristics of this highly stylized art form. Emphasizes improving anatomical awareness and alignment, increasing strength and flexibility, and developing rhythmic sensitivity. Also introduces jazz improvisation and choreography. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Schedule Type: Studio

DANC 145: Ballet I. 3 credits.
Introduces fundamental elements of ballet technique and vocabulary. Stresses learning vocabulary and movement characteristics of this highly stylized art form. Emphasizes improving anatomical awareness and alignment, increasing strength and flexibility, and developing musicality. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Schedule Type: Studio

DANC 150: Dance Improvisation. 3 credits.
Explores movement invention and discovery. Movement explored in relation to other art forms such as literature, painting, sculpture, and architecture; enhancing kinesthetic awareness; sensitivity to others; and the environment. Prerequisite for dance composition and choreography series. Offered by School of Dance (p. 802). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Lecture

DANC 170: Orientation to Dance Production. 1 credit.
Introduces sound, lighting, and stage management elements and terminology as related to dance performance. Intensive workshop setting emphasizes laboratory experience. Offered by School of Dance (p. 802). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Laboratory

DANC 190: First Year Seminar. 0 credits.
Introduction to School of Dance, CVPA, and university resources available to dance majors. Weekly meetings focus on learning about opportunities for involvement in dance, the community, and adjusting academically. Each class addresses a topic to assist dance majors to effectively transition to college life. Offered by School of Dance (p. 802). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Seminar

200 Level Courses

DANC 210: Anatomy and Kinesiology for Dance. 3 credits.
Covers aspects of anatomy and kinesiology that directly apply to correct development of dance technique. Emphasizes exercise corrective and imagery to correct insufficient muscle pattern and reduce stress on the body. Offered by School of Dance (p. 802). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Lecture

DANC 225: Modern/Contemporary Dance II. 3 credits.
Further develops knowledge, skills, and appreciation of modern dance through continued exploration of techniques, aesthetics, and creativity. Continuing the development of anatomical awareness and alignment, technical clarity, and rhythmic sensitivity. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 9 credits.

Mason Core: Arts (p. 135)

Recommended Prerequisite: DANC 125 or permission of instructor.

Schedule Type: Studio

DANC 231: Intermediate Jazz Technique. 3 credits.
Further study of the concepts of jazz dance technique, and in-depth study of 21st century jazz dance forms. Emphasizes furthering anatomical awareness and alignment, developing technical clarity, rhythm and syncopation. Continues exploration of jazz improvisation and choreography. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 12 credits.

Mason Core: Arts (p. 135)

Recommended Prerequisite: DANC 131 or permission of instructor.

Schedule Type: Studio
DANC 245: Ballet II. 3 credits.
Further develops fundamental elements of ballet technique and vocabulary. Stresses increasing vocabulary and movement characteristics of this highly stylized art form. Continuing emphasis on improving anatomical awareness and alignment, increasing strength and flexibility, and developing musically. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 9 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** DANC 145 or permission of instructor.

**Schedule Type:** Studio

DANC 251: Dance Composition I. 3 credits.
Introduces basic principles for composing dance movement. Focuses on simple compositional forms as they apply to solo performer, discussion, analysis, and evaluation of artistic choices. Students maintain video and written journals to document their artistic process. Offered by School of Dance (p. 802). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** DANC 150C.
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Dance.

**Schedule Type:** Studio

DANC 252: Dance Composition II. 3 credits.
Explores compositional elements in dance as they apply to group forms. Offers continued experience in developing and manipulating movement phrases using a variety of compositional forms. Introduces conducting rehearsals and selecting music. Students discuss, analyze, and evaluate artistic choices in composition using appropriate dance arts vocabulary and terminology, and maintain video and written journals to document artistic process. Offered by School of Dance (p. 802). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** (DANC 150C and 251C).
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Dance.

**Schedule Type:** Studio

DANC 270: Dance Production Lab. 1 credit.
Practical experience in stage crew, sound, or lighting of dance productions through rehearsal to public performance for university dance concerts or guest artist programs. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
**Required Prerequisite:** DANC 170C.
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Dance.

**Schedule Type:** Laboratory

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### 300 Level Courses

#### DANC 301: What is Dance?. 3 credits.
Explores connections among literature, music, theater, and visual art within aesthetic framework of dance. Examines development and ideals of Western theatrical dance, and historical and social context in which they were created. Method of instruction includes lecture, discussion, and studio experiences. Offered by School of Dance (p. 802). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Schedule Type:** Lecture

DANC 318: Global Perspectives: World Dance Forms. 3 credits.
Continued in-depth study of world dance form including technique, music, and culture. Texts, video, performances, music, participatory events, and guest artist presentations. Lecture, studio. Area of concentration varies to include as many cultures as possible. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Global Understanding (p. 135)

**Registration Restrictions:**
**Required Prerequisites:** (DANC 118C or 119C).
C Requires minimum grade of C.

**Schedule Type:** Studio

DANC 324: Introduction to Dance Conditioning. 1-3 credits.
Course involves intensive rehabilitation and conditioning exercises and realignment training geared for the individual dancer. In-depth understanding of injury prevention and neuromuscular re-education are applied to ballet and modern technique classes. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Dance.

**Schedule Type:** Studio

DANC 325: Modern/Contemporary Dance III. 1-3 credits.
Explores intermediate level of modern dance technique. Emphasizes improving anatomical awareness, increasing strength and flexibility, expanding modern dance vocabulary, and developing flow and dynamic range. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 24 credits.

**Mason Core:** Arts (p. 135)

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Dance.

**Schedule Type:** Studio

DANC 331: Advanced Jazz Dance. 3 credits.
In-depth studio study of 21st century jazz dance forms. Continues concepts and vocabulary introduced in DANC 231, and further emphasizes alignment, technical clarity and virtuosity. Emphasizes mastery of rhythm and syncopation. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Arts (p. 135)
Dance (DANC)

Recommended Prerequisite: DANC 231 or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 345: Ballet III. 1-3 credits.
Provides continued ballet training for intermediate-level dancer. Emphasizes increasing technical proficiency, improving anatomical awareness, and developing deeper understanding of skills and principles of ballet technique and how they provide foundation to teach and perform. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 24 credits.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 360: Choreography. 3 credits.
Continued choreographic exploration and research, culminating in bringing completed works to production. Offered by School of Dance (p. 802). May not be repeated for credit.

Specialized Designation: Research Associated

Registration Restrictions:
Required Prerequisites: (DANC 150^C, 251^C and 252^C).
^C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 362: RS: Directed Choreography. 1 credit.
Faculty-guided, individual learning experience where students learn to choreograph a dance work by auditioning dancers, costuming, staging, lighting, selecting musical accompaniment, and composing original movement material. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 6 credits.

Specialized Designation: Research/Scholarship Intensive

Registration Restrictions:
Required Prerequisites: (DANC 150^C, 251^C, 252^C and 360^C).
^C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 370: Dance Performance. 1 credit.
Practical experience in performance, repertory, and choreography through rehearsal and public performance of university dance concerts or guest artist programs. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 371: Residency Workshop. 1 credit.
Rehearsal and performance of new or restaged dance by guest choreographer in intensive rehearsal setting. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 372: Advanced Dance Production. 1 credit.
Methodology and practice of costume and lighting design, as dictated by specific needs of dance performance. Notes: Taught in series of workshop settings. Offered by School of Dance (p. 802). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (DANC 170^C and 270^C).
^C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Laboratory

DANC 390: Dance History I. 3 credits.
Examines dance as it developed as Western theatrical form from its beginnings in social and folk dance through evolution into ballet. Emphasizes romantic and classical ballet. Also studies American dance forms as they evolved in spectacles, burlesques, minstrelsy, and social dance. All forms of dance placed in social, political, cultural, aesthetic, and historical contexts. Offered by School of Dance (p. 802). May not be repeated for credit.

Mason Core: Arts (p. 135)

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

DANC 391: Dance History II. 3 credits.
Examines revolutions in transformation of 20th-century Western dance into forms and institutions that radically departed from predecessors. Development of contemporary dance carried with it reflections of the influence of technology and media as well as concept of global culture. Renewed interest in traditional dance forms acknowledges power of dance to serve as carrier of cultural and societal values. Dance forms placed in social, political, cultural, aesthetic, and historical contexts. Offered by School of Dance (p. 802). May not be repeated for credit.

Mason Core: Arts (p. 135)

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture
DANC 399: Independent Study. 1-3 credits.
Individual research or creative project supervised by faculty member.
Offered by School of Dance (p. 802). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Permission of director of School of Dance.

Schedule Type: Independent Study

400 Level Courses

DANC 410: Introduction to Contemporary Movement Theories. 3 credits.
Introduction to movement theories combining somatic theory with practical application to dance training. Focus on ways somatic practices can deepen perceptual processes and influence movement aesthetics. Theories studied may include: Alexander Technique, Feldenkrais Method, Body-Mind Centering, and Ideokinesis. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 18 credits.

Mason Core: Arts (p. 135)

Registration Restrictions:
Required Prerequisite: DANC 210
C
Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Laboratory, Lecture

DANC 418: Global Dance Intensive. 3 credits.
Intensive investigation of selected dance idiom within cultural and artistic contexts. Course work supplemented by participation in and observation of ambient culture. Analyzes similarities, differences, and common antecedents between selected culture and North American dance idioms. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

DANC 420: Special Topics in Dance. 1-3 credits.
In-depth presentation and exploration of topical studies in dance or related study areas. Notes: Topic depends on instructor. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: 9 hours of DANC or permission of instructor.

Schedule Type: Studio

DANC 425: Modern/Contemporary Dance IV. 1-3 credits.
Advanced-level exploration of modern dance technique. Emphasizes refining alignment, developing ability to self-correct, and replicating sophisticated movement sequences. Preparation to enter professional field of dance. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 18 credits.

Mason Core: Arts (p. 135)

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 445: Ballet IV. 1-3 credits.
Provides preprofessional ballet training for advanced-level dancer. Emphasizes attainment of high-quality technical and performance skills, application of anatomical principles, and mastery of sophisticated classical movement sequences. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 18 credits.

Mason Core: Arts (p. 135)

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Studio

DANC 453: Teaching Creative Movement. 3 credits.
Provides theory, methodology, and practicum experience in preparation for teaching creative movement to children K-12, with some application to special populations. Offered by School of Dance (p. 802). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Lecture

DANC 454: Methods of Teaching Dance. 3 credits.
Examines dance pedagogy, focusing on principles needed for teaching sound technique. Students learn skills, methods, and instructional procedures for classroom. Emphasizes curriculum development, proper course sequencing, implementation of teaching strategies, and classroom management techniques. Students study teaching methods appropriate for K-12, gifted and talented, and special-needs students. Intensive practice in implementing these skills includes lab, field-teaching experiences. Offered by School of Dance (p. 802). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Senior.

Enrollment is limited to students with a major in Dance.

Schedule Type: Lecture

DANC 490: Senior Dance Seminar. 3 credits.
Culminating seminar devoted to analyzing and synthesizing knowledge and skills gained through undergraduate course work as it applies to dance, arts education, and professional development. Students develop senior project including written and oral presentation in public forum. Offered by School of Dance (p. 802). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Registration Restrictions:
Enrollment limited to students with a class of Senior.

Enrollment is limited to students with a major, minor, or concentration in Dance.

Schedule Type: Seminar

500 Level Courses

DANC 501: Graduate Dance Seminar. 1-3 credits.
Presentation and discussion of current issues in dance specific to education, research, and professional development in the field. Offered
by School of Dance (p. 802). May be repeated within the degree for a maximum credits.

**Recommended Prerequisite:** Admission to MFA in Dance program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**DANC 510: Contemporary Movement Theories.** 3 credits.  
In-depth study of movement theories combining somatic theory with practical application to dance training. Focus is on ways somatic practices can deepen perceptual processes and influence movement aesthetics. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to Dance MFA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**DANC 520: Special Topics in Dance.** 1-3 credits.  
In-depth presentation and exploration of topical studies in dance and/or related study areas. Notes: Topic depends on instructor. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** Admission to Dance MFA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**DANC 525: Advanced Modern Dance.** 1-3 credits.  
Advanced study of modern technique, emphasizing sophisticated technical ability and performance skills, includes comparison of pedagogical perspectives. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 18 credits.

**Recommended Prerequisite:** Admission to Dance MFA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**DANC 545: Advanced Ballet.** 1-3 credits.  
Advanced study of ballet technique with an emphasis on high technical ability, performance skills and ballet vocabulary, includes comparison of pedagogical perspectives. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 18 credits.

**Recommended Prerequisite:** Admission to Dance MFA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**DANC 560: Advanced Choreography.** 3 credits.  
Intensive study and exploration of choreographic forms. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** Admission to Dance MFA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**DANC 570: Advanced Dance Performance.** 1-3 credits.  
Public performance/presentations in university or professional productions. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Admission to Dance MFA program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**DANC 571: Residency Workshop.** 3 credits.  
Rehearsal direction of a new or restaged work by a guest choreographer in an intensive rehearsal process. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 9 credits.
Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

DANC 580: Laban Movement Analysis. 3 credits.
Introduction to the components of Laban Movement Analysis: body, shape, effort and space. Offered by School of Dance (p. 802). May not be repeated for credit.

Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

DANC 598: Philosophy and Aesthetics of Dance. 3 credits.
Study of philosophical theories and aesthetic principles of dance as a performing art. Offered by School of Dance (p. 802). May not be repeated for credit.

Recommended Prerequisite: DANC 390 and DANC 391, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

DANC 599: Independent Study. 3 credits.
Individual research or creative project. Offered by School of Dance (p. 802). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

600 Level Courses

DANC 615: Contemporary Trends. 3 credits.
Study of contemporary art and artists and their philosophical theories, aesthetics and practices as they relate to the creation of new work. Offered by School of Dance (p. 802). May not be repeated for credit.

Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

DANC 627: Advanced Teaching Seminar. 3 credits.
Discussion and readings from varied pedagogical theories examining diverse approaches to teaching technique and theory culminating in development of a teaching portfolio. Offered by School of Dance (p. 802). May not be repeated for credit.

Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

DANC 672: Dance Production. 3 credits.
Artistic Direction of university or professional performance including mentoring of choreographers, adjudication of work, coordination with lighting designer, costumer, sound technician and managing director. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

DANC 680: Dance Management. 3 credits.
Exploration of the technical, financial and economical aspects of dance management including areas of marketing, fundraising, publicity, incorporation, booking non-profit vs. profit making organizations and issues relating to current practices in the performing arts industry. Offered by School of Dance (p. 802). May not be repeated for credit.

Recommended Prerequisite: Admission to Dance MFA program.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses
DANC 790: Internship. 1-3 credits.
In depth study in selected subject area of interest. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

DANC 798: Directed Choreography/Project. 1-3 credits.
This course provides intensive independent choreographic study, culminating in the creation of a significant dance work or body of works, presented in a professional level public performance. The choreography must demonstrate the student's mastery of choreographic craft, an original concept and compelling artistry. Offered by School of Dance (p. 802). May be repeated within the degree for a maximum 6 credits. Equivalent to DANC 562.

Recommended Prerequisite: Admission to MFA in Visual and Performing Arts: Dance Concentration and DANC 560.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

DANC 799: Thesis. 1-6 credits.
Creation and documentation of original research including planning, performance, recording and written reflecting under direction of thesis committee. Offered by School of Dance (p. 802). May be repeated within the degree.

Recommended Prerequisite: Admission to Dance MFA program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

Data Analytics Engineering (DAEN)

500 Level Courses
DAEN 500: Data Analytics Fundamentals. 3 credits.
Provides a foundation in data analytics from which the student will build. Focuses on a dataset where students will use analytics tools and apply statistical methodologies in order to extract information of value. Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses
DAEN 690: Data Analytics Project. 3 credits.
Capstone project course for MS in Data Analytics program. Key activity is completion of a major applied team project resulting in an acceptable technical report and oral briefing. Student should plan to take this course in the last semester of studies. Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: Completion of twelve credit hours of coursework in MS Data Analytics program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Registration Restrictions:
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Seminar

DAEN 698: Data Analytics Research Project. 1-3 credits.
Conduct a research project to be chosen and completed under guidance of a graduate faculty member that results in an acceptable technical report. Notes: No more than a total of three credits may be taken from within the DAEN program. Offered by Volgenau School of Engineering (p. 953). May be repeated within the term for a maximum 3 credits.

Recommended Prerequisite: Graduate Standing, completion of at least two core courses and a minimum of 12 credits in the DAEN program, and permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Registration Restrictions:
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Schedule Type: Research

**Early Childhood Education (ECED)**

**400 Level Courses**

**ECED 401: Developmental Pathways of Diverse Learners, Birth-Adolescence.** 3 credits.
Examines child and adolescent development from diverse perspectives. Addresses typical and atypical physical, social and emotional, language, and intellectual development. Explores role of individual differences and culture in understanding and interpreting child and adolescent development. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**ECED 402: Foundations of Language and Literacy for Diverse Prekindergarten and Kindergarten Learners.** 3 credits.
Examines complexity of language and literacy development of diverse young learners. Emphasizes language acquisition, reading, and writing in prekindergarten and kindergarten contexts. Focuses on evidence-based assessment and instructional practices that promote prekindergarten and kindergarten children’s language and literacy development. Explores social, cultural, affective, cognitive, and educational factors that play a role in language acquisition and literacy learning. Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**ECED 403: Inclusive Curriculum for Young Learners: Planning Instruction and Guidance.** 3 credits.
Explores principles of learning, curriculum development, and relationship between assessment and instruction. Examines role of play and active exploration in learning. Addresses guiding children’s behavior and the role of families and culture in children’s learning. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**ECED 404: Engaging Families of Diverse Young Learners.** 3 credits.
Focuses on strategies for developing culturally appropriate family professional partnerships to benefit children, including children from diverse cultural and linguistic backgrounds and children with special needs. Explores theories and research supporting a family-centered approach, including family and professional rights and responsibilities, especially in the special education process. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**ECED 405: Introduction to Early Childhood Special Education.** 3 credits.
Surveys current knowledge about young children with disabilities within the context of human growth and development and learning expectations in the preschool years. Includes historical factors and legislation affecting service delivery. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**ECED 406: Medical and Developmental Aspects of Disabilities of Diverse Young Learners.** 3 credits.
Focuses on medical and developmental aspects of children with disabilities, birth to age 5. Emphasizes the role of professionals in service delivery. Explores etiology, symptomatology, and management of neuromotor and developmental disabilities. Emphasizes positioning, adaptive strategies, and understanding assistive technology devices. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

**ECED 411: Assessment of Diverse Young Learners.** 3 credits.
Examines types of assessment, including family-centered child assessment, for planning and implementing effective programs for culturally, linguistically, and ability diverse children, birth through third grade. Addresses selection, administration, analysis, and interpretation of formal and informal assessments. Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: ECED 401 and ECED 403 or approval of instructor.

Schedule Type: Lecture

**ECED 412: Language and Literacy Assessment and Instruction for Diverse Primary Grade Learners.** 3 credits.
Examines ways to assess and develop reading, writing, and the language arts in primary grade classrooms. Addresses instructional strategies and practices that promote language and literacy development in culturally, linguistically, socioeconomically, and ability diverse children. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to ECED 512.

Recommended Prerequisite: ECED 402.

Schedule Type: Lecture

**ECED 413: Integrating Social Studies Across the Content Areas for Diverse Young Learners.** 3 credits.
Explores social studies content, assessment, curriculum development, planning, and instructional practices. Examines strategies for guiding children’s behavior, integrating social studies instruction across content areas, and planning and implementing community of learners inclusive of children with diverse abilities and cultural, linguistic, and socio-economic backgrounds. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: ECED 403.

Schedule Type: Lecture

**ECED 415: Mathematics for Diverse Young Learners.** 3 credits.
Examines ways to foster development of mathematics in preschool to third-grade children. Covers construction of mathematics lessons and hands-on experiences that promote learning in children with diverse abilities and cultural and linguistic backgrounds. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: ECED 403.

Schedule Type: Lecture

**ECED 416: Science for Diverse Young Learners.** 3 credits.
Examines ways to foster development of science in preschool to third-grade children. Covers construction of science lessons and hands-on experiences that promote learning in children with diverse abilities and cultural and linguistic backgrounds. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: ECED 403.
experiences that promote learning in children with diverse abilities and cultural and linguistic backgrounds. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** ECED 403.

**Schedule Type:** Lecture

**ECED 422: Developing Language, Literacy, and Communication of Diverse Infants and Toddlers.** 3 credits.
Examines instructional strategies, resources, and technologies, including assistive technologies, to develop language, literacy, and communication of diverse infants and toddlers. Explores monolingual and multilingual language acquisition, cultural and linguistic diversity, and language delays and disorders. Focuses on the importance of adult-child interaction and the role of the family in children’s language, literacy, and communication development. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**ECED 423: Early Intervention for Infants & Toddlers with Disabilities: Collaborative & Consultative Approaches.** 3 credits.
Covers methods of service delivery for infants and toddlers with disabilities and their families. Explores key aspects of consultation, interdisciplinary collaboration, service coordination, and family-centered services. Focuses on culturally responsive practices. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**ECED 485: Applied and Teacher Research in Early Childhood Education.** 3 credits.
Develops fundamental concepts, principles, and methods of research in early childhood education, with emphasis on interpreting and applying research results. Critiques research and uses findings in educational settings. Serves as a capstone course in early childhood education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**ECED 490: Internship in Early Childhood Education.** 1-6 credits.
Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 12 credits.

**Schedule Type:** Student Teaching

**ECED 497: Special Topics in Early Childhood Education.** 1-3 credits.
Provides study on selected topic or emerging issue in Early Childhood Education. Notes: May be repeated for credit with ECE program permission. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 9 credits.

**Schedule Type:** Seminar

**500 Level Courses**

**ECED 501: Developmental Pathways of Diverse Learners, Birth-Adolescence.** 3 credits.
Examines child and adolescent development from diverse perspectives. Addresses typical and atypical physical, social and emotional, language, and intellectual development. Explores role of individual differences and culture in understanding and interpreting child and adolescent development. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 502: Foundations of Language and Literacy for Diverse Prekindergarten and Kindergarten Learners.** 3 credits.
Examines complexity of language and literacy development of diverse young learners. Emphasizes language acquisition, reading, and writing in prekindergarten and kindergarten contexts. Focuses on evidence-based assessment and instructional practices that promote prekindergarten and kindergarten children’s language and literacy development. Explores social, cultural, affective, cognitive, and educational factors that play a role in language acquisition and literacy learning. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 503: Inclusive Curriculum for Young Learners: Planning Instruction and Guidance.** 3 credits.
Explores principles of learning, curriculum development, and relationship between assessment and instruction. Examines role of play and active exploration in learning. Addresses guiding children’s behavior and the role of families and culture in children’s learning. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 504: Engaging Families of Diverse Young Learners.** 3 credits.
Focuses on strategies for developing culturally appropriate family professional partnerships to benefit children, including children from diverse cultural and linguistic backgrounds and children with special needs. Explores theories and research supporting a family-centered approach, including family and professional rights and responsibilities, especially in the special education process. Offered by Graduate School of Education (p. 155). May not be repeated for credit.
**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ECED 503:** Introduction to Early Childhood Special Education. 3 credits.
Surveys current knowledge about young children with disabilities within the context of human growth and development and learning expectations in the preschool years. Includes historical factors and legislation affecting service delivery. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** ECED 401 or ECED 501 and ECED 403 or ECED 503 or approval of course instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ECED 505:** Introduction to Early Childhood Special Education. 3 credits.
Surveys current knowledge about young children with disabilities within the context of human growth and development and learning expectations in the preschool years. Includes historical factors and legislation affecting service delivery. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Early Childhood Education program or approval of course instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ECED 506:** Medical and Developmental Aspects of Disabilities of Diverse Young Learners. 3 credits.
Focuses on medical and developmental aspects of children with disabilities, birth to age 5. Emphasizes the role of professionals in service delivery. Explores etiology, symptomatology, and management of neuromotor and developmental disabilities. Emphasizes positioning, adaptive strategies, and understanding assistive technology devices. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDSE 558.

**Recommended Prerequisite:** ECED 503

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ECED 511:** Assessment of Diverse Young Learners. 3 credits.
Examines types of assessment, including family-centered child assessment, for planning and implementing effective programs for culturally, linguistically, and ability diverse children, birth through third grade. Addresses selection, administration, analysis, and interpretation of formal and informal assessments. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** ECED 401 or ECED 501 and ECED 403 or ECED 503 or approval of course instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ECED 512:** Language and Literacy Assessment and Instruction for Diverse Primary Grade Learners. 3 credits.
Examines ways to assess and develop reading, writing, and the language arts in primary grade classrooms. Addresses instructional strategies and practices that promote language and literacy development in culturally, linguistically, socio-economically, and ability diverse children. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Early Childhood Education program or approval of course instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ECED 513:** Integrating Social Studies Across the Content Areas for Diverse Young Learners. 3 credits.
Explores social studies content, assessment, curriculum development, planning, and instructional practices. Examines strategies for guiding children’s behavior, integrating social studies instruction across content areas, and planning and implementing community of learners inclusive of children with diverse abilities and cultural, linguistic, and socio-economic backgrounds. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** ECED 503

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ECED 514:** Mathematics and Science for Diverse Young Learners. 3 credits.
Examines ways to foster development of mathematics and science in preschool to third-grade children. Covers construction of math and science lessons and hands-on experiences that address the needs of culturally, linguistically, and ability diverse children. Notes: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Early Childhood Education program or approval of course instructor.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 515: Mathematics for Diverse Young Learners.** 3 credits.
Examines ways to foster development of mathematics in preschool to third-grade children. Covers construction of mathematics lessons and hands-on experiences that promote learning in children with diverse abilities and cultural and linguistic backgrounds. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** ECED 403 or ECED 503.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 516: Science for Diverse Young Learners.** 3 credits.
Examines ways to foster development of science in preschool to third-grade children. Covers construction of science lessons and hands-on experiences that promote learning in children with diverse abilities and cultural and linguistic backgrounds. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** ECED 403 or ECED 503.

**Schedule Type:** Lecture

**ECED 522: Developing Language, Literacy, and Communication of Diverse Infants and Toddlers.** 3 credits.
Examines instructional strategies, resources, and technologies, including assistive technologies, to develop language, literacy, and communication of diverse infants and toddlers. Explores monolingual and multilingual language acquisition, cultural and linguistic diversity, and language delays and disorders. Focuses on the importance of adult-child interaction and the role of the family in children’s language, literacy, and communication development. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDSE 556.

**Recommended Prerequisite:** Admission to the Early Childhood Education program or approval of course instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 601: Frameworks for Early Childhood Education.** 3 credits.
Analyzes foundational frameworks for developing perspectives for working with culturally, linguistically, and ability diverse young learners, birth to age 8, and their families. Examines foundational work from fields of early childhood education, early childhood special education, multicultural education, and second language acquisition. Notes: Must be taken as final course or with final courses of the program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 685: Special Topics in Early Childhood Education.** 1-3 credits.
Provides study on selected topic or emerging issue in Early Childhood Education. Notes: May be repeated for credit with ECE program permission. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**600 Level Courses**

**ECED 601: Frameworks for Early Childhood Education.** 3 credits.
Analyzes foundational frameworks for developing perspectives for working with culturally, linguistically, and ability diverse young learners, birth to age 8, and their families. Examines foundational work from fields of early childhood education, early childhood special education, multicultural education, and second language acquisition. Notes: Must be taken as final course or with final courses of the program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ECED 685: Applied and Teacher Research in Early Childhood Education.** 3 credits.
Develops fundamental concepts, principles, and methods of research in early childhood education, with emphasis on interpreting and applying research results. Critiques research and uses findings in educational settings. Serves as a capstone course in early childhood education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.
Recommended Prerequisite: Taken with or after final course of program or with permission of the program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECED 691: Policy Perspectives in Early Childhood Education. 3 credits.
Explores historical and current trends and issues involving legislation and policy in early childhood education, multilingual education, early childhood special education, and multicultural education. Focuses on historical role of social advocacy, development of advocacy skills, and collaboration and consultation with other professionals and staff in early childhood education of services and context of service delivery. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

ECED 702: Early Writing: Cognition, Language, and Literacy. 3 credits.
Examines early writing research and practice related to cognition, language, and literacy in the early education of diverse learners, including special education and multicultural/multilingual education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Approval of instructor and admission to the PHD program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ECED 704: Family Research and Practice in Early Childhood Education. 3 credits.
Explores the relationship between families and professionals in providing appropriate early care and education, birth through grade 3, including children with special education needs and those from culturally, linguistically, and economically diverse backgrounds. Includes in-depth study, analysis, and discussions of original research as well as synthesis of findings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Approval of instructor and admission to the PHD program.

Schedule Type: Seminar

ECED 710: International Perspectives in Early Childhood Education. 3 credits.
Examines international perspectives in early childhood education in various contexts to increase students’ knowledge of approaches to planning and implementing effective programs for culturally, linguistically, and ability diverse children by professionals working with young children and families to inform, connect, and enrich U.S. based programs in early childhood education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the M.Ed. in Curriculum and Instruction, Concentration in Early Childhood Education for Diverse Learners, the Ph.D. in Education, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECED 788: Internship in Early Childhood Education Prekindergarten-Third Grade. 6 credits.
Enables students to participate full time in an internship in early childhood education (prekindergarten through third grade). Links university course work to real world of working with diverse young learners and their families. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to ECED 798.

Recommended Prerequisite: ECED 401 or 501, ECED 403 or 503 and Admission to the Early Childhood Education Prekindergarten-Third Grade Licensure Graduate Certificate Program. Endorsement and standardized test requirements (Praxis Core Academics Skills for Educators or qualifying substitution, Praxis II, and Virginia Communication and Literacy Assessment) must be met the semester prior to the internship.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

ECED 789: Internship in Early Childhood Special Education Birth - Five. 6 credits.
Enables students to participate full time in an internship in early childhood special education (birth-5). Links university course work to real world of working with children with special needs and their families. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to ECED 799.

Recommended Prerequisite: ECED 401 or 501, ECED 403 or 503, and Admission to the Early Childhood Special Educational Licensure Graduate Certificate Program. All standardized test requirements (Praxis Core Academic Skills of Educators or qualifying substitution and Virginia Communication and Literacy Assessment) must be met prior to applying to the internship.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship
ECED 790: Internship with Diverse Preschool Children. 3 credits. Enables students to participate full time in an internship with diverse preschool children. Links university course work to real world of working with diverse young learners and their families. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ECED 401 or 501, ECED 403 or 503, and Admission to the Early Childhood Education Prekindergarten – Third Grade (Licensure) Graduate Certificate Program. All endorsement and standardized test requirements (Praxis Core Academic Skills for Educators or qualifying substitution, Praxis II, and Virginia Communication and Literacy Assessment) must be met the semester prior to the internship.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Internship

ECED 791: Internship with Diverse Infants and Toddlers. 3 credits. Enables students to participate full time in an internship with diverse infants/toddlers. Links university course work to real world of working with diverse young learners and their families. Notes: Students enroll in both infant/toddler (3 credits) and preschool (3 credits) internships. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ECED 401 or 501, ECED 403 or 503, and Admission to the Early Childhood Special Education (Licensure) Graduate Certificate Program. All endorsement and standardized test requirements (Praxis Core Academic Skills for Educators or qualifying substitution and Virginia Communication and Literacy Assessment) must be met the semester prior to the internship.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Internship

ECED 792: Internship in Early Childhood Education-TFA. 1-6 credits. Enables students to participate full time in an internship in early childhood education. Links university course work to real world of working with diverse young learners and their families. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to the Early Childhood Education program or approval of course instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Internship

ECED 793: Internship in Preschool Early Childhood Special Education. 3 credits. Enables students to participate full time in an internship in preschool early childhood special education. Links university course work to real world of working with diverse young learners and their families. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ECED 401 or 501, ECED 403 or 503, and Admission to the Early Childhood Special Education (Licensure) Graduate Certificate Program. All standardized test requirements (Praxis Core Academic Skills for Educators or qualifying substitution and Virginia Communication and Literacy Assessment) must be met the semester prior to the internship.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Internship

ECED 795: Internship in Kindergarten - Third Grade. 3 credits. Enables students to participate full time in an internship in early childhood education in kindergarten through third grade. Links university course work to real world of working with diverse young learners and their families. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ECED 401 or 501, ECED 403 or 503, and Admission to the Early Childhood Education Prekindergarten - Third Grade Licensure Graduate Certificate Program. Endorsement and standardized test requirements (Praxis Core Academic Skills for Educators or qualifying substitution, Praxis II, and Virginia Communication and Literacy Assessment) must be met prior to applying for the internship.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Internship

800 Level Courses

ECED 801: Current Research and Trends in Early Childhood Education. 3 credits. Examines research and trends in the early education of children. Explores issues that influence the education of young children with special education needs and children from culturally, linguistically, and economically diverse backgrounds. Examines practices appropriate for diverse young learners. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Admission to the PhD in Education program or post-master's status and approval of course instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Seminar

ECED 803: Teacher Preparation and Professional Development. 3 credits. Explores research and current recommended practices related to teacher preparation and professional development. Provides opportunity for practical application with preservice or inservice teachers. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDUC 803.
Recommended Prerequisite: Admission to the PhD in Education program or post-master’s status and approval of course instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

ECED 804: Family Research and Practice in Early Childhood Education. 3 credits.
Explores the relationship between families and professionals in providing appropriate early care and education, birth through grade 3, including children with special education needs and those from culturally, linguistically, and economically diverse backgrounds. Includes in-depth study, analysis, and discussions of original research as well as syntheses of findings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD in Education program or advanced-master’s status with approval of course instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

ECED 812: Early Writing: Cognition, Language, and Literacy. 3 credits.
Examines writing research and practice related to cognition, language, and literacy in the early education of diverse learners, including special education and multicultural/multilingual education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD in Education program or advanced-master’s status with approval of course instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

Economics (ECON)

100 Level Courses

ECON 100: Economics for the Citizen. 3 credits.
Not available to economics majors. Broad introduction to economic concepts and how they can contribute to a better understanding of the world around us. Applies and develops concepts to current economic and social problems and issues. Less formal modeling than in the 103-104 sequence. Offered by Economics (p. 335). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

ECON 103: Contemporary Microeconomic Principles. 3 credits.
Introduces microeconomics in the context of current problems. Explores how market mechanism allocates scarce resources among competing uses; uses supply, demand, production, and distribution theory to analyze problems. Offered by Economics (p. 335). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

ECON 104: Contemporary Macroeconomic Principles. 3 credits.
Introduces macroeconomics in the context of current problems. National income analysis, money and banking, economic growth and stability, unemployment, inflation, and role of government. Offered by Economics (p. 335). May not be repeated for credit. Equivalent to MSU 106.

Mason Core: Social/Behavioral Sciences (p. 135)

Recommended Prerequisite: ECON 103.

Schedule Type: Lecture

ECON 105: Environmental Economics for the Citizen. 3 credits.
Introduction to economic concepts and how they can be applied to environmental policy issues such as air and water pollution, climate change, natural resource use, and sustainability. Focus is on concepts, policy, and case studies rather than formal modeling exercises. Offered by Economics (p. 335). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

200 Level Courses

ECON 296: Special Topics in Economics. 3 credits.
Provides coverage of a specialized topic in economics at the introductory level. Topics vary by section. Notes: May be repeated for credit when topic is different. Offered by Economics (p. 335). May be repeated within the term for a maximum 9 credits.

Schedule Type: Lecture

300 Level Courses

ECON 306: Intermediate Microeconomics. 3 credits.
Basic factors of price and distribution theory: analysis of demand, costs of production and supply relationships, and price and output determination under various market structures. Offered by Economics (p. 335). May not be repeated for credit. Equivalent to MSU 302.

Recommended Prerequisite: ECON 103 and 104 and MATH 108 or 113.

Schedule Type: Lecture

ECON 308: Managerial Economics and Strategy. 3 credits.
Analysis of major strategic business situations including pricing strategy, incentives and contracts, game theory, and vertical and horizontal integration. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 306.

Schedule Type: Lecture

ECON 309: Economic Problems and Public Policies. 3 credits.
Economic problems in light of current and proposed public policies. Topics include environmental issues, international trade policies, and
regulatory issues and their historical roots. Offered by Economics (p. 335). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** ECON 100 or 103 and 104 or permission of instructor.

**Schedule Type:** Lecture

**ECON 310:** Money and Banking. 3 credits.
Monetary, commercial, and central banking systems, with particular emphasis on their relationship with American government programs, fiscal policies, and controls. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 103, 104 or permission of instructor.

**Schedule Type:** Lecture

**ECON 311:** Intermediate Macroeconomics. 3 credits.
Aggregate economic accounts, including measuring national income; determinants of levels of income and output; and causes and solutions for problems of unemployment, inflation, and economic growth. Offered by Economics (p. 335). May not be repeated for credit. Equivalent to MSU 304.

**Recommended Prerequisite:** ECON 103 and 104 or permission of instructor.

**Schedule Type:** Lecture

**ECON 320:** Labor Problems. 3 credits.
Explores American labor unions and their effect on society, including causes of and proposed solutions to selected problems. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 103 and 104 or permission of instructor.

**Schedule Type:** Lecture

**ECON 321:** Economics of Labor. 3 credits.
Defines factors that determine levels of wages and employment, and economic consequences. Emphasizes recent developments in unionism, collective bargaining, and industrial technology. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 306.

**Schedule Type:** Lecture

**ECON 330:** Public Finance. 3 credits.
Covers intergovernmental financial relationships; types, incidences, and consequences of taxation; other sources of governmental income; governmental expenditures and their effect; public economic enterprises; public borrowing; and debt management and its economic effect. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 306 or permission of instructor.

**Schedule Type:** Lecture

**ECON 335:** Environmental Economics. 3 credits.
Microeconomic analysis of environmental problems. Topics include externalities and market failure, alternative solutions and policies, problems in monitoring and enforcement, economic analysis of development of legislation and regulation, and applications to current policy issues. Offered by Economics (p. 335). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** ECON 103 and 104.

**Schedule Type:** Lecture

**ECON 340:** Introduction to Mathematical Economics. 3 credits.
Mathematical treatment of theory of firm and household behavior, stabilization policy, growth theory, input-output analysis, and linear programming. Offered by Economics (p. 335). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** (ECON 306, 311 and MATH 113). Requires minimum grade of C.

**Schedule Type:** Lecture

**ECON 345:** Introduction to Econometrics. 3 credits.
Modern statistical techniques in estimating economic relations. Offered by Economics (p. 335). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Registration Restrictions:**
**Required Prerequisites:** (ECON 306, 311 and MATH 113). Requires minimum grade of C.

**Schedule Type:** Lecture

**ECON 360:** Economics of Developing Areas. 3 credits.
Economic growth characteristic of developing countries. Economic development, obstacles to development, policies, and planning. Offered by Economics (p. 335). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Recommended Prerequisite:** ECON 103 and 104 or permission of instructor.

**Schedule Type:** Lecture

**ECON 361:** Economic Development of Latin America. 3 credits.
Economic development, institutions, and problems of Latin America. Offered by Economics (p. 335). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)
Specialized Designation: Non-Western Culture

Recommended Prerequisite: ECON 103 and 104 or permission of instructor.

Schedule Type: Lecture

ECON 362: African Economic Development. 3 credits.
Issues of economic development as applied to Africa. Includes overview of early economic history in Africa and post-independence development, and contemporary development problems. Offered by Economics (p. 335). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

ECON 365: Topics in Economic History. 3 credits.
Possible topics include ancient, medieval, modern European, and American economic history, using econometric analysis as necessary. Notes: May be repeated when topic is different. Offered by Economics (p. 335). May be repeated within the term for a maximum 6 credits.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: ECON 103 and 104.

Schedule Type: Lecture

ECON 367: Money, Markets, and Economic Policy. 3 credits.
Applies basic economic concepts and principles to issues facing the U.S. and global economies. Topics include productivity and economic growth, taxes, healthcare, globalization, income distribution and financial crises, with an emphasis on market structure, social institutions and the not-always rational behavior of investors and consumers. Offered by Economics (p. 335). May not be repeated for credit. Equivalent to GOVT 367.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Seminar

ECON 370: Economics of Industrial Organization. 3 credits.
Factors influencing industrial structure, and industrial conduct and performance. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 306 or permission of instructor.

Schedule Type: Lecture

ECON 374: Health Economics. 3 credits.
Microeconomic analysis of health and medicine. Topics include the determinants of health, health externalities, health insurance, the health effects of medicine, the supply and demand of medicine, medical quality and regulation, and information asymmetries. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 103 and ECON 104 or permission of instructor.

Schedule Type: Lecture

ECON 380: Economies in Transition. 3 credits.
Examines problems and achievements of formerly communist and socialist countries including China, Eastern European countries, and Russia and other countries of the former Soviet Union as they transition to more market-oriented economies. Includes market economies and central planning. Offered by Economics (p. 335). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: ECON 103 and 104 or permission of instructor.

Schedule Type: Lecture

ECON 385: International Economic Policy. 3 credits.
Introduces economic way of thinking on trade and international finance. Presents historical and current information on consequences of trade and protectionism. Notes: May not be applied toward the elective course requirement needed for a major or minor in economics. Offered by Economics (p. 335). May not be repeated for credit.

Schedule Type: Lecture

ECON 390: International Economics. 3 credits.
Foreign exchange market, balance of payment, foreign trade policies, and theories of international trade. Offered by Economics (p. 335). May not be repeated for credit. Equivalent to MSU 402.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: ECON 306 and ECON 311 or permission of instructor.

Schedule Type: Lecture

400 Level Courses

ECON 403: Austrian Economics. 3 credits.
Microeconomic and macroeconomic models and misallocation of resources. Alternative economic tools from noted Austrian economists. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 306 and 311.

Schedule Type: Lecture

ECON 410: Public Choice. 3 credits.
Applies economic theory, methodology to study nonmarket decision making. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 306.

Schedule Type: Lecture

ECON 412: Game Theory and Economics of Institutions. 3 credits.
Introduces game theory and its relevance for analyzing framework of rules and institutions within which economic processes occur. Applies game theoretical concepts to comparative analysis of causes and effects of alternative institutional arrangements. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 306 or permission of instructor.

Schedule Type: Lecture
**ECON 415: Law and Economics.** 3 credits.
Economic analysis of the law. Topics include introduction to legal institutions and legal analysis; application of economic concepts to the law of property, contracts and torts, criminal and constitutional law; economic efficiency of common law; and public choice perspective on the evolution of the law. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 306 or permission of instructor.

**Schedule Type:** Lecture

**ECON 420: International Money and Finance.** 3 credits.
Examines models of balance of payments, exchange rate behavior, and open economy macroeconomics. Includes international financial system and issues such as globalization and international financial instability. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 306 and 311, or permission of instructor.

**Schedule Type:** Lecture

**ECON 421: Financial Economics.** 3 credits.
Provides a survey of financial economics including a brief overview of the U.S. and international financial system and the role of different financial institutions. Covers the leading theoretical models in the field. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 103, ECON 104, ECON 306, ECON 311.

**Schedule Type:** Seminar

**ECON 435: Economics of Energy.** 3 credits.
Examines various issues in the energy industry using tools from microeconomic theory, law and economics and public choice. Topics include issues related to oil, historical and current energy regulation, and environmental issues associated with energy. Offered by Economics (p. 335). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** ECON 306.

**Schedule Type:** Lecture

Introduces design principles to develop systems to allocate resources. Students must participate in experiment demonstrations of different allocation mechanisms. They also are exposed to experimental methods in economics and market design. Offered by Economics (p. 335). May not be repeated for credit. Equivalent to SYST 480.

**Recommended Prerequisite:** MATH 213.

**Schedule Type:** Lecture

**ECON 441: Economic Systems Design: Case Studies and Analysis.** 3 credits.
Requires students to design and develop mechanisms to specific allocation problem. Students develop analytical and working engineering models of their mechanism. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 440.

**Schedule Type:** Lecture

**ECON 442: Economic Systems Design: Implementation.** 3 credits.
Involves students in developing experimental design to test proposed allocation solution. Design process includes construction of experimental parameters, treatments, and initial test in laboratory setting. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 441.

**Schedule Type:** Lecture

**ECON 445: Design and Analysis of Experiments.** 3 credits.
Topics include comparing two or more treatments, and computing and interpreting analysis of variance. Discusses randomized block, Latin square, and factorial designs; and applications to economics experiments. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** STAT 250 or 344, or MATH 351, or IT 250, or permission of instructor.

**Schedule Type:** Lecture

**ECON 460: Senior Seminar in Philosophy, Politics, and Economics.** 3 credits.
Covers issues in the philosophy, economics, and political science of institutions, information, and collective action. Through case studies of existing legal and political institutions, applies the insights to problems in politics, policy making, social-choice theory, and social, moral, and political philosophy. (Specific content varies). Notes: Serves as the capstone course for the PPE program. Offered by Economics (p. 335). May not be repeated for credit. Equivalent to GOVT 469, PHIL 460.

**Recommended Prerequisite:** PHIL 358 and ECON 412 or permission of instructor.

**Schedule Type:** Seminar

**ECON 470: Economics of Regulation.** 3 credits.
Examines various issues surrounding concepts of regulation using tools from microeconomic theory and public choice. Topics include antitrust, rate regulation, policy rationales for regulation, and issues of current interest. Offered by Economics (p. 335). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** ECON 306.

**Schedule Type:** Lecture

**ECON 481: The Development of Economic Thought.** 3 credits.
Developments in economic thought from 1500 to the present. Emphasizes historical origins, impact on contemporary economics, and theoretical validity. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 306 and 311 or permission of instructor.

**Schedule Type:** Lecture

**ECON 485: Smithian Political Economy I.** 3 credits.
Studies the thought of Adam Smith. As the first in a two-course sequence, course focuses on The Theory of Moral Sentiments. Offered by Economics (p. 335). May not be repeated for credit.
Schedule Type: Lecture

ECON 406: Smithian Political Economy II. 3 credits.
Studies the thought of Adam Smith. As the second in a two-course sequence, course focuses on The Wealth of Nations. Offered by Economics (p. 335). May not be repeated for credit.

Schedule Type: Lecture

ECON 492: Study Abroad. 1-6 credits.
Study abroad under supervision of George Mason faculty. Course topics, content, and locations vary. Notes: May be repeated with permission of department. Offered by Economics (p. 335). May be repeated within the degree for a maximum 12 credits.

Schedule Type: Lecture

ECON 494: Honors Thesis Writing Seminar. 3 credits.
Develops skills in finding and evaluating sources, oral presentation, and academic writing. Offered by Economics (p. 335). May not be repeated for credit.

Specialized Designation: Research Associated

Recommended Prerequisite: ECON 306 and 311, an overall GPA of 3.5, and permission from the instructor.

Schedule Type: Lecture

ECON 495: RS: Honors Thesis in Economics. 3-6 credits.
Honors-level research on a self-selected topic in economics culminating in a substantial research paper and an oral presentation. Notes: Requirements for departmental honors in the major are in addition to the coursework required for the major. ECON 495 credit may not be applied toward the elective course requirement needed for a major or minor in economics. Offered by Economics (p. 335). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: ECON 494 with minimum grade of B or permission from the instructor with an approved research proposal.

Schedule Type: Independent Study

ECON 496: Special Topics in Economics. 3 credits.
Subject matter varies. Notes: May be repeated when topic is different. Offered by Economics (p. 335). May be repeated within the term for a maximum 24 credits.

Schedule Type: Lecture

ECON 498: Internship. 3-6 credits.
Students find economics-related internship with assistance from Career Services. Pre-internship proposal and final reflections paper required. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: 6 upper-level hours in economics, Junior standing, and permission of instructor.

Schedule Type: Internship

ECON 499: Independent Study. 1-4 credits.
Individual study of selected area of economics. Notes: Directed research paper required. Offered by Economics (p. 335). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: Economics majors with 90 credits, and permission of both the department and instructor.

Schedule Type: Independent Study

500 Level Courses

ECON 535: Survey of Applied Econometrics. 3 credits.
Applied introduction to estimating economic relationships. Includes simple equation and simultaneous equation system estimation. Notes: Students who take ECON 535 may not take ECON 637 for credit. Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: Admission to master's program in economics or OM 210 or STAT 250 and 350, and ECON 306 and 311, and MATH 113; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

ECON 500: Economics for Educators. 3 credits.
Introduces current and prospective K-12 teachers to the fundamentals of economics. Prepares teachers to instruct students in the economics and personal finance course now required by the Virginia Department of Education. Supports teachers in successfully teaching the economics content of the Virginia SOLs in history and social sciences. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: Undergraduate degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECON 535: Microeconomic Theory. 3 credits.
Covers theory of behavior of consumers, firms, and resource suppliers; theories of choice under risk and uncertainty; partial equilibrium analysis of competitive and noncompetitive markets; general equilibrium analysis; and welfare economics. Introduces capital theory. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.
Recommended Prerequisite: Admission to master's program in economics or ECON 306 and 311, and MATH 113; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECON 612: Microeconomic Theory II. 3 credits.
Nature of the firm; theory of supply; and production functions, factor pricing, and supplies. Introduces microeconomic foundations of theories of public finance and public choice. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611.

ECON 615: Macroeconomic Theory. 3 credits.
Survey course covering monetary theory, theories of consumption and saving, budget deficits, economic growth, international finance, and monetary and fiscal policies. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: Admission to master's program in economics, or ECON 306 and 311, and MATH 113; or permission of instructor.

ECON 630: Mathematical Economics I. 3 credits.
Includes set theory, function, differential calculus, integration, series, and matrix algebra, with special emphasis on economic applications. Notes: Non-Degree students are permitted to enroll on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: Admission to master's program in economics, or ECON 306 and 311, and MATH 113, or permission of instructor.

ECON 632: Economic Systems Design Principles and Experiments. 3 credits.
Introduces analytical and engineering principles to develop exchange systems. Students must become familiar with literature on applied mechanism design; and understand behavioral aspects of auction systems, matching, assignment and transportation problems, and information markets. Also introduces methods for testbedding systems using experimental economics and statistical design. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: A course in linear and nonlinear optimization along with a course in linear algebra.

ECON 633: Economic Systems Design Case Studies and Analysis. 3 credits.
Students begin process of doing research in design economic exchange system. Design process includes electronic instructions, and design of information structures. Students responsible for research into economic issues, and practical design issues. Offered by Economics (p. 335). May not be repeated for credit.
Recommended Prerequisite: ECON 632.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECON 634: Economic Systems Design Implementation. 3 credits.
Students do original research in economic systems design by constructing engineering model of solution to allocation problem. Research includes experimental and statistical design, and complete description of hypothesis related to construction of experimental parameters and treatments to test mechanism. Requires initial test of mechanism in laboratory setting. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 633.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECON 637: Econometrics I. 3 credits.
Techniques of estimating relationships between economic variables. Introduces multiple regression and problems associated with single equation model-autocorrelation, multicollinearity, and heteroscedasticity. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: Acceptance to PhD program in economics, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECON 676: Comparative Economic Systems. 3 credits.
Capitalism, socialism, and corporatism historical perspective. Includes examination of economies of representative contemporary countries. Offered by Economics (p. 335). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

ECON 695: Special Topics in Economics. 3 credits.
Topics vary according to interests of instructor. Emphasizes new areas of discipline. Notes: May be repeated when topic is different. Offered by Economics (p. 335). May be repeated within the term.

Recommended Prerequisite: Admission to doctoral program in economics, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECON 715: Macroeconomic Theory I. 3 credits.
Covers classical, neoclassical, Keynesian, and post-Keynesian theories of income and employment determination; theories of inflation and growth; and demand for money and implications for effectiveness of monetary vs. fiscal policy. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: Admission to doctoral program in economics, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a major in Economics.

Enrollment is limited to Graduate or Non-Degree level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Schedule Type: Lecture

ECON 799: Master's Thesis. 1-6 credits.
Research on approved thesis topic under direction of thesis committee. Notes: Students must register for a minimum of three credit hours in their first semester of 799 and maintain continuous enrollment in 799 while writing and submitting a thesis. A maximum of 6 credits of 799 may be applied to the degree. Offered by Economics (p. 335). May be repeated within the degree.

Recommended Prerequisite: Admission to MA economics program and permission of thesis advisor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis
800 Level Courses

**ECON 811: Microeconomic Theory I.** 3 credits.
Theory and applications of behavior of consumers, firms, and resource suppliers. Partial equilibrium analysis of various market structures and introduction to intertemporal choice and capital theory. Review and analysis of classic works in microeconomic theory. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** Admission to doctoral program in economics, or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 812: Microeconomic Theory II.** 3 credits.
Examines nature of firm; theory of supply; and production functions, factor pricing, and supplies. Introduces microeconomic foundations of theories of public finance and public choice. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 811.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 816: Macroeconomic Theory II.** 3 credits.
Aggregate economic activity and price levels with emphasis on dynamic models. Notes: Non-Degree students are permitted to enroll based on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 715 and 811 or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 817: Monetary Theory and Policy.** 3 credits.
Theory of mechanisms through which central banking affects economic activity and prices. Analyzes demand for money and its relationship to economic activity. Develops monetary theory with emphasis on current theories and controversies in the field. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 615 or 715 and 535 or 637, or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 820: History of Economic Thought.** 3 credits.
Explores major figures in history of economic thought and tools of analysis they created. Emphasizes classical, neoclassical, and Keynesian theories. Offered by Economics (p. 335). May not be repeated for credit.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 821: History of Economic Thought II.** 3 credits.
Covers development of economic analysis from marginal revolution of 1877 to present. Emphasizes development of neoclassical economic theory. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 and 615, or ECON 715 and 811; or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 823: Topics in Economic History.** 3 credits.
Offers economic analysis of various historical epochs including Industrial Revolution, evolution of political reform, rise of unions, and growth of government. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 and 811, or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 825: Political Economy and Public Policy I.** 3 credits.
Covers economic process of public policy formulation and implementation; and economic behavior of principals in policy making and execution. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 and 811, or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 826: Political Economy and Public Policy II.** 3 credits.
Specific issues related to political economy of public policy, including privatization, political economy of deficit spending, regulation and deregulation, and economics of rent seeking. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 or 811; or permission of instructor.

**Registration Restrictions:** Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 827: Economic Philosophy.** 3 credits.
Analyzes philosophical organization, including interrelations between economics and legal and political institutions; philosophical presuppositions of capitalist economy under constitutional democracy; alternative presuppositions for non-capitalist economies; and critical
evaluation of history of ideas in social and moral philosophy. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 or 811 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 828:** *Constitutional Economics*. 3 credits.
Analyzes existing and proposed elements of economic constitution. Emphasizes fiscal, monetary, transfer, and regulatory powers of government and constitutional limits on such powers, especially in the United States. Includes analysis of proposed changes in limits. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 or 811 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 829:** *Economics of Institutions*. 3 credits.
Analyzes framework of rules and institutions for economic activities and transactions. Includes emergence and working properties of different institutions, and classical and contemporary approaches to economic theory of institutions. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 or 811 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 830:** *Mathematical Economics I*. 3 credits.
Includes set theory, function, differential calculus, integration, series, and matrix algebra, with special emphasis on economic applications. Notes: Non-degree students are permitted to enroll on space availability determined one week before the first day of classes AND on meeting the prerequisites AND with permission of instructor. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** Admission to doctoral program in economics, or ECON 306 and 311, and MATH 113; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 831:** *Mathematical Economics II*. 3 credits.
Develops the foundations of choice, price, and general equilibrium theory. Topics include choice, preference and utility; consumer demand; competitive firms; general equilibrium; and social choice and welfare. Special attention is paid to uncertainty and dynamic choice. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** Admission to doctoral program in economics, or ECON 306 and 311, and MATH 113; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 838:** *Econometrics II*. 3 credits.
Explores econometric models and simultaneous equation systems. Includes identifying parameters and least squares bias, alternative estimation methods, and block recursive systems. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 637 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 839:** *Constitutional Economics II*. 3 credits.
Uses economic analysis and methods to explore more deeply than in Constitutional Economics I specific issues in Constitutional Economics. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 828.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 840:** *Law and Economics I*. 3 credits.
Uses economics to analyze U.S. Common-law system, evaluating efficiency and logic of evolution. Notes: No prior knowledge of law required. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 or 811; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 841:** *Law and Economics II*. 3 credits.
Explores empirical analyses of law of property, torts, crime, and family. Also looks at law’s effects on freedom and economic growth. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 or 811, and ECON 535 or 637; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 843:** *Smithian Political Economy I*. 3 credits.
Explores the moral philosophy of Adam Smith, with a focus on The Theory of Moral Sentiments, which is studied cover-to-cover in "Great Books" fashion. Offered by Economics (p. 335). May not be repeated for credit.

**Recommended Prerequisite:** ECON 611 or 811, and ECON 535 or 637; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ECON 844:** *Smithian Political Economy II*. 3 credits.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ECON 844: Industrial Organization and Public Policy I. 3 credits.
Structure of American industry and underlying determinants. Includes structure and conduct on industrial performance in light of theory and empirical evidence; and rational antitrust policy and analysis of impact on structure and performance. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611 or 811 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 845: Smithian Political Economy II. 3 credits.
Explores the political economy of Adam Smith, with a focus on The Wealth of Nations, which is studied cover-to-cover in "Great Books" fashion. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 852 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 846: Industrial Organization and Public Policy II. 3 credits.
Covers relationship of law, economics, and theories of social control of property rights. Includes theories of market structure and industrial performance. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 844, and ECON 535 or 637; or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 849: Public Finance. 3 credits.
Theoretical and institutional analysis of government expenditure, taxation, debt management, and intergovernmental fiscal relations. Includes allocative and distributional effects of alternative tax and subsidy techniques, principles of benefit cost, and cost-effectiveness analysis for government decisions. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611 or 811 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 852: Public Choice I. 3 credits.
Applies economic theory and methodology to study of nonmarket decision making. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611 or 811 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 854: Public Choice II. 3 credits.
Applies public choice approach to study such topics as causes and consequences of governmental growth, behavior of public bureaucracies, and economic reasoning behind constitutional limitations on size and growth of government. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 852 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 856: Non-Market Decision Making. 3 credits.
Explores the economics of non-market decision making. Considers the application of rational choice theory to decision making by a variety of persons who are neither traditional buyers nor sellers in a variety of contexts that are not traditional markets. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 852 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 866: Economic Development. 3 credits.
Explores forces contributing to or retarding economic progress in developing countries. Includes role of foreign trade, economic integration, foreign investment, multinational corporations, and technological transfers. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611 and 615, or 715 and 811, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 869: International Trade and Policy. 3 credits.
Studies classical, neoclassical, and modern theories of international trade; theory and practice of world trade models such as project LINK; foreign investment and economic growth; tariffs and nontariff barriers, and economic integration; and recent developments, with emphasis on natural resources. Offered by Economics (p. 335). May not be repeated for credit.
ECON 871: International Monetary Economics. 3 credits. Examines international adjustment mechanism, price and income effects, controls, and monetarist approach; development of international monetary system; demand for international reserves; capital movements; and role of International Monetary Fund. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611 or 811 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 880: Theory of the Market Process I. 3 credits. Examines theory developed by Menger, Mises, Hayek, and others of the Austrian School; and compares with other popular theories. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 615 or 715 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 881: Theory of Market Process II. 3 credits. Continuation of ECON 880. Explores the market-process approach to analyzing capital accumulation and growth; money and credit institutions; inflation and unemployment; and industrial fluctuations. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611 or 811 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 885: Experimental Economics. 3 credits. Designed for graduate students to learn how experimental methods can be used to inform economic research and practice. Students expected to have working understanding of basic economic concepts and multivariate calculus. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 611 or 811 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 886: Experimental Economics II. 3 credits. Research in experimental design. Topics represent basic tools to build, test, and implement exchange mechanisms in an applied setting. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 885 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 895: Special Topics in Economics. 3 credits. Topics vary according to interests of instructor. Emphasizes new areas of discipline. Offered by Economics (p. 335). May be repeated within the term. Equivalent to GGS 525.

Recommended Prerequisite: ECON 611 or 811 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Lecture

ECON 896: Directed Reading and Research. 1-9 credits. Independent reading and research paper on a topic agreed on by student and faculty member. Offered by Economics (p. 335). May be repeated within the term.

Recommended Prerequisite: ECON 885 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

900 Level Courses

ECON 950: Seminar in Public Finance. 3 credits. Important public finance issues treated in seminar format. Offered by Economics (p. 335). May not be repeated for credit.

Recommended Prerequisite: ECON 849 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Seminar

ECON 985: Workshop in Experimental Economics. 3 credits. Designed for graduate students who have taken Experimental Economics and Economic Systems Design and are applying experimental methods to their own or collaborative research projects. Offered by Economics (p. 335). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ECON 886.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Seminar

ECON 998: Doctoral Dissertation Proposal Research. 1-9 credits. Research on prospective dissertation topic. Notes: For students who have completed course work but have not yet advanced to candidacy. Offered by Economics (p. 335). May be repeated within the degree.

Recommended Prerequisite: Admission to PhD economics program, and completed at least 48 credits of coursework, and passed required doctoral exams, and permission of dissertation advisor.

Registration Restrictions:
Education (EDUC)

200 Level Courses
EDUC 203: Disability in American Culture. 3 credits.
Examines disability, past and present, in American culture through changes in historical, political, legal and societal responses to people with disabilities. Analyzes the disability experience through social and behavioral science perspectives, including diversity, bioethical and human rights conceptualizations/constructs of disability. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

300 Level Courses
EDUC 300: Introduction to Teaching. 3 credits.
Introduction to educational issues; not applicable in graduate-level teacher education programs. Examines roles of teacher, nature of American schools, and potential contributions of students. Notes: Requires school-based field experience during course. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDUC 301: Educationally Diverse Populations: Handicapped, Gifted, Multicultural. 3 credits.
Introduction to educational issues; not applicable in graduate-level teacher education programs. Introduces psychological, sociological, educational, and physical aspects of diverse populations in today’s schools for early and middle education. Emphasizes litigation and legislation pertaining to education of diverse populations. Notes: Requires school-based field experience during course. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDUC 521.

Schedule Type: Lecture

EDUC 302: Human Growth and Development. 3 credits.
Introduction to educational issues; not applicable in graduate-level teacher education programs. Examines human development through life span with special emphasis on cognitive, language, physical, social, and emotional development of children. Emphasizes contemporary theories of human development and their relevance to educational practice. Notes: Requires school-based field experience during course. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

400 Level Courses
EDUC 303: Politics of American Education. 3 credits.
Focus on the study of the American political system. Designed for students studying the American political system and students interested in careers in education. Examines how interactions between various levels and branches of government affect education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDUC 372: Human Development, Learning, and Teaching. 3 credits.
Explores processes that influence intellectual, social, emotional, moral, ethical, and physical development of middle and high school students. Examines research and theories for understanding learning process. Notes: School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

EDUC 400: In-Service Educational Development. 1-6 credits.
Offered at request of school division or other educational agency. Notes: Content varies. May be repeated with permission of department, but no more than 6 credits in EDUC 695, 695, or 699 may be applied toward master’s degree. Offered by Graduate School of Education (p. 155). May be repeated within the term.

Schedule Type: Internship

EDUC 415: Student Teaching in Physical Education. 12 credits.
See PHED 415. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Completion of all courses in the approved program, and admission to and good standing in the Teacher Education Program.

Recommended Corequisite: PHED 472.

Schedule Type: Internship

EDUC 422: Foundations of Secondary Education. 3 credits.
Analyzes philosophical assumptions, curriculum issues, learning theories, and history associated with current teaching styles. Emphasizes applications to all disciplines taught in secondary schools. Examines educational trends and issues. Notes: 15 hours school-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the secondary Education Program.

Registration Restrictions:
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

Schedule Type: Lecture
500 Level Courses

EDUC 511: Child and Adolescent Development in Global Contexts. 3 credits.
Provides an introduction to teaching culturally & linguistically diverse and exceptional learners, includes analysis of human growth and development, an overview of psychology, and introduction to using technology across the curriculum. Requires 20 hours of PK-12 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDCI 511.

Recommended Prerequisite: Admission to FAST TRAIN or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 512: Teaching Elementary Social Studies in International Schools. 3 credits.
Focuses on translation of knowledge and data-gathering processes form social sciences into appropriate and meaningful international PK-6 social studies experiences. Develops understanding of aims, methodologies of history, geography, government and political sciences, sociology, anthropology and psychology. Requires 20 hours of PK-6 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 511.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 513: Teaching Elementary Math in International Schools. 3 credits.
Presents topics in school mathematics with particular emphasis on developing common PK-6 strands for application in international schools. Focuses on exploring, verifying, and explaining concepts using concrete materials. Requires 20 hours of PK-6 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 511 and EDRD 515.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 514: Teaching Elementary Science in International Schools. 3 credits.
Covers theory and practices of effective teaching of PK-6 science in international schools. Uses laboratory and discovery techniques to design essential science components and integrate them with other disciplines. Introduces design and implementation of activities for developing concepts solving problems, and strengthening thinking skills in PK-6 science. Requires 20 hours of PK-6 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 511 and EDRD 515.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 515: Language Across the Elementary International School Curriculum. 3 credits.
Introduces current methods of teaching integrated language arts in elementary school settings (PK-6). Includes language and literacy development, second language acquisition, reading and writing in content areas, and children's literature. International focus considers needs of second-language learners in regular classroom settings. Requires 20 hours of PK-6 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 511 and EDRD 515.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 520: Elementary Curriculum, Instruction, and Assessment in International Schools. 3 credits.
Addresses interrelationship of instruction, curriculum, and assessment in international schools. Includes review of research and effective practice. Requires 20 hours of PK-6 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 511 and EDRD 515.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
EDUC 522: Foundations of Secondary Education. 3 credits.
Analyzes philosophical assumptions, curriculum issues, learning theories, and history associated with current teaching styles. Emphasizes applications to all disciplines taught in secondary schools. Examines current educational trends and issues in relation to sociology of secondary school settings. Notes: 15 hours school-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 537: Introduction to Culturally & Linguistically Diverse Learners. 3 credits.
Examines culturally & linguistically diverse learners through historical, sociological, and philosophical foundations. Explores teacher's culturally identity and implications for teaching diverse learners. Discusses culturally & linguistically responsive instructional and assessment practices and working with families and other school professionals. Notes: Requires 20 hours of PK-12 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 539: Human Development and Learning PK-12. 3 credits.
Provides practicing teachers with foundations of psychological theory, research, and professional practice relating to development and learning in inclusive PK-12 classroom settings. Notes: School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 542: Foundations of Education. 3 credits.
Examines the historical, philosophical, and sociological foundations of education as they relate to elementary schools, with a particular emphasis on teaching a culturally diverse population. Students will develop an understanding of the relationship between society and education. School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the Elementary Education licensure program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

EDUC 547: Scientific Inquiry and the Nature of Science. 3 credits.
Incorporates understanding about scientific knowledge in K-12 classrooms. Builds fundamental knowledge of scientific inquiry and the nature of scientific knowledge and skills to weave this knowledge explicitly in curriculum. Focuses on developing inquiry-based lessons for students to investigate science and assessing student understanding of science and the nature of science. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

EDUC 543: Children, Family, Culture, and Schools, 4-12 Year Olds. 3 credits.
Examines child and family development and ways children, families, schools, and communities interrelate. Links children's developing physical, social, emotional, and cognitive abilities to planning curriculum and developing instructional strategies. Notes: Requires school-based field experience. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the Elementary Education licensure program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 592: Effective Collaboration for Teaching Diverse Learners in Secondary Social Studies. 3 credits.
Provides history-social studies candidates in secondary education with knowledge and skills necessary to meet the needs of diverse learners in the history-social studies classroom. Emphasizes teacher collaboration between general and special education teachers as an authentic model of practice. Notes: Taught concurrently and in close proximity with
special education faculty teaching EDSE 662 to emphasize collaboration between special education and general education teachers. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 595: Perspectives on Exceptl Tching. 3 credits.
Provides an opportunity for pre-service and in-service teachers to interact with young people and teachers in a range of school settings, exploring and documenting their points of view on teaching using a range of methods and visual and technology-oriented media and interview procedures. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

EDUC 597: Special Topics in Education. 1-6 credits.
Provides advanced study on selected topic or emerging issue in American or international education. Notes: May be repeated for credit with GSED permission. Offered by Graduate School of Education (p. 155). May be repeated within the term.

Recommended Prerequisite: Admission to program in Graduate School of Education.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 598: Directed Reading, Research, and Individual Projects. 1-6 credits.
Presents various subjects and projects, principally by directed study, discussion, research, and participation under supervision of graduate faculty member. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: Admission to degree program, and permission of dean.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

600 Level Courses

EDUC 606: Education and Culture. 3 credits.
Uses cultural inquiry process (CIP) and web site to acquire cultural, social, and language-related perspectives on educational processes; and teaches skills to analyze educational settings and expand strategies to address puzzlements in students’ own practice. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisites: EDUC 612B and 613B.
B Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL · History, ASTL-Instructional Technology, ASTL · Literacy/Reading, ASTL · Mathematics, ASTL-NBPTS Preparation Core, ASTL · Science or Curriculum and Instruction.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 612: Inquiry into Practice. 2 credits.
Provides experience using research skills to foster systematic and thoughtful inquiry into classroom practice. Explores relevant classroom practice issues through critical writing, action, and research. Emphasizes cultural diversity and gender issues in research. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, ASTL-Foreign Languages/French, ASTL-Foreign Languages/Spanish, Gifted Child Education, ASTL · History, ASTL-Instructional Technology, ASTL · Lit Reading Specialist, ASTL · Literacy/Reading, ASTL · Mathematics, ASTL-NBPTS Preparation Core, ASTL · LIT PK12 Clsrn Teachers, ASTL-Physical Education, ASTL · Science, ASTL-Teacher Leadership, Curriculum and Instruction or Dsgning Dgtl Lrning in Schools.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
EDUC 613: How Students Learn. 3 credits.
Advanced course in study of learning based on research and theory from different disciplines. Focuses on increasing students’ learning through study of different learning systems, and understanding each learner in context of learning process itself. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum of 6 credits.

Registration Restrictions:
Required Prerequisite: EDUC 612B.
B - Requires minimum grade of B -.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.


Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 614: Designing and Assessing Teaching and Learning. 2 credits.
Explores design and development of curricular, pedagogical, and assessment strategies responsive to needs and interests of students. Investigates factors that affect teaching and learning, and examines multiple ways of knowing that teachers bring to classrooms. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum of 6 credits.

Recommended Prerequisite: EDUC 613 (may be taken concurrently)

Registration Restrictions:
Required Prerequisite: EDUC 612B.
B - Requires minimum grade of B -.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.


Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 621: Teaching and Learning in the International Baccalaureate Program. 3 credits.
Focuses on principles and practices of the International Baccalaureate, organized around four areas of inquiry: curriculum processes, teaching & learning, assessment, and professional learning. Requires 20 hours of PK-12 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to GSE, enrollment in FASTTRAIN initial licensure program, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 622: Curriculum Development across IB Programs. 3 credits.
Explores the development of practical knowledge about the design and structure of the IB programs’ curricula. Provides a foundation for understanding how the programs are implemented and how student learning developed within them is assessed. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to GSE, enrollment in FASTTRAIN IB certificate program and completion of EDUC 621, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
EDUC 623: Models and Strategies for Teaching and Learning in IB Schools. 3 credits.
Focuses on the development of the capacity of teachers in IB schools to adopt appropriate teaching strategies and techniques instrumental in ensuring program learning outcomes are achieved. Furthermore, participants develop a deep understanding of the critical relationship between teaching and learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to GSE, enrollment in FAST TRAIN IB certificate program and completion of EDUC 621, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree, Undergraduate or Washington Consortium level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 624: Assessment and Learning in IB Schools. 3 credits.
Explores the essential role of assessment in teaching IB learners. Addresses formative and summative assessment practices as an integral part of the IB curriculum as well as the use of assessment for differentiation and planning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to GSE, enrollment in FAST TRAIN IB certificate program and completion of EDUC 621, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 626: Inquiry into Action: IB Teachers, Learners, and Schools. 3 credits.
Uses the action research and qualitative process to help educational practitioners plan and complete an action research study related to IB learners, teachers, or schools. Furthermore, the course examines the social, cultural, and ethical issues of conducting research with students. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to GSE, enrollment in FAST TRAIN IB certificate program and completion of EDUC 621, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 627: Contemporary Issues and Trends in IB. 3 credits.
Focuses on current IB research, trends, and issues as well as international, national, and state/provincial legislation concerning schools and the potential impact on IB schools. Participants are prepared as leaders and advocates for IB programs and their students. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to GSE, enrollment in FAST TRAIN IB certificate program and completion of EDUC 621, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDUC 628: Critical Theories and Pedagogies. 3 credits.
Explores critical theories and pedagogies experientially, including alternative assessments that address educational equity and access, power, and approaches for deepening our practice as citizens in a
democracy. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 647.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to students with a concentration in Transformative Teaching.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Students in the GMU Korea campus may not enroll.

**Schedule Type:** Seminar

**EDUC 653: Technology and Learning.** 3 credits.
Develops technological knowledge and skills to support teaching and learning and to sustain and enhance learning communities. Teachers explore and critique the possibilities and concerns of using technology in learning environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 647.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to students with a concentration in Transformative Teaching.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Students in the GMU Korea campus may not enroll.

**Schedule Type:** Seminar

**EDUC 655: Teacher Research Methods.** 3 credits.
Introduces teacher research methods and situates them in relation to other research approaches. Emphasizes the understanding and use of various research methods as innovative approaches to teaching and learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 651 and EDUC 653.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to students with a concentration in Transformative Teaching.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Students in the GMU Korea campus may not enroll.

**Schedule Type:** Seminar

**EDUC 657: Teaching for Democracy and Social Justice.** 3 credits.
Focuses on the research that supports teachers to create democratic classroom practices and to support PK-12 students in exercising civic rights. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 651 and EDUC 653.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to students with a concentration in Transformative Teaching.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Students in the GMU Korea campus may not enroll.

**Schedule Type:** Seminar

**EDUC 659: Teacher Leadership.** 1.5 credit.
Engages learners in data gathering exercises toward articulating a leadership agenda in the context of PK-12 educational environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission into the MEd Curriculum and Instruction concentration in Teacher Inquiry, Development and Empowerment for Social Justice program (TIDES) cohort. Completion of EDUC 655 and EDUC 657.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to students with a concentration in Transformative Teaching.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Students in the GMU Korea campus may not enroll.

**Schedule Type:** Seminar

**EDUC 661: Teacher Empowerment and Policy.** 1.5 credit.
Provides advanced study on a selected topic or emerging issue in American or international education with particular attention to developing policy solutions. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 655 and EDUC 657.
EDUC 663: Culturally Relevant Pedagogy. 3 credits.
Offers opportunity to view how language and culture shape realities, including perceptions of children as learners. Explores cultural constraints and transformative possibilities embedded within cultures. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 659.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.
Enrollment is limited to students with a concentration in Transformative Teaching.
Enrollment is limited to Graduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.
Students in the GMU Korea campus may **not** enroll.

**Schedule Type:** Seminar

EDUC 665: Teacher Inquiry in Practice I. 3 credits.
Builds further understanding of teacher research as teachers form and frame salient questions, examine the existing literature related to their questions, and take actions to improve teaching and learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 659.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.
Enrollment is limited to students with a concentration in Transformative Teaching.
Enrollment is limited to Graduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.
Students in the GMU Korea campus may **not** enroll.

**Schedule Type:** Seminar

EDUC 667: Teacher Inquiry in Practice II. 3 credits.
Builds on the teacher research project begun in Teacher Inquiry in Practice I as teachers continue to address their pedagogical questions, take actions to improve teaching and learning, gather, analyze and interpret multiple forms of data, and share their experience in communities of practice. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 663 and EDUC 665.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.
Enrollment is limited to students with a concentration in Transformative Teaching.
Enrollment is limited to Graduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.
Students in the GMU Korea campus may **not** enroll.

**Schedule Type:** Seminar

EDUC 669: Teaching and Learning in Practice. 3 credits.
Admission into the MEd Curriculum and Instruction concentration in Transformative Teaching program. Completion of the EDUC 663 and EDUC 665. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 663 and EDUC 665.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.
Enrollment is limited to students with a concentration in Transformative Teaching.
Enrollment is limited to Graduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.
Students in the GMU Korea campus may **not** enroll.

**Schedule Type:** Seminar

EDUC 671: Schools and Culture in the Future. 3 credits.
Focuses on relationship between schools and communities from the past to the future. Research-based education reform, ideas from futurists, and ISTE technology standards influence teacher planning for students in the 21st century. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 522 and EDUC 670.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EDUC 672: Human Development and Learning: Secondary Education. 3 credits.
Explores developmental issues associated with middle and high school students, and theories that provide basis for understanding learning process. Addresses implications for designing instruction and curriculum. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EDUC 674: Assessing Learning and Teaching in the Secondary School Classroom. 3 credits.
Supports beginning teachers’ development and design of assessment practices for promoting student learning. Focuses on individual
differences and classroom, teacher, school, and cultural factors that impact assessment; different types and purposes of assessment; and relationship of assessment to national and state standards. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 522 and advanced methods course.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Curriculum and Instruction or Secondary Education Licensure.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**700 Level Courses**

**EDUC 751: Mentoring/Supervising Intern Teachers and Mentor Teacher Career Development.** 3 credits.
Examines multiple roles of teachers as they mentor and supervise intern teachers in schools. Covers career development, leadership, and instructional roles and strategies. Designed to assist intern teachers in their first year, and provide quality career and staff development to their mentors. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**EDUC 797: Advanced Topics in Education.** 1-6 credits.
Advanced study of selected topics in education for students preparing for doctoral studies or who have been admitted to the PhD program in education. Notes: May be repeated for credit with GSED approval. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**800 Level Courses**

**EDUC 800: Ways of Knowing.** 3 credits.
Provides understanding of characteristic ways of knowing in various liberal arts disciplines while examining subject matter, scope, key concepts, principles, methods, and theories. Analyzes philosophical traditions underlying educational practice and research. Notes: Required course during first spring semester of study in the program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the PhD program.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 802: Leadership Seminar.** 3 credits.
Intensive study of leadership, emphasizing decision and change processes, and assessment and development of leadership skills. Notes: Required course during first semester of study in the program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**EDUC 803: Teacher Preparation and Professional Development.** 3 credits.
Explores research and current recommended practices related to teacher preparation and professional development. Provides opportunity for practical application with preservice or inservice teachers. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to ECED 803.

**Recommended Prerequisite:** Approval of instructor and acceptance to PhD program.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**EDUC 805: Research and Scholarship in Education.** 2 credits.
Provides an intellectual framework for research and scholarship in education, including consideration of specific scholarship of CEHD faculty as representative of the range of educational scholarship that
make up the educational research community. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Education.
Enrollment is limited to Graduate level students.

Schedule Type: Lecture
EDUC 815: Research Inquiries in International Education. 3 credits. Focuses on the intersection of international education and research methodologies in educational settings. Students will delve into the construction, implementation, and impact of research in international settings or with an internationally-minded perspective. Through critical inquiry into practice, the course offers students the opportunity to develop more sophisticated understandings of the research process in international education settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 880 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar
EDUC 845: Multilingual Learners With Diverse Educational Needs. 3 credits. Examines examine issues surrounding identification, assessment, and instruction of multilingual learners with diverse educational needs. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD Program in Education or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar
EDUC 850: The Study of Teaching. 3 credits. Explores the history and development of the search for teaching effectiveness. The course will trace the various definitions of effectiveness and the methods created to assess effectiveness. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 810.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture
EDUC 851: Research on Teacher Education. 3 credits. Explores the history and development of the search for effectiveness in the preparation of preservice teachers and the continuing professional development of practicing teachers. The students will examine the substance and gaps in the study of the education of educators. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 810.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture
EDUC 852: Technology and Teacher Development. 3 credits. Investigates the latest research and issues related to technology integration in teacher education; includes research supporting the incorporation of technology in staff development for in-service K-12 educators, as well as preservice university coursework. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
EDUC 853: World Perspectives of Teacher Education. 3 credits. Focuses on the cross-cultural analysis of current U.S. and internationally based teacher preparation and continuing professional development pedagogical models, policy reforms, and their historical contexts. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to doctoral program.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar
EDUC 854: Working in Schools: Spanning Boundaries/Expanding Roles. 3 credits. Prepares future teacher educators and professional developers for their work in K-12 settings. Examines the principles of clinical field experiences, the foundations of school-university partnerships, and the roles/relationships of all stakeholders engaged in field-based teacher preparation and teacher professional development. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students in the PHD Education or PHD Education and Human Dvlpmt programs.
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
EDUC 860: STEM Education Research and Policy. 3 credits. Examines research on science, technology, engineering, and mathematics (STEM) education issues and education policy issues including the rationale for STEM education, STEM education policy, models of STEM schools in K-12 education, STEM education leadership, informal STEM education, STEM curriculum and instruction, and research in STEM education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 810 (may also be taken concurrently).

Schedule Type: Seminar
EDUC 870: Education Policy: Process, Context, and Politics. 3 credits. Examines public policy decision-making in education at local, state, and national levels, and its impact on education institutions, students, and public. Focuses on theories and methodological approaches, and
resolution of competing policy arguments in political arena. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 871:** *Advanced Policy Issues in Education.* 3 credits.
In-depth analysis of selected education policy issues. Focuses on issue interactions and education-related policy actions by different levels of government. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 870 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 872:** *Social Science Research and Education Policy.* 3 credits.
Focuses on research base used to support education policy actions. Focuses on analyzing strength of this research. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDRS 810,811, and 812 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 873:** *Education Policy: Comparative and International Perspectives.* 3 credits.
Using interdisciplinary approach, addresses education policy issues that transcend national boundaries and have implications for educators in fostering social justice and global awareness. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 874:** *The Achievement Gap.* 3 credits.
Focuses on achievement gap in schools. Students research and analyze gaps in student achievement related to race and ethnicity, limited English proficiency, family background, gender, poverty, and ableism, and practices designed to close the gap. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 880.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 875:** *Contemporary and Emerging Issues in Education Policy.* 3 credits.
Focuses on identifying and analyzing factors that promote new initiatives in education policy agenda. Attention given to nontraditional sources of education policy initiatives. Notes: Must be admitted to PhD program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 870 (concurrent enrollment is also permitted) and admission to the PhD program.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 876:** *Teacher Development and Education Policy.* 3 credits.
Focuses on the impact of policy actions at the local, state, and national levels on teacher preparation and continuing professional development. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 870 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 877:** *Teacher Policy in Historic Perspective.* 3 credits.
Examines the history of policies pertaining to public school teachers in the United States. Evaluate and engage current policy debates by putting the past and present into conversation. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to The PhD in Education program, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**EDUC 878:** *Intercultural Competence: Theory and Research Application to International Education.* 3 credits.
Explores and examines intercultural competence theory and research as a teaching and learning framework in international education. Emphasizes the comparison of alternative models of intercultural competence development, research paradigms using intercultural competence theory in international education, and empirical studies that examine and explore the use of intercultural competence theory in education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 880.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**EDUC 879:** *Language and Second Language Acquisition Research in International Education.* 3 credits.
Examines the theoretical and historical role of language in international education, with special emphasis on the foundations and variables of second language acquisition. Focuses the role of language in cross-cultural and international contexts, the application of language acquisition theories and empirical studies globally. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 880.
EDUC 880: Introduction to International Education. 3 credits. Using interdisciplinary approach, addresses education policy issues that transcend national boundaries and have implications for educators in fostering social justice and global awareness. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students in a Doctor of Philosophy degree.

Schedule Type: Seminar

EDUC 881: Seminar in Bilingual Education: Policy. 3 credits. Examines historical development of education for language minority students in United States, including federal and state legislation and court decisions. Explores policy issues regarding administrative program models, instructional approaches, curricular reform, and assessment policies for language minority students developed in response to legal mandates, legislative decisions, and school reform movement. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students in a Doctor of Philosophy degree.

Schedule Type: Lecture

EDUC 882: Second Language Acquisition: Theory, Research, and Practice. 3 credits. Examines the theoretical foundations of second language acquisition with focus on linguistic, anthropological, sociological, psychological, and educational research through theory and practice. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a major in Education.

Schedule Type: Seminar

EDUC 883: Seminar in Sociocultural Theory. 3 credits. Explores and analyzes the theoretical contributions of sociocultural theory. Focuses on the growing body of contemporary research on literacy, equity in education and emancipatory teaching for diverse students. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to the PhD in Education program or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate level students.

Schedule Type: Seminar

EDUC 885: History of Education in the United States. 3 credits. Examines the history of education in the United States and explores the social, political, cultural, and economic forces that have shaped reform initiatives. Uses history to engage questions around citizenship, equality, and democracy. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD in Education program, or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate level students.

Schedule Type: Seminar

EDUC 886: School Reform in the United States: Politics and Policies. 3 credits. Explores a broad range of reform initiatives shaping public education and examines the ways politics infuses education policy. Investigates the disciplinary and methodological frameworks scholars have used to study school reform. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD in Education program, or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate level students.

Schedule Type: Seminar

EDUC 887: Neighborhood, Community, Education Policy. 3 credits. Explores the intersection of historical, social, political, and economic policies and conditions and communities in the US. Focuses on understanding trends in the formation of neighborhoods and the development of American cities, schools, and communities. Examine the politics and policies of selected neighborhoods and communities through developing community development profiles and proposals. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to PhD in Education program or with permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate level students.

Schedule Type: Lecture

EDUC 890: Doctoral Internship in Education. 1-6 credits. Interns work with appropriate staff member in cooperating school, school system, or other educational institution, agency, or setting. Notes: Requires 100 hours of on-site internship completed over at least a five-week period. Up to 6 credits of EDUC 890 may be applied toward PhD degree requirements. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD program and prior approval of the advisor and PhD director.

Registration Restrictions:
Enrollment limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Internship

EDUC 892: Social Justice and Equity in International Education. 3 credits. Examines ideological, cultural, and systemic structural inequities in various educational settings at national and international levels. Focuses on educational practices that promote equity and social change.
throughout the world. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 880.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDUC 893: Seminar in Educational Anthropology.** 3 credits.
Examines theories and research from educational anthropology and educational sociology to clarify and address contemporary educational issues and concerns. Focuses on U.S. public schools, with comparative materials from other educational settings and societies. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the PhD in Education program or permission of the instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**EDUC 894: Seminar in Multicultural Education.** 3 credits.
Examines knowledge base, policy issues, and curricular and instructional features of multicultural education in United States and other countries. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Ph.D. in Education program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**EDUC 896: Special Topics in Education.** 3 credits.
Explores selected topics in education across all doctoral specializations. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment limited to students with a major in Education.

Enrollment limited to Graduate level students.

**Schedule Type:** Seminar

**EDUC 897: Independent Study for the Doctor of Philosophy in Education.** 1-6 credits.
Structured learning experience to extend and develop skills and knowledge relative to field of professional expertise. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Recommended Prerequisite:** Admission to the PhD program and prior approval of advisor and PhD director.

**Registration Restrictions:**
Enrollment limited to students with a major in Education.

Enrollment is limited to students with a major in Education.

Enrollment limited to Graduate level students.

**Schedule Type:** Independent Study

### 900 Level Courses

**EDUC 994: Advanced Internship in Education.** 3 credits.
Internship in setting related to student's major area of study. Requires minimum of 100 hours completed over at least a five-week period. Each intern works with appropriate staff member in cooperating school, school system, or other educational institution or agency. Notes: Internship must be in setting that differs from regular employment. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the PhD program and prior approval of advisor and PhD director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Internship

**EDUC 998: Doctoral Dissertation Proposal.** 1-6 credits.
Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to candidacy in the PhD program, successful completion of the doctoral qualifying exam, and EDRS 810, 811, and 812 or their equivalents.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Dissertation

**EDUC 999: Doctoral Dissertation Research.** 1-9 credits.
Provides continued faculty assistance on individual basis to complete dissertation planned in EDUC 998 and initiate new projects. Notes: Requires successful completion of EDUC 998 and faculty approval of proposal. Offered by Graduate School of Education (p. 155). May be repeated within the degree.

**Recommended Prerequisite:** EDUC 998 and faculty approval of proposal.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to students with a major in Education.

Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Dissertation
Education Instructional Technology (EDIT)

200 Level Courses
EDIT 201: Strategies for Online Learning Success. 1 credit. Helps students assess their readiness for online learning using effective strategies for online interaction and activities designed to promote successful online experiences. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

400 Level Courses
EDIT 401: Introduction to Learning Technologies. 3 credits. Provides an overview of the field of learning technologies, including its history, theoretical foundations, design processes, and technologies. Illustrates how learning technologies can be applied in a variety of teaching and training contexts including e-learning, educational software, instructional design, corporate training, and curriculum development. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDIT 413: Technology, Society, and the Culture of Learning. 3 credits. Explores the relationship between technological change and education reform initiatives. Emphasis will be placed on the ways in which technological and social changes influence and shape the goals and outcomes of the K-12 educational process. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 300.

Schedule Type: Lecture

EDIT 426: Web Accessibility and Design. 3 credits. Provides instruction for accessible web design using HTML and existing authoring tools. Section 508 web accessibility standards and assistive technologies to access the computer will be explored. Notes: Class may be delivered via distance education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

500 Level Courses
EDIT 504: Introduction to Educational Technology. 3 credits. Examines uses of and issues in educational technology. Explores curriculum integration of technology, and focuses on learning and using commercially available applications software. Notes: Field experience in public schools will be required during course. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 526: Web Accessibility and Design. 1-3 credits. Develops understanding of principles of universal web design. Students apply this understanding by designing and developing accessible web site using web authoring tools. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDSE 526.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 530: Scripting and Programming. 2 credits. Enables development of computer-based educational materials using widely known educational scripting language. Students explore basic authoring capabilities, and learn to apply those capabilities by designing and producing materials using commands, procedures, and functions of scripting language. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 10 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 561: Teaching with Telecommunications. 1 credit. Develops expertise with various aspects of telecommunications tools, and models ways these tools can be used for personal learning and integration into teaching/learning process. Addresses e-mail, Internet, web, and online databases. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 562: Teaching with Databases. 1 credit. Develops expertise with various aspects of databases, and models ways databases can be integrated into teaching and learning process. Focuses on strategies for searching, sorting, creating, and communicating with information, much of which is structured by variety of online and offline databases. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDIT 563: *Teaching with Graphics*. 1 credit.
Explores various graphic programs available for constructing visual images. Addresses draw and paint programs, scanning and editing images, and using visual communication to support K-12 learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Recommended Prerequisite:** EDIT 563.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDIT 564: *Teaching with Web 2.0*. 2 credits.
Develops expertise with social, cognitive, and learning implications of film, video, and television. Engages students in process of planning, storyboarding, and filming with video. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDIT 561.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDIT 565: *Teaching with Educational Software*. 1 credit.
Explores variety of educational software, including simulations, problem-solving software, computational tools (calculators, probeware, LOGO, and spreadsheets), and drill-and-practice/integrated learning systems. Emphasizes ways these programs support K-12 teaching and learning processes. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 2 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDIT 566: *Teaching with Multimedia/Hypermedia*. 2 credits.
Examines the various aspects of web-based learning and the ways these tools can be integrated into the teaching/learning process. The course is taught online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDIT 561.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EDIT 571: *Visual Design and Applications*. 1-3 credits.
Provides basic knowledge of the range of capabilities of available graphic and visual design applications. Students learn to cultivate effective visual design practices for creating instructional products. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
Learn to create instructional products using the latest e-learning design applications. Provides basic knowledge of the range of capabilities of available audio and video design applications. Students learn to cultivate effective audio and video design practices for creating instructional products. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 572: Digital Audio/Video Design and Applications.** 1-3 credits.
Provides basic knowledge of the range of capabilities of available audio and video design applications. Students learn to cultivate effective audio and video design practices for creating instructional products. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 573: Project Management.** 1-3 credits.
Explores project management principles and applications used to manage, plan, and track large-scale, complex instructional design projects. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 574: Social Media and Digital Collaboration Applications.** 1-3 credits.
Provides basic knowledge of the range of capabilities of available social networking, teleconferencing, and collaboration applications. Students learn to integrate the latest information and communication technologies into the creation of instructional products. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 575: e-Learning Design Applications.** 1-3 credits.
Provides basic knowledge of available applications for creating, delivering, managing and tracking e-learning experiences. Students learn to create instructional products using the latest e-learning design applications. Notes: Content customized to particular software tool presented. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 576: Mobile Learning and Applications.** 1-3 credits.
Explores current best practices and techniques required to deliver effective learning content through mobile devices. Students learn pedagogical approaches to mobile learning as well as investigate various mobile platforms and applications. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 590: Educational Research in Technology.** 3 credits.
Focuses on developing skills, insights, and understanding basics to performing research with emphasis on interpretation, application, critique, and use of findings in educational settings. Students develop expertise in action research methodology, design, and implementation. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 597: Special Topics in Education.** 1-6 credits.
Provides advanced study on selected topic or emerging issue in American or international education. Notes: May be repeated for credit with GSE permission. Offered by Graduate School of Education (p. 155). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**EDIT 601: Instructional Design and Technology (IDT) Portfolio.** 1 credit. Enables students to create and publish digital portfolio that demonstrates effective and meaningful integration and synthesis of instructional design and technology concepts, principles, and competencies learned across program courses at mid-degree program point. Notes: To be taken at mid-degree program point with minimum 12 and maximum 15 credits. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Minimum of 12 credits and a maximum of 15 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 611: Innovations in e-Learning.** 3 credits. Explores leading-edge learning technologies and their integration into the e-learning design process. Hands-on activities focus on technology planning, selection, implementation, and evaluation utilizing instructional design best practices. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 641: Understanding Virtual Schools.** 1 credit. Develops knowledge about online learning for K-12 students. Examines history and trends of online learning, and characteristics of K-12 virtual learners. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 642: The Online Academy.** 1 credit. Develops knowledge about Mason’s virtual high school. Focuses on design model with attention to representative problems, performances of understanding, communities of practice, and mentors. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDIT 641. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 643: Online Mentoring I: Building Virtual Relationships.** 1 credit. Assists in developing online mentoring skills related to integral role that building relationships plays in success of online learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 644: Online Mentoring II: Promoting Self-Regulation.** 1 credit. Assists in developing online mentoring skills related to integral role that self-regulation plays in success of online learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDIT 643.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 645: Online Mentoring III: Conceptual Learning.** 1 credit. Assists in developing online mentoring skills related to role of support of conceptual and content understanding in success of online learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDIT 644.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
700 Level Courses

EDIT 701: Advanced Instructional Design and Technology (IDT) Portfolio. 1 credit.
Enables students to create and publish a digital portfolio that demonstrates effective and meaningful integration and syntheses of instructional design and technology concepts, principles, and competencies learned across program courses at end-degree program point. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: (EDIT 601).  
B Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

EDIT 704: Instructional Technology Foundations and Theories of Learning. 3 credits.
Reviews practical and pedagogical issues related to design and development of technological instruction. Emphasizes investigating instructional design as a field and community of practice, and reviewing core learning theory constructs applicable to design of instructional technology. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

EDIT 705: Instructional Design. 3 credits.
Helps students analyze, apply, and evaluate principles of instructional design to develop education and training materials spanning a wide range of knowledge domains and instructional technologies. Focuses on variety of instructional design models, with emphasis on recent contributions from cognitive science and related fields. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDCI 705.

Recommended Prerequisite: Teaching or Training Experience or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

EDIT 706: Business of Learning Design and Technologies. 3 credits.
Explores the business issues underlying the selection, implementation and evaluation of technology-based learning interventions. Focuses on developing the skills necessary to improve performance and achieve measurable, positive change that supports an organization’s strategic goals. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDIT 705 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

EDIT 710: Online Teaching Essentials. 1 credit.
Explores the essential concepts and skills to effectively teach online courses. Introduces the topics of designing and managing online courses, assessing online students’ knowledge and skills, facilitating online student collaboration and communication, and establishing a supportive online learning community. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

EDIT 730: Advanced Instructional Design. 3 credits.
Provides students with the knowledge and skills for designing highly contextualized and engaging problem-solving learning environments using a grounded, theory-based design approach. Emphasizes the design of technology supported learning environments using a variety of pedagogical models. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDIT 705 or EDCI 705.  
B Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

EDIT 732: Analysis and Design of Technology-Based Learning Environments. 3 credits.
Provides students with the knowledge and skills for designing highly contextualized and engaging problem-solving learning environments using a grounded, theory-based design approach. Emphasizes the design of technology supported learning environments using a variety of pedagogical models. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDIT 730 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

EDIT 750: Learning Technologies and Strategies for Innovation. 3 credits.
Explores formal and non-formal learning technologies, models, theories, and strategies that support enterprise learning and performance. Assesses the potential of learning technologies to innovate the practice of the organization. Note: Should be taken in final year of degree work. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**EDIT 751: Overview of Learning Analytics and Big Data.** 3 credits.
Examines the tools, technologies and methods for capitalizing on data stored in enterprise-wide information systems to support executive-level learning and performance support decision-making. Focuses on demonstrating the bottom line business value of learning through evidence-based talent needs. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

**Recommended Prerequisite:** Admission to Executive Chief Learning Officer (ECLO) Certificate Program, or permission of advisor.

**EDIT 752: Design and Implementation of Technology-based Learning Environments.** 3 credits.
Students design and produce multimedia/hypermedia applications based on current theory and research in instructional design and cognitive science. Examines user needs, information models, structure, and media selection and uses to inform design and production of final project. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
**Required Prerequisite:** (EDIT 732^B^).

^B^ Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 760: Online Teachers and Learners.** 1 credit.
Examines the attributes of teachers and K-12 learners with emphasis on attitudes, behaviors, and adaptations required by online teachers and learners. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 761: Models of Online Learning.** 2 credits.
Provides opportunities for learners to identify, explore, and evaluate a range of educational models for K-12 online learning. These include blended learning (web-enhanced, web-supported), the flipped classroom, mentor-mentee dyad, group collaborative, synchronous, asynchronous, parent directed e-learning, mobile learning, and web-delivered programmed instruction. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
separation of teacher-learner and learner-learner. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDIT 767:** Designing K-12 Online Learning. 3 credits.
Develops frameworks for designing and structuring online learning opportunities and emphasizes course content and learning outcomes, selection of appropriate online models, and organization of online lessons and courses, online learning tools, and assessment and evaluation strategies. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MED in Curriculum and Instruction Concentration in Blended and Online Learning in Schools.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDIT 768:** K-12 Online Design I. 1 credit.
Develops frameworks for designing and structuring online learning opportunities and emphasizes course content and learning outcomes, selection of appropriate online models, and organization of online lessons and courses, online learning tools, and assessment and evaluation strategies. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MED in Curriculum and Instruction Concentration in Blended and Online Learning in Schools.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDIT 769:** K-12 Online Design II. 1 credit.
Focuses on the creation of online courses appropriate for K-12 learners and culminates in comprehensive design documents that detail goals, assessments, learning tools, and detailed scripts or documents ready for the production phase. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MED in Curriculum and Instruction Concentration in Blended and Online Learning in Schools.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDIT 770:** Principles of School-Based Design. 3 credits.
Develops and applies a comprehensive set of digital design strategies appropriate for creating engaging learning opportunities for students in PreK-12 environments. Emphasizes school-based design principles, design processes, and design patterns at the intersection of technology, teaching, and learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDIT 781.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDIT 771:** Designing for Information Using. 3 credits.
Explores ways in which PreK-12 teachers can design digital environments that connect learners' ability to search, sort, create, communicate, and synthesize information and information resources with learning activities. Emphasizes teachers' ability to design for digital citizenship and information use. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDIT 780.
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 782: Designing for Literacy. 3 credits.
Explores 21st century definitions of literacy related to multiple symbolic environments (e.g. visual, numeric, alphabetic). Examines the practice of design that integrates technology to promote literacy competence across media and across PreK-12 abilities and interests. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDIT 780 and EDIT 781.

Recommended Corequisite: EDIT 783.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 783: Designing for Problem Solving. 3 credits.
Examines problem solving as an educational goal, as a cognitive process, and as a series of strategies and habits of mind. Emphasizes and provides practice in the design of digital problem solving environments where technology affords opportunities at the intersection of content learning and problems solving. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDIT 780 and EDIT 781.

Recommended Corequisite: EDIT 782.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 784: Designing for Community Participation. 3 credits.
Explores the impact of social media, globalization, collaboration, and diversity as they influence, enable, and challenge learners’ ability to participate in a variety of community settings. Emphasizes the practice of design strategies to prepare PreK-12 learners to use technology for learning and participating in varied and diverse communities. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDIT 782 and EDIT 783.

Recommended Corequisite: EDIT 785.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 785: Designing School-Based Digital Learning. 3 credits.
Develops frameworks for designing and structuring school-based digital learning. Emphasizes the interaction of design, technology, and content learning to influence teachers' practice in service of PreK-12 learners' abilities to problem solve, use information, participate productively in communities, become knowledgeable, and effectively communicate. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDIT 782 and EDIT 783.

Recommended Corequisite: EDIT 784.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 786: Design and Teacher Leadership. 3 credits.
Investigates how a design lens intersects with and informs PreK-12 teacher leadership and school-based learning initiatives. Examines a variety of PreK-12 teacher leadership roles and design-based leadership as an integral part of classroom, grade-level, school, and community practice. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: DDLS certificate or completion of MEd in Curriculum and Instruction Concentration: Integration of Technology in Schools or Equivalent.

Recommended Corequisite: EDIT 791.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDIT 787: Coaching Advocacy Digital Learning. 3 credits.
Investigates how fluency as coaches and mentors enables PreK-12 teacher leaders to support colleagues in the design of classroom and school-based digital learning. Explores advocacy as a strategy to engage colleagues and communities in the design of school-based initiatives related to teaching, learning, technology. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDIT 786 and EDIT 791.

Recommended Corequisite: EDIT 792.

Schedule Type: Lecture

EDIT 790: Practicum in Instructional Technology. 1-6 credits.
Provides supervised practice in applying knowledge and skills of student's chosen track through placement in appropriate work setting. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

EDIT 791: Project Development Practicum I. 1-6 credits.
Engages students in the application of design and production process for the solution of learning challenges with particular emphasis on
the design and development phase of the design process. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** EDIT 768.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 792:** Project Development Practicum II. 1-6 credits.
Facilitates the application of design and production processes to the solution of learning challenges with particular emphasis on the implementation and evaluation phase of the design process. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** EDIT 769.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDIT 797:** Advanced Topics in Education. 1-6 credits.
Advanced study of selected topics in education for students preparing for doctoral studies or who have been admitted to the PhD program in education. Notes: May be repeated for credit with CEHD approval. Offered by Graduate School of Education (p. 155). May be repeated within the degree.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**800 Level Courses**

**EDIT 801:** Nature and Process of Design. 3 credits.
Examines multi- and cross-disciplinary perspectives on the nature and process of designing and developing learning technologies. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Seminar

**EDIT 802:** Cognition and Technology: A Multidisciplinary Approach. 3 credits.
Examines learning interactions between cognition and technology using multiple disciplinary perspectives including, cognitive science, psychology, neuroscience, education, design theory, instructional design, technology design, anthropology, sociology, information science, philosophy, semiotics, and linguistics. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Lecture

**EDIT 803:** Design-Based Research. 3 credits.
Provides an introduction to systematic cycles of design-based research in education. Applicable to all content domains to explore cycles of research within design, development and implementation of educational and training interventions. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDIT 801

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDIT 891:** Design Research Practicum. 1-9 credits.
Applies multiple design research cycles to an identified research problem to systematically test and improve technology-based product interventions or other curriculum/training strategies or materials in order to systematically develop knowledge related to teaching, learning and/or training in context. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** EDRS 811, EDRS 812, and EDIT 803 or equivalent.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Internship

**EDIT 895:** Emerging Trends in Learning Technologies. 3 credits.
Covers selected emerging trends in learning technologies. Examines ways learning technologies provide infrastructure for creating, managing, and evaluating innovative types of teaching-learning environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Ph.D. program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education.

Enrollment is limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Seminar

**Education Leadership (EDLE)**

**400 Level Courses**

**EDLE 412:** Schools and the Law. 3 credits.
Provides an extensive overview of legal and ethical issues in schools. In the course, students will review and analyze key legal and ethical principles, read court decisions, and examine federal and state statutes. Offered by Graduate School of Education (p. 155). May not be repeated for credit.
Registration Restrictions:
Required Prerequisites: (EDUC 300\textsuperscript{C} or L300).
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

EDLE 420: Organization and Management of Schools. 3 credits.
Studies basic issues in leadership, organization, and governance of schools. Explores theories and models of leadership how leaders conceptualize school organization, with an emphasis on distributed leadership in professional environments, systems thinking, and organizational change. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (EDUC 300\textsuperscript{C} or L300).
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

500 Level Courses

EDLE 597: Special Topics in Education. 1-6 credits.
Provides advanced study on selected topic or emerging issue in American or international education. Notes: May be repeated for credit with GSE permission. Offered by Graduate School of Education (p. 155). May not be repeated within the degree.

Recommended Prerequisite: Admission to program in GSE.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

EDLE 612: Education Law. 3 credits.
Provides legal foundations of U.S. public schools. Examines general principles of statutory and case law, and applies judicial decisions to educational environments. Focuses on legal responsibilities, constraints, and opportunities of public school officials. Includes component of Special Education law. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDLE 620\textsuperscript{B}, 690\textsuperscript{B} and 791\textsuperscript{IP}.
\textsuperscript{B} Requires minimum grade of B-.
\textsuperscript{IP} Requires minimum grade of IP.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Education Leadership.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 614: Managing Financial and Human Resources. 3 credits.
Explores basic functions in financial and human resource management. Examines legalities, ethics, and politics of resource procurement and allocation. Provides experiences to help students better understand tasks typically performed by school leaders. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDLE 620\textsuperscript{B}, 690\textsuperscript{B} and 791\textsuperscript{IP}.
\textsuperscript{B} Requires minimum grade of B-.
\textsuperscript{IP} Requires minimum grade of IP.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Education Leadership.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 616: Curriculum Development and Evaluation. 3 credits.
Examines the relationship of the written, taught, and tested curriculum and identifies critical leadership decisions that can positively impact student achievement. Identifies components of effective curriculum guides. Mini-document for personal use is constructed. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (EDLE 620\textsuperscript{B}, 690\textsuperscript{B} and 791\textsuperscript{IP}).
\textsuperscript{B} Requires minimum grade of B-.
\textsuperscript{IP} Requires minimum grade of IP.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Education Leadership.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Enrollment is limited to students with a major in Education Leadership.
Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 618: Superevision and Evaluation of Instruction. 3 credits.
Provides a theoretical and practical overview of the supervision and evaluation of instruction. Introduces the domains of supervision and inquiry into current issues and best practices in supervision. Uses a variety of interactive exercises to assist in the development of practical skills for using the clinical process and developmental approach to supervision. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDLE 620B, 690B and 791IP.
B Requires minimum grade of B-.
IP Requires minimum grade of IP.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Education Leadership.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 620: Organizational Theory and Leadership. 3 credits.
Studies basic organizational theories and models of leadership and management. Emphasizes shared leadership in professional environments, communication skills, systems thinking, and personal and organizational change. Bridges theory to practical applications in educational settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Corequisite: Application to the Education Leadership program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 624: Contemporary Issues in Education Leadership. 3 credits.
Examines current and emerging issues and trends impacting education. Includes demographic shifts; globalization; technology; data-based decision making; inclusion of diverse learners in American schools; and recent research on student achievement when influenced by race, gender, and poverty. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Education Leadership.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 635: Governance and the Independent School Boardroom. 3 credits.
Provides an overview of the best practices and workings of the independent school board and develops skills, insights, and understanding of how school heads/directors can “manage up” to accomplish their goals and objectives. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDLE 620 and EDLE 690.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 636: Adult Motivation and Conflict Management in Education Settings: A Case Study Approach. 3 credits.
Uses case studies and simulations to examine conflict mediation and resolution skills, and safety and security issues. Focuses on character and ethics education in schools, coaching and mentoring, and adult motivation to support positive behaviors in work settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Education Leadership.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDLE 690: Using Research to Lead School Improvement. 3 credits.
Develops skills, insights, and understanding of how leaders use research to improve schools, with emphasis on the use of assessment and research data to identify school improvement needs and to design school improvement projects. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDLE 620B.
B Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to students with a major in Education Leadership.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

700 Level Courses

EDLE 770: Introduction to Education Leadership. 3 credits.
Introduces the study of education leadership, theoretical traditions in leadership studies, and scholarship on leadership and organizational change. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to Ph.D. in Education Program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

EDLE 791: Internship in Educational Leadership. 3 credits.
Offers wide range of practical experiences and professional challenges in authentic educational settings. Activities emphasize strategic, instructional, organizational, political, and community leadership. Notes: Course must be taken in second term of program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDLE 620 or EDSE 743 (may be taken concurrently).

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy or Graduate.

EDLE 792: Internship in Independent School Leadership. 3 credits.
Offers a wide range of practical and professional experiences for aspiring and current school heads. Emphasizes strategic, instructional, organizational, political, and community leadership in the independent school context. Note: Course must be taken in the second term of program. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDLE 620.

Recommended Corequisite: EDLE 690.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

EDLE 801: Contemporary Organization Theory. 3 credits.
Engages students in the study of major organization theories that inform educational leadership research. Students use theory to help inform their own research interests. Students begin work on analytical literature review. Notes: May be taken as corequisite with EDLE 802. First in three-course sequence. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to Ph.D. in Education Program.

Recommended Corequisite: EDLE 802.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Emphasizes economic foundations of U.S. education, and evolution of school, district, and state leadership. Students complete work on analytical literature review. Notes: Third in a three-course sequence. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDLE 801, EDLE 802.

Recommended Prerequisite: EDLE 801, EDLE 802.

Registration Restrictions:
Enrollment is limited to Graduate level students.

EDLE 805: Conceptual Frameworks in Education Leadership. 3 credits.
Introduces three different disciplinary perspectives on education leadership, and helps identify and articulate different conceptual frameworks. Major focus is designing a conceptual framework that informs research questions. Offered by Graduate School of Education (p. 155). May not be repeated for credit.
Recommended Prerequisite: Admission to the Ph.D. in Education Program or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDLE 816: Instructional Leadership-Curriculum Policy and Practice. 3 credits.
Focuses on curriculum and instruction theory, policy, and practice with research emphasis on instructional leadership. Students develop research proposals to investigate instructional leadership in schools and districts, and relate instructional leadership to their own specific research interests. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to Ph.D. in Education Program.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDLE 818: Instructional Leadership-Supervision Policy and Practice. 3 credits.
Introduces current topics and research in supervision and instruction, including theory and empirical work focused on instruction, teacher learning, teacher evaluation, and instructional leadership. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to Ph.D. in Education Program.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDLE 895: Emerging Issues in Administration and Supervision. 3 credits.
Covers selected emerging issues in educational leadership. Students engage in research, study, discussion, and writing about various topics selected for study. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to PhD program, or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

Education Research (EDRS)

500 Level Courses

EDRS 531: Educational and Psychological Measurement. 3 credits.
Emphasizes techniques and principles used in the construction, administration, and quantification of measuring devices for evaluation purposes. Discusses interpretation of standardized tests of ability, aptitude, achievement, interest, and personality. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 590 or equivalent experience.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDRS 590: Education Research. 3 credits.
Develops skills, insights, and understanding to perform research, with emphasis on interpreting and applying research results. Critiques research, and uses findings in educational settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 590 or equivalent experience.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

EDRS 620: Quantitative Inquiry in Education. 3 credits.
Examines fundamental concepts and methods of statistics as applied to educational problems, including descriptive and inferential statistics. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 590 or equivalent experience.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDRS 621: Qualitative Inquiry in Education. 3 credits.
Focuses on basic application of naturalistic research methods. Examines major theoretical frameworks and qualitative research techniques, which include content analysis, coding, and interpretation of data. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 590 or equivalent experience.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type**: Lecture

**EDRS 630: Educational Assessment.** 3 credits.
Examines research theory and practice relevant to assessments. Focuses on assessment strategies for students including developing skills to select, score, and interpret educational assessments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type**: Lecture

**EDRS 631: Program Evaluation.** 3 credits.
Focuses on perspectives of existing and emerging issues, theories, and models of program evaluation. Involves implementation of program evaluation in related fields and school districts. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**700 Level Courses**

**EDRS 797: Advanced Topics in Education.** 1-6 credits.
Advanced study of selected topics in education for students preparing for doctoral studies or who have been admitted to the PhD program in education. Notes: May be repeated for credit with CEHD approval. Offered by Graduate School of Education (p. 155). May be repeated within the degree.

**Registration Restrictions**: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type**: Lecture

**800 Level Courses**

**EDRS 810: Problems and Methods in Education Research.** 3 credits.
Advanced course in interpreting and applying education research methods. Emphasizes comparison of alternative philosophies of research, ways of formulating questions and hypotheses, research plans, and analysis procedures. Students evaluate existing studies, and investigate a range of research approaches. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to CTCH 710, CTCH 801.

**Recommended Prerequisite:** Admission to the PhD program or permission of instructor.

Emphasizes advanced methods of conducting research using quantitative methods of data collection, and analysis appropriate for research in education. Includes design of experimental and quasiexperimental research studies, and methods of analysis appropriate to these studies, including analyzing variance and multiple linear regression. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions**: Required Prerequisite: (EDRS 810^B_).

^B_ Requires minimum grade of B-.

Enrollment limited to students in the PHD Education or PHD Music Education programs.

Enrollment is limited to Graduate level students.

**Schedule Type**: Lecture

**EDRS 812: Qualitative Methods in Educational Research.** 3 credits.
Teaches how to apply qualitative data collection and analysis procedures in educational research, including ethnographic and other field-based methods, and unobtrusive measures. Notes: Emphases vary depending on student interests and needs. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions**: Required Prerequisite: (EDRS 810^B_).

^B_ Requires minimum grade of B-.

Enrollment limited to students in the PHD Education or PHD Music Education programs.

Enrollment is limited to Graduate level students.

**Schedule Type**: Lecture

**EDRS 818: Critical Discourse Analysis in Education Research.** 3 credits.
Prepares students with a working knowledge of discourse analysis and its application to ethnographic and qualitative research in education. Focuses on critical discourse analysis as a resource to improve classroom interaction and transform educational practice and as an analytic tool for a social analysis of education in a wide variety of local, national and international education contexts and settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDRS 810 EDRS 811 EDRS 812 or permission of instructor.

**Registration Restrictions**: Enrollment limited to Graduate level students.

**Schedule Type**: Seminar
EDRS 820: Evaluation Methods for Educational Programs and Curricula. 3 credits.
Explores development and types of current systems and models for evaluating educational programs and curricula. Emphasizes evaluation needs and problems of public and private elementary and secondary schools, and colleges and universities. Also considers needs of government agencies, industry, and health-related organizations. Notes: Prior completion of EDRS 811 and 812 helpful but not required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDRS 810 B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRS 821: Advanced Applications of Quantitative Methods. 3 credits.
Advanced study of applications of quantitative methods in educational research, reinforcing and building on concepts and skills acquired in EDRS 811. Uses modular approach, and provides advanced study of techniques appropriate to survey research, group-experimental and quasi-experimental research, selected multivariate procedures and factor analysis, and quantitative synthesis (meta-analysis) of research. Combines text reading assignments, critiques, and discussion of relevant journal articles; and application activities. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDRS 810 B and 811 B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRS 822: Advanced Applications of Qualitative Methods. 3 credits.
Advanced seminar devoted to study of current topics in qualitative research. Deals with cutting-edge information on selected advanced topics in qualitative research, and provides opportunities to apply new skills and knowledge to projects related to students’ interests. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDRS 810 B and 812 B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRS 823: Advanced Research Methods in Single Subject/Case Design. 3 credits.
Prepares students to conduct research using single subject design and single case study design. Provides understanding of salient features as well as advantages, disadvantages of these research methodologies. Students critique and analyze published research using these methodologies. Provides opportunities to apply these methodologies to research questions related to student interests. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDRS 810 B, 811 B and 812 B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRS 824: Mixed Methods Research: Integrating Qualitative and Quantitative Approaches. 3 credits.
Advanced research seminar that integrates qualitative and quantitative approaches, methods, and data in a single study. The course covers the paradigms and "mental models" that inform both approaches, and the ways in which qualitative and quantitative goals, questions, methods, and interpretive strategies can be productively combined. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: EDRS 810 B, 811 B and 812 B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

EDRS 825: Advanced Research Methods in Self-Study of Professional Practice. 3 credits.
Prepares students to conduct research using the self-study research methodology, a qualitative research approach for systematically examining one’s practitioner role for improvement-aimed purposes with contributions to the educational field and knowledge base. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to PhD in Education program.

Registration Restrictions:
Required Prerequisites: EDRS 810 B, 811 B and 812 B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRS 826: Qualitative Case Study Methods. 3 credits.
Advanced research seminar on qualitative case study design and application in educational research. Topics include descriptive, theoretical, evaluation, and policy case study design and methods. Students will conduct and critique a case study appropriate to their discipline. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDRS 812 B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

EDRS 827: Introduction to Measurement and Survey Development. 3 credits.
Develops knowledge and skills related to measurement and survey development and use in research for education, psychology, and related fields. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDRS 811 B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Graduate.
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDRS 828: Item Response Theory.** 3 credits.
Develops knowledge and skills related to Item Response Theory with application in the context of education, psychology, and related fields. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** EDRS 821<sup>B</sup> or 827<sup>B</sup>.
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDRS 830: Hierarchical Linear Modeling.** 3 credits.
Analyzes nested data structures (e.g. students within classrooms) as well as student growth. Students will learn through reading assignments, lecture and applications using a computer program for data analysis. Students will be expected to critically read multilevel methods used in published research, analyze data, and provide written report of results in APA format. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDRS 821<sup>B</sup>.
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDRS 831: Structural Equation Modeling.** 3 credits.
Focusing on the development of knowledge and skills related to structural equation modeling and research applications in education, psychology, and related fields. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDRS 811.

**Registration Restrictions:**
**Required Prerequisite:** EDRS 821<sup>B</sup>.
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDRS 832: Document Analysis and Archival Research.** 3 credits.
Examines the methodological foundations of and analytical approaches to document-based research. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** EDRS 810<sup>B</sup>, 811<sup>B</sup> and 812<sup>B</sup>.
<sup>B</sup> Requires minimum grade of B-.

Enrollment limited to students in the PHD Education or PHD Education and Human Dvlpmnt programs.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**EDRS 833: Participatory Action Research.** 3 credits.
Explores theoretical concepts associated with participatory action research and teaches how to apply participatory data collection and analysis procedures in educational research. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDRS 812<sup>B</sup>.
<sup>B</sup> Requires minimum grade of B-.

**Schedule Type:** Lecture

**EDRS 836: Narrative Inquiry.** 3 credits.
Teaches theory behind narrative inquiry and application of narrative data collection and analysis procedures in educational research. Builds students’ abilities to conduct narrative data collection and analysis. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDRS 812.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDRS 850: Grounded Theory.** 3 credits.
Prepares students to apply and critique grounded theory and related methods. Includes various approaches to design with particular attention to analysis techniques and theoretical selection, sensitivity, and saturation. Recommends students obtain IRB approval prior to beginning this course. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDRS 822.

**Schedule Type:** Lecture

**EDRS 895: Qualitative Methods Capstone Project.** 3 credits.
Provides the opportunity to formulate, engage and complete a qualitative research project, research internship, or pilot study of their choice under faculty supervision in an advanced and specialized seminar. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDRS 812, EDRS 822.

**Registration Restrictions:**
Enrollment is limited to students with a major in Qualitative Research.

**Schedule Type:** Research

**EDRS 897: Special Topics in Research Methods.** 3 credits.
Develops knowledge and skills of selected advanced research methods topic(s). Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students in the PHD Education or PHD Education and Human Dvlpmnt programs.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Educational Psychology (EDEP)**

### 300 Level Courses

**EDEP 350: Perspectives on Achievement Motivation.** 3 credits. Focuses on theories and concepts of human achievement motivation; and examines strategies, techniques and interventions that promote and sustain motivation in formal and informal learning contexts. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

### 400 Level Courses

**EDEP 402: Brain, Behavior, and Neuroimaging in Children.** 3 credits. Focus on research regarding the development of cognitive processes in children, their neurobiological substrates, and the imaging technology used to explore the functioning brain. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** At least junior standing or sophomore honors/ university scholar candidate.

**Schedule Type:** Lecture

**EDEP 405: The Neuroscience of Learning and Cognition.** 3 credits. Focuses on research regarding the development of cognitive processes in children and adults of various ages, their neurobiological substrates, and the imaging technology used to explore the functioning brain. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDEP 655.

**Recommended Prerequisite:** Junior standing or sophomore honors/ university scholar candidate.

**Schedule Type:** Lecture

### 500 Level Courses

**EDEP 550: Theories of Learning and Cognition.** 3 credits. Explores theoretical perspectives on learning and cognition, and relation of these theories to construction of learning environments, student motivation, classroom management, assessment, and technology to support teaching and learning. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDEP 551: Principles of Learner Motivation.** 3 credits. Focuses on theories and concepts of human motivation; and examines strategies, techniques, and interventions that promote and sustain learner motivation. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:**

**Schedule Type:** Lecture

**EDEP 552: Brain, Behavior, and Neuroimaging in Children.** 3 credits. Focus on research regarding the development of cognitive processes in children, their neurobiological substrates, and the imaging technology used to explore the functioning brain. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** At least junior standing or sophomore honors/ university scholar candidate.

**Schedule Type:** Lecture

**EDEP 553: Data-Driven Decision Making: Analysis and Interpretation of Assessment Data.** 3 credits. Focusing on the development of knowledge and skills related to analyzing and interpreting educational assessment data. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDEP 592.
Schedule Type: Lecture

EDEP 594: Data-Driven Decision-Making Application in Education Contexts. 3 credits.
Applies fundamental knowledge of assessment using team-based projects. Incorporates development of assessments and the analysis, interpretation, and reporting of assessment data to inform curriculum and instruction based on the context-specific needs of educators. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDEP 593.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDEP 597: Special Topics in Educational Psychology. 1-3 credits.
Covers critical current and emerging issues in educational psychology across the span of human development with an emphasis on research methodology and evidence-based practice. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

600 Level Courses

EDEP 601: Creativity and Cognition in the Arts and Media. 3 credits.
Focuses on research on cognition, development, learning, and creativity in the visual arts and media in formal and informal educational settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to AVT 606.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDEP 632: Human Development. 3 credits.
Examines the course of human development from early childhood to adulthood within the context of educational psychology. Emphasizes principles of research in human development and the major areas of cognitive, linguistic, and social contexts of development as they pertain to learners in schools and beyond. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDEP 550.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDEP 650: High-Stakes Assessment and Accountability Systems. 3 credits.
Focuses on school effectiveness, assessment tools, and accountability models on state and national levels. Explores issues and methods relevant to educational policy, standardized testing, and classroom assessment. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDEP 652: Process of Learning and Development. 3 credits.
Explores different theoretical perspectives on learning and development. Focuses on historical and contemporary theories of learning and cognitive development, and examines current research and its application in educational settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDEP 550.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDEP 653: Culture and Intelligence. 3 credits.
Explores different theoretical perspectives on intelligence as they relate to individual and cultural differences. Examines issues related to heritability and measures of intelligence, and intelligence in the cultural context. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDEP 550.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDEP 654:** *Learning, Motivation, and Self-Regulation.* 3 credits. Focuses on theories and research on self-regulation of academic learning. Presents multidimensional conceptual framework for studying and applying self-regulation in educational contexts. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDEP 550, 551.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDEP 655:** *The Neuroscience of Learning and Cognition.* 3 credits. Focuses on research regarding the development of cognitive processes in children and adults of various ages, their neurobiological substrates, and the imaging technology used to explore the functioning brain. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDEP 405.

**Recommended Prerequisite:** EDEP 550

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDEP 798:** *Directed Inquiry in Educational Psychology.* 1-3 credits. Offers a capstone experience to students after completion of majority of program coursework with the exception of 6 credit hours. Enables students to demonstrate their integrative knowledge and skills accrued through study in their concentration area in educational psychology. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Thesis chair approval and completion of coursework in the MS in Educational Psychology exclusive of 6 credit hours.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**800 Level Courses**

**EDEP 820:** *Teaching, Learning, and Cognition.* 3 credits. Focuses on foundational educational psychology theories including cognitive, social, and constructivist themes and their implications for improving instructional practices and learning at all developmental levels and content areas. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 800, EDUC 805, EDE 802, and EDRS 810.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDEP 821:** *Sociocultural Processes in Learning, Instruction, and Motivation.* 3 credits. Examines processes by which social, cultural, and linguistic variables influence human behavior. Focuses on differences within and between cultural groups related to student’s learning and achievement in educational settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 800, EDUC 805, EDLE 802, and EDRS 810.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDEP 822:** *Advanced Learning, Motivation, and Self-Regulation.* 3 credits. Examines development of self-regulatory and motivational processes as they relate to educational practice. Emphasizes how processes influence students’ self-motivation and achievement in various domains. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDUC 800, EDUC 805, EDLE 802, and EDRS 810.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**EDEP 823:** *Research Project in Educational Psychology: Sequence I.* 3 credits. Focuses on development and implementation of research studies in educational psychology. Students acquire skills regarding developing research questions and a sound methodological approach for their study.
Electrical and Computer Engineering (ECE)

100 Level Courses

ECE 101: Introduction to Electrical and Computer Engineering. 3 credits.
Introduces fundamental concepts in Electrical and Computer engineering and provides insight to the various careers in each field. Both theory and practical applications of electronic components are covered through examples of real world applications. Topics are reinforced through hands-on laboratory experiments. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Recommended Prerequisite: C or better in MATH 105 or specified score on math placement test, or MATH 113 with a C or better.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

ECE 201: Introduction to Signals and Systems. 3 credits.
Provides an introduction to key concepts for the description and analysis of signals and systems with an emphasis on discrete-time signals and systems. Specific topics include sinusoidal and complex exponential signals, sampling, spectrum representation of signals via DTFT and OFT, system properties, convolution, impulse response and frequency response. The associated computer lab provides opportunities to apply concepts to physical reality. Note: Students must register for both lecture and lab. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Specialized Designation: Discovery of Scholarship

Recommended Prerequisite: Grade of C or better in MATH 113.

Registration Restrictions:
Required Prerequisites: MATH 114\(^C\) and ECE 101\(^C\).

C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

ECE 220: Continuous-Time Signals and Systems. 3 credits.
Introduction to the processing and analysis of continuous-time signals and systems in the time-domain via differential equations and in the transform-domain using Laplace and Fourier transforms. Specific topics include the frequency response of LTI systems, Bode plots, system functions, block diagrams, filter design, and a rigorous treatment of sampling and aliasing. Includes applications to communications, circuits, control, and signal processing. Students must register for lecture, lab, and recitation. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts. Equivalent to BENG 220.

Specialized Designation: Discovery of Scholarship

Registration Restrictions:
Required Prerequisites: ECE 201\(^C\), MATH 203\(^C\) and 214\(^C\).

* May be taken concurrently.

C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture, Recitation

ECE 285: Electric Circuit Analysis I. 3 credits.
Covers the first half of electric circuit theory and practice. Topics include DC analysis of circuits including Ohm's and Kirchhoff's laws, Thevenin and Norton equivalents, and analysis of circuits with resistors, capacitors, inductors, and operational amplifiers. Includes lab experiments to reinforce topics covered in the course. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Specialized Designation: Scholarly Inquiry

Registration Restrictions:
Required Prerequisites: (PHYS 260\(^C\) and 261\(^C\)) and (MATH 214\(^C\)).

* May be taken concurrently.

C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture, Recitation

ECE 286: Electric Circuit Analysis II. 3 credits.
Covers the second half of electric circuit theory and practice. Topics include AC analysis of circuits including phasors, frequency response, power analysis, and transformers. Includes a project and lab experiments to reinforce topics covered in the course. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Specialized Designation: Scholarly Inquiry

Registration Restrictions:
Required Prerequisites: (ECE 285\(^C\) and MATH 214\(^C\)).

C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture, Recitation
300 Level Courses

ECE 301: Digital Electronics. 3 credits.
Introduces digital systems, circuits, and computers. Topics include binary systems and codes, digital logic gates and circuits, microelectronics and integrated circuits, coding and multiplexing, multivibrators, shift registers, counters, A/D converters, and elementary computer architecture. Notes: Not intended for those majoring in electrical or computer engineering. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts. Equivalent to CYSE 301.

Registration Restrictions:
Required Prerequisites: MATH 125C, 114C or IT 102C.
C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

ECE 305: Electromagnetic Theory. 3 credits.
Static and time varying electric and magnetic fields, dielectrics, magnetization, Maxwell’s Equations, and introduction to transmission lines. Course uses vector calculus and algebra of complex numbers. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (MATH 214C) and (PHYS 260C) or 265C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

ECE 320: Signals and Systems II. 3 credits.
Second of two-semester sequence providing mathematical background for many ECE courses taken in junior, senior years. Provides methods of representing and analyzing discrete-time signals and systems. Studies effects of converting from continuous-time to discrete time, and presents Z-transform as convenient analysis tool. Emphasizes powerful concept of frequency response of systems developed in first semester. Presents application examples from communications, circuits, control, and signal processing. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts. Equivalent to BEN 320.

Specialized Designation: Scholarly Inquiry

Registration Restrictions:
Required Prerequisites: (ECE 220C) and (MATH 203C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ECE 331: Digital System Design. 3 credits.
Covers principles of digital logic and digital system design and implementation in VHDL. Topics include number systems, Boolean algebra; analysis, design, and minimization of combinational logic circuits; analysis and design of synchronous and asynchronous finite state machines; and introduction to VHDL and behavioral modeling of combinational and sequential circuits. Notes: ECE 332 should be taken concurrently with ECE 331. Credit may not be received for ECE 301 and 331. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (PHYS 260C and 261C) and (ECE 332C) or 334C.
May be taken concurrently.
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

ECE 332: Digital Electronics and Logic Design Lab. 1 credit.
Lab associated with ECE 331. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Recommended Corequisite: ECE 331.

Registration Restrictions:
Required Prerequisites: (PHYS 261C or 265C).
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 333: Linear Electronics I. 3 credits.
Principles of operation and application of electron devices and linear circuits. Topics include semiconductor properties, diodes, bipolar and field effect transistors, biasing, amplifiers, frequency response, operational amplifiers, and analog design. Notes: ECE 334 is usually taken concurrently with ECE 333. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Specialized Designation: Writing Intensive in the Major

Recommended Corequisite: ECE 286 (required only if ECE 285 is taken).

Registration Restrictions:
Required Prerequisites: (ECE 280C) or (ECE 285C).
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture, Recitation

ECE 334: Linear Electronics Lab I. 1 credit.
Lab associated with ECE 333. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (PHYS 261C or 265C) and (ECE 333C) or 344C.
May be taken concurrently.
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory

**ECE 350: Embedded Systems and Hardware Interfaces.** 3 credits.
This course introduces embedded systems design through project-based activities. The platform runs on Linux and students design their own IoT (Internet of Things) system as well as demonstrate dashboards with cloud-based data. Hardware interfaces and several types of sensors and actuators are incorporated as part of the projects. Students also learn how to simulate and test signal-conditioning circuits, eventually integrating those as part of their projects. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** CS 222C and (ECE 280C, 285C or BENG 380C) and (ECE 301C or (ECE 331C and 332C)).

\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 370: Robot Design.** 3 credits.
Introduces the concept of robot design and implementation. The focus will be on electrical design philosophies, mechanical design philosophies, and controller design. Assignments are heavily based on the design, simulation and implementation of real-world robotic applications. Assessments are primarily in project form and make use of 3D printing and other manufacturing techniques. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** ECE 220C and CS 222C and (ECE 280C, 285C or BENG 380C) and (ECE 301C or (ECE 331C and 332C)).

\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 390: Engineering Design and Fabrication.** 3 credits.
Project based course where students will design projects containing analog and digital components as well as mechanical parts. Students will simulate, build, and test their projects. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts. Equivalent to BENG 390.

**Registration Restrictions:**
**Required Prerequisites:** (BENG 380C, ECE 280C or 285C).

\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 392: Engineering Design Studio.** 1 credit.
Identification and feasibility study of advanced engineering problems. Application of math, physics and engineering methods to challenging projects. Preliminary design, modeling, simulation and prototyping of projects. This course should be taken the semester preceding ECE/BENG 492. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 2 credits. Equivalent to BENG 392.

**Recommended Prerequisite:** 75 hours of completed coursework applicable to the EE, CpE, or BIOE degree and permission of instructor.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**400 Level Courses**

**ECE 410: Applications of Discrete-Time Signal Processing.** 3 credits.
Introduces fundamental concepts of digital signal processing. Emphasis on the theoretical and numerical tools used for frequency domain analysis of sampled signals. Topics covered include sampling, the discrete Fourier transform, fast transform algorithms, spectral analysis, and digital filtering. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisite:** ECE 320C.

\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 421: Classical Systems and Control Theory.** 3 credits.
Introduces analysis and synthesis of feedback systems, including functional description of linear and nonlinear systems, block diagrams and signal flow graphs; state-space representation of dynamical systems, frequency response methods, Root Locus, Nyquist, and other stability criteria; performance indices and error criteria; and applications to mechanical and electromechanical control systems. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts. Equivalent to SYST 421.

**Registration Restrictions:**
**Required Prerequisite:** (ECE 220C).

\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 422: Digital Control Systems.** 3 credits.
Introduces analysis, design of digital control systems, Z-transform, discrete linear systems, frequency domain, and state variable techniques. Discusses use of microcomputers in control systems. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** ECE 320C and 421C.

\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture
ECE 429: Control Systems Lab. 1 credit.
Laboratory experiments for topics in control systems analysis, design, and implementation with emphasis on using microcomputers. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: ECE 421C.
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 430: Principles of Semiconductor Devices. 3 credits.
Introduces solid-state physics and its application to semiconductors and semiconductor devices. Topics include band theory, doping, p-n junctions, diffusion theory, low-frequency circuits, devices including bipolar transistor, MOSFET, CMOS, and photo transistors. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: ECE 333C, 305C and MATH 214C.
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ECE 431: Digital Circuit Design. 3 credits.
Analysis and design of discrete and integrated switching circuits. Topics include transient characteristics of diodes, bipolar, and field-effect transistors; MOS and bipolar inverters; nonregenerative and regenerative circuits; TTL, ECL, IIL, NMOS, and CMOS technologies; semiconductor memories; VLSI design principles; and SPICE circuit analysis. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: ECE 331C and 333C.
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ECE 432: Control Systems Design. 1 credit.
Digital control systems laboratory using microcomputer systems. Topics include microprocessors, digital logic circuits, and microcomputer systems. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: ECE 429C and 421C.
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 433: Linear Electronics II. 3 credits.
Second course in linear electronics. Covers differential amplifiers, feedback circuits, power amplifiers, feedback amplifier frequency response, analog integrated circuits, operational amplifier systems, oscillators, wide band and microwave amplifiers, and computer-aided design. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: ECE 286C and 333C.
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 434: Linear Electronics II Laboratory. 1 credit.
Second lab course in linear electronics involving analysis and design of topics listed in ECE 433. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: ECE 334C and 433C.
\(^C\) May be taken concurrently.
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 435: Digital Circuit Design Laboratory. 1 credit.
Lab experiments for topics covered in ECE 431. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Recommended Corequisite: ECE 431.

Registration Restrictions:
Required Prerequisite: ECE 334C.
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 445: Computer Organization. 3 credits.
General overview of operating a digital computer. Topics include computer arithmetic, arithmetic unit, hardwired and microprogrammed control, memory, register-to-register, input-output operations, and behavioral modeling of computer organization using VHDL. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts. Equivalent to INFS 515.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: (ECE 331C and 332C) or (CS 262C or 222C).
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 446: Device Driver Development. 3 credits.
Addresses device driver and kernel level software programming and development. The C programming language and problem solving techniques are covered. Basics of device driver software, Character driver operations and data structures, concurrency and race conditions, kernel
timers, memory allocation, communications with hardware, interrupt handling, kernel data types, memory mapping and Direct Memory Access concepts are explored. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisite:** (ECE 445<sup>C</sup>).
<sup>C</sup> Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 447: Single-Chip Microcomputers.** 4 credits.
Explores designing with single-chip microprocessors and microcomputer interfacing. Topics include role of microcomputers compared with microprocessors and other computers, microcomputer architecture and organization, real-time control issues, assembly language programming for control, design of control software, input/output methods, design tools, and available single-chip microprocessors. Students select project and design, and construct system including single-chip microcomputer and ancillary hardware to implement control system. Notes: This course is highly recommended for ECE 492/493 students interested in using microcontroller technology in their senior design projects. It should be taken before ECE 493. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** ECE 445<sup>C</sup> and (CS 222<sup>C</sup> or 367<sup>C</sup>).
<sup>C</sup> Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**ECE 448: FPGA and ASIC Design with VHDL.** 4 credits.
Practical introduction to modeling of digital systems with VHDL for logic synthesis. Overview and comparative analysis of design flow and tools for FPGAs and standard-cell ASICs. Discusses verification of digital systems using testbenches, prototyping boards and modern testing equipment, and illustrates VHDL-based design methodology with multiple examples from communications, control, DSP, and cryptography. Laboratory experiments create link between simulation and actual hardware implementation based on FPGA boards. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisite:** (ECE 445<sup>C</sup>).
<sup>C</sup> Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**ECE 450: Introduction to Robotics.** 3 credits.
Introduces mobile robotic systems. Topics include overview of power systems, motors, behavior-based programming, sensors, and sensor integration. Design projects conceived, developed, implemented, and presented. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Recommended Prerequisite:** CS 112, ECE 280, ECE 331 and either ECE 332 or ECE 301, all with grade of C or better.

**Registration Restrictions:**
Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 460: Communication and Information Theory.** 3 credits.
Introduction to analog and digital communications. Topics include review of important concepts from signals and systems theory and probability theory, Gaussian processes and power spectral density, digital transmission through additive white Gaussian channels; sampling and pulse code modulation; analog signal transmission and reception using amplitude, frequency and phase modulation; and affects of noise on analog communication systems. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (ECE 220<sup>C</sup> and STAT 346<sup>C</sup>).
<sup>C</sup> Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 461: Communication Engineering Laboratory.** 1 credit.
Lab experiments in analog and digital communication areas covered in ECE 460. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** ECE 334<sup>C</sup> and 460<sup>C</sup>.
<sup>C</sup> Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Laboratory

**ECE 462: Data and Computer Communications.** 3 credits.
Introduces modern data communications and computer networks. Topics include point-to-point communication links and transmission of digital information, modems, and codecs; packet switching, multiplexing, and concentrator design; multiaccess and broadcasting; local area and wide area networks; architectures and protocols for computer networks; OSI reference model and seven layers; physical interfaces and protocols; and data link control layer and network layer. Provides examples of data networks. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (STAT 344<sup>C</sup> or 346<sup>C</sup>) and (ECE 220<sup>C</sup>) and (ECE 331<sup>C</sup> or 303<sup>C</sup>).
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ECE 463: Digital Communications Systems. 3 credits.
Introduces digital transmission systems. Topics include quantization, digital coding of analog waveforms, PCM, DPCM, DM, baseband transmission, digital modulation schemes, ASK, FSK, PSK, MSK, QAM, pulse shaping, intersymbol interference, partial response, voice-band and wideband modems, digital cable systems, regenerative repeaters, clock recovery and jitter, multipath fading, digital radio design, optimal receiver design, MAP receiver, and probability of error. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: ECE 460^C.
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ECE 465: Computer Networking Protocols. 3 credits.
Introduces computer networking protocols and concepts, emphasizing Internet and Internet Protocol Suite. Covers computer networking protocols at application, transport, and network layers, including multimedia networking protocols, and network security and management. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (STAT 346^C or 344^C) and (CS 222^C or 211^C).
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering, Electrical Engineering or Systems Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ECE 467: Network Implementation Laboratory. 1 credit.
Hands-on experience in implementing, configuring, and operating local and wide area networks in live laboratory environment equipped with modern local and wide area network devices and technologies. Students exposed to real-world computer networking scenarios including local area network implementation, asynchronous communication setup, and wide area network implementation using various protocols and technologies covering all layers of computer network protocol stack. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Recommended Corequisite: ECE 465.

Registration Restrictions:
Required Prerequisite: (ECE 462^C).
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ECE 470: Introduction to Humanoid Robotics. 3 credits.
Covers basic robot architecture with a focus on humanoid robotics. Topics include mechanical design philosophies, electrical design philosophies, and controller design of high DOF systems. Simulation of various parts and functionalities of humanoids culminates in a term project, which includes hardware demonstrations. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (CS 112^C) and (ECE 280^C, 285^C or BENG 380^C) and (ECE 301^C or (ECE 331^C and 331^C)).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ECE 491: Engineering Seminar. 1 credit.
Engineering ethics, professionalism, role of engineer in society, current topics, and employment opportunities. Notes: Students cannot receive credit for both ECE 491 and BENG 491. Registration is allowed only after completion of at least 90 credits applicable to the electrical engineering or computer engineering program. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts. Equivalent to BENG 491.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: COMM 100^C or 101^C.
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Seminar

ECE 492: Senior Advanced Design Project I. 1 credit.
Conception of senior design project and determination of feasibility of proposed project. Work includes developing preliminary design and implementation plan. Students planning to use microcontroller technology in their projects should enroll in ECE 447 before taking ECE 493. Note: Registration is allowed only after completion of at least 90 credits applicable to the electrical engineering or computer engineering program. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Mason Core: Capstone, Synthesis (p. 135)

Specialized Designation: Research Associated

Registration Restrictions:
Required Prerequisites: (COMM 100^C or 101^C) and (ENGH 302^C or ENGL 302^C) and ECE 220^C and 286^C.
C Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 493: RS: Senior Advanced Design Project II.** 2 credits. Implementation of project for which preliminary work was done in ECE 492. Project includes designing and constructing hardware, writing required software, conducting experiments or studies, and testing complete system. Requires oral and written reports during project and at completion. Notes: Students planning to use microcontroller technology in their projects should enroll in ECE 447 before taking ECE 493. If meeting time conflicts with other courses, come directly to the ECE department for registration. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

**Mason Core:** Capstone, Synthesis (p. 135)

**Specialized Designation:** Research/Scholarship Intensive

**Registration Restrictions:**

**Required Prerequisite:** ECE 492C.

Requires minimum grade of C.

Enrollment is limited to students with a major in Computer Engineering or Electrical Engineering.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**ECE 498: Independent Study in Electrical and Computer Engineering.** 1-3 credits. Directed self-study of special topics of current interest in ECE. Topic must be arranged with an instructor and approved by department chair before registering. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 3 credits.

**Registration Restrictions:**

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Independent Study

**ECE 499: Special Topics in Electrical Engineering.** 4 credits. Topics of special interest to undergraduates. Notes: May be repeated if topics substantially different. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 11 credits.

**Registration Restrictions:**

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**500 Level Courses**

**ECE 507: Seminar in Emerging Technologies.** 3 credits. Study of emerging technologies, how they are identified, how they evolve, actions which may encourage or stifle their growth, government influences, societal influences, examples of success and failure, and some lessons to be learned which are unique to government information technology. Topics covered will include a general introduction to emerging technologies, with emphasis on IT, discussion of difficulty in letting go of legacy systems, the DOD Global Information Grid, Cyberwarfare, Complex Adaptive Systems, and Federal Government support of Research and Development. Cannot be used in the PhD IT program. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 510: Real-Time Concepts.** 3 credits. Presents design methodology, principles and practice for the development of real-time embedded systems and their application to robotics, mechatronics, sensing, signal processing, and control. Topics include system decomposition, multi-tasking, task communication and synchronization, system modeling, time analysis, principles of filter and controller implementation, ‘fuzzy’ engineering, and multi-microcontroller systems. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 450 or ECE 447 or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 511: Microprocessors.** 3 credits. Introduces microprocessor software and hardware architecture. Includes fundamentals of microprocessor system integration, instruction set design, programming memory interfacing, input/output, direct memory access, interrupt interfacing, and microprocessor architecture evolution. Studies Intel family of microprocessors, and reviews other microprocessor families and design trends. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 445 or equivalent.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture
ECE 513: Applied Electromagnetic Theory. 3 credits.
Maxwell’s Equations, electromagnetic wave propagation, wave guides, transmission lines, radiation, and antennas. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 305 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

ECE 521: Modern Systems Theory. 3 credits.
Introduces linear systems theory and design of linear feedback control systems. Reviews linear algebra, state variables, state-space description of dynamic systems, analysis of continuous-time and discrete-time linear systems, controllability and observability of linear systems, and stability theory. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 421.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

ECE 528: Introduction to Random Processes in Electrical and Computer Engineering. 3 credits.
Probability and random processes are fundamental to communications, control, signal processing, and computer networks. Provides basic theory and important applications. Topics include probability concepts and axioms; stationarity and ergodicity; random variables and their functions; vectors; expectation and variance; conditional expectation; moment-generating and characteristic functions; random processes such as white noise and Gaussian; autocorrelation and power spectral density; linear filtering of random processes, and basic ideas of estimation and detection. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 220 and STAT 346, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

ECE 529: Digital Signal Processing. 3 credits.
Representation analysis and design of digital signals and systems. Covers sampling and quantization, z-transform and discrete Fourier transform, digital filter realizations, design techniques for recursive and non-recursive filters, fast Fourier transform algorithms, and spectral analysis. Additional topics may include adaptive filtering, homomorphic digital signal processing, digital interpolation and decimation. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 320 and STAT 346.
**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 537: Introduction to Digital Image Processing (DIP).** 3 credits.
First course in digital-image processing, introduces scanning systems, focal plane array detectors, data acquisition methods, display hardware, image preprocessing algorithms, feature extraction, and basic image processing methods. Semester-long image processing project includes utilizing modern image processing system prototyping software. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 538: Medical Imaging.** 3 credits.
Provides an introduction to the physical, mathematical and engineering foundations of modern medical imaging systems, medical image processing and analysis methods. In addition, this course introduces engineering students to clinical applications of medical imaging. The emphasis is on diagnostic ultrasound and magnetic resonance imaging methods, although several other modalities are covered. The course also provides an overview of recent developments and future trends in the field of medical imaging, discusses some of the challenges and controversies, and involves hands-on experience applying the methods learned in class to real-world problems. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to BENG 538.

**Recommended Prerequisite:** ECE 320 or equivalent; PHYS 262 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 542: Computer Network Architectures and Protocols.** 3 credits.
Introduction to architectures and protocols of computer networks and concept of packet switching. Topics include ISO standard layer model, physical interfaces and protocols, data link control, multiaccess techniques, packet switching, routing and flow control, network topology, data communication subsystems, error control coding, local area network, satellite packet broadcasting, packet radio, interconnection of packet-switching networks, network security and privacy, and various examples of computer networks. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** STAT 344 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 545: Digital System Design with VHDL.** 3 credits.
Introduction to the design of complex digital systems using hardware description languages. Emphasizes the design methodology based on the partitioning of a digital system into a datapath and control unit. Introduces a clear sequence of steps leading from specification to synthesizable, register transfer level (RTL), and fully verified HDL code. Covers VHDL for digital circuit design, including dataflow, structural, and behavioral coding styles. Introduces and illustrates the concepts of VHDL simulation, verification, synthesis, mapping, placing, routing, timing analysis and performance optimization. Requires semester long project devoted to the design of a complex digital system using VHDL as a hardware description language and FPGA as an implementation platform. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 548: Sequential Machine Theory.** 3 credits.
Theoretical study of sequential machines. Topics include sets, relations and lattices, switching algebra, functional decomposition, iterative networks, representation, minimization and transformation of sequential machines, state identification, state recognizers, and linear and stochastic sequential machines. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.
ECE 567: Optical Fiber Communications. 3 credits.
Studies components and integration of fiber-optic transmission systems. Topics include optical fibers, signal degradation, optical sources, power launching and coupling, photodetectors, receiver circuits, link analysis, and optical measurements. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 331 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 550: System Engineering Design. 3 credits.
System engineering design methods are studied and practiced, including object-oriented and structured analysis based techniques. Design Description languages such as UML, SysML, IDEFO and IDEF1x are introduced and used in carrying out complete system designs. Teams make presentations of their designs. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to SYST 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 331: Digital Integrated Circuits. 3 credits.
Studies design and analysis of digital integrated circuits, emphasizing CMOS technology. Reviews MOSFET operation and SPICE modeling. Covers analysis and design of basic inverter circuits, structure and operation of combinational and sequential logic gates, dynamic logic circuits, chip I/O circuits, and brief introduction to VLSI methodologies. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 331 and ECE 430 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 430: Digital Integrated Circuits. 3 credits.
Covers analysis and design of basic inverter circuits, structure and operation of combinational and sequential logic gates, dynamic logic circuits, chip I/O circuits, and brief introduction to VLSI methodologies. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 331 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 565: Introduction to Optical Electronics. 3 credits.
Introduces optoelectronic devices for generation, detection, and modulation of light. Topics include electro-optic modulators, gas, solid state and semiconductor lasers, photodetectors, and detector arrays. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 305 and 333.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 568: Semiconductor Device Fundamentals. 3 credits.
Studies principals of operation of semiconductor devices based on solid state physics. Topics include band theory of solids, intrinsic and extrinsic semiconductor properties, pn junction diode, bipolar junction transistor, Schottky diode, metal insulator semiconductor junctions, field-effect transistors, and hetero-structures. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 430 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 566: Digital Integrated Circuits. 3 credits.
Covers analysis and design of basic inverter circuits, structure and operation of combinational and sequential logic gates, dynamic logic circuits, chip I/O circuits, and brief introduction to VLSI methodologies. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 331 and ECE 430 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 612: Real-Time Embedded Systems. 3 credits.**
Study of real-time operating systems and device drivers for embedded computers. Emphasizes microprocessor systems and associated input device sampling strategies, including interrupt driven and polled I/O. Covers basic input/output operations, analog to digital conversion methods, I/O programming techniques and process, and communication control methodologies. Involves design project. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 511 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 620: Optimal Control Theory. 3 credits.**
Detailed treatment of optimal control theory and its applications. Topics include system dynamics and performance criteria, calculus of variations and Pontryagin's minimum principle, computational methods in optimal control, and applications of optimal control. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 521 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 621: Systems Identification. 3 credits.**

**Recommended Prerequisite:** ECE 521 and 528 or permission of instructor.

**Registration Restrictions:**

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**600 Level Courses**

**ECE 611: Advanced Microprocessors. 3 credits.**
Covers principles of advanced 32-bit and 64-bit microprocessors. Includes microprocessor structure and architecture, pipeline hazards, instruction-level parallelism, superscalar and superpipelined execution, thread-level parallelism; and RISC principles and advantages. Offers examples of RISC-type microprocessors. Studies in detail Intel IA-32, Intel and HP IA-64, and Motorola M68000 families. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 511 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 624: Control Systems.** 3 credits.
Analysis, design, and implementation of digital feedback control systems. Topics include discrete-time models, pole-placement, controller design methods, MIMO system decoupling, and observer design. Notes: Course may include simulation and design project. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 421 and 521 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 630: Statistical Communication Theory.** 3 credits.
Introduces optimum receiver design in the additive white Gaussian noise environment. Topics include efficient signal set design, modulation techniques, matched filter, correlation detector, coherent and noncoherent detections, fading and diversity channels, random amplitude and phase, diversity techniques, performance bounds of communications, and waveform communications. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 528.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 633: Coding Theory.** 3 credits.
Mathematics of coding groups, rings, and fields, and polynomial algebra. Topics include linear block codes, generator and parity check matrices; error syndromes, binary cyclic and convolutional codes; and implementation of encoders and decoders. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 528 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 635: Adaptive Signal Processing.** 3 credits.
Introduces adaptive systems and adaptive signal processing. Topics include correlation functions and matrices; performance functions; search of minimum; steepest descent and Newton algorithms; least mean squares algorithm; noise perturbed search and misadjustment; sequential regression algorithm and convergence issues; recursive least squares algorithm and forgetting factor; frequency domain algorithms; adaptive equalization; pseudorandom binary sequences and system identification; adaptive interference cancellation; and adaptive beam forming and arrays. Simulates adaptive algorithms. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 528.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 641: Computer System Architecture.** 3 credits.
Advanced course in computer architecture. Covers definitions, multiple processors, VLSI architecture, data flow, computation, semantic gap, high-level language architecture, object-oriented design, RISC architecture, and current trends in computer architecture. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 511 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 642: Design and Analysis of Computer Communication Networks.** 3 credits.

Introduces queuing theory. Other topics include concentrator design, multiplexing, capacity assignments, random access schemes, polling and probing techniques, topology design, flow control and routing, packet radio, protocol specification, and validation. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 542 and 528 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 643: Network Switching and Routing.** 3 credits.

Fundamentals of switching and routing with application to communications networks, both wireline and wireless. Topics include concepts of space and time for switching and forwarding of data, scalability and performance, label swapping, algorithms for routing and path computation, constrained route optimization, traffic theory, control and signaling, and traffic engineering. The course also covers the concepts and issues underlying the design and implementation of the contemporary switched networks. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 528 and ECE 542.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 645: Computer Arithmetic.** 3 credits.

Covers computer arithmetic as applied to the design of general-purpose microprocessors and application-specific integrated circuits for cryptography, coding, and digital signal processing. Focuses on efficient implementations of all basic arithmetic operations in three major domains: integers, real numbers, and elements of Galois Fields GF(2^n). Illustrates tradeoffs among various hardware algorithms and architectures depending on primary optimization criteria, such as speed, area, and power consumption. Demonstrates the use of software implementations as a source of test vectors for verification of hardware implementations and for evaluating hardware versus software speed-up. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 545 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 646: Cryptography and Computer Network Security.** 3 credits.

Topics include need for security services in computer networks, basic concepts of cryptology, historical ciphers, modern symmetric ciphers, public key cryptography (RSA, elliptic curve cryptosystems), efficient hardware and software implementations of cryptographic primitives, requirements for implementation of cryptographic modules, data integrity and authentication, digital signature schemes, key exchange and key management, standard protocols for secure mail, the web and electronic payments, security aspects of mobile communications, key escrow schemes, zero-knowledge identification schemes, smart cards, quantum cryptography, and quantum computing. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 542 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 650: Robotics.** 3 credits.

Introduces robotics and advanced automation from electrical engineering standpoint. Topics include hardware overview; coordinate systems and manipulator kinematics; differential motion and inverse Jacobian; manipulator path control and motion planning; design and control of articulated hands; sensory feedback; machine vision; and applications to industrial automation. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 521 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 652: Mobile Robots.** 3 credits.
Treats kinematic modeling of mobile robots with wheels, steering control, navigation and remote sensing. GPS as well as inertial navigation discussed. Kalman filtering applied to state estimation of robot position and attitude and also applied to estimation of the location of detected objects. Target tracking is developed for repeated observations of a detected object as well as simultaneous tracking of multiple objects. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 521 and ECE 528 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 670: Principles of C4I.** 3 credits.
Provides broad introduction to fundamental principles of command, control, communication, computing, and intelligence (C4I). Applies principles, techniques to wide range of civilian and military situations. Discusses modeling, simulation of combat operations; studies sensing, fusion, and situation assessment processes. Derives optimal decision-making rules. Discusses concepts of C4I architectures and tools to evaluate and design systems such as queuing theory. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to SYST 680.

**Recommended Prerequisite:** ECE 528 or SYST 611 or OR 542, or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 673: Discrete Event Systems.** 3 credits.
Introduces modeling and analysis of discrete event dynamical systems. Course covers elements of discrete mathematics and then focuses on Petri Net models and their basic properties. Relation to other discrete event models of dynamical systems. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to SYST 620.

**Recommended Prerequisite:** ECE 521, or SYST 611 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 674: System Architecture Design.** 3 credits.
Architecture design and representation and the methodologies used to obtain them. Approaches based on system engineering constructs such as object orientation and service oriented architectures are used to design architectures and then represent them in conformance with an architecture framework such as DoDAF. Executable models of the architecture are derived to be used for architecture evaluation. Examples from current practice are used. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to SYST 621.

**Recommended Prerequisite:** ECE 550.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 675: System Integration and Arch. Evaluation.** 3 credits.

**Recommended Prerequisite:** ECE 674 or SYST 621.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**ECE 680: Physical VLSI Design.** 3 credits.
Introduces NMOS, CMOS, and BiCMOS integrated circuit technology and fabrication. Reviews MOS and BiCMOS inverter structures and operation, MOS and BiCMOS circuit design processes, MOS layers, stick diagrams, design rules, and layout. Covers subsystem design and layout illustration of design process through design of 4-bit arithmetic processor and its parts, adder, multiplier, register, and memory cells; and aspects of system timing, test and testability. Reviews currently available VLSI CAS tools. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 586 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**ECE 681: VLSI Design for ASICs.** 3 credits.
Introduces VLSI design of application-specific integrated circuits (ASICs) from front-end to back-end using HDL and modern design automation software. Covers simulation, synthesis of digital circuits using standard cells, static timing analysis, formal verification, power analysis, test generation/fault simulation, and physical design including floor planning, placement, routing, and design rule checking. Addresses deep submicron CMOS scaling issues and other advanced topics. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 545.

**Recommended Corequisite:** ECE 586, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**ECE 682: VLSI Test Concepts.** 3 credits.
Broad introduction to basic concepts, techniques, and tools of modern VLSI testing. Fundamentals of defect modeling, fault simulation, design for testability, built-in self-test techniques, and failure analysis. Test economics, physical defects and fault modeling, automated test pattern generation, fault simulation, design for test, built-in self test, memory test, PLD test, mixed-signal test, Iddq test, boundary scan and related standards, test synthesis, diagnosis and failure analysis, automated test equipment, embedded core test. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 586

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Laboratory, Lecture

**ECE 684: MOS Device Electronics.** 3 credits.
Study of Metal Oxide Semiconductor (MOS)-based device theory, characteristics, models, and limitations. Topics include MOS capacitor, MOSFET’s, CMOS, charge coupled devices, scaling, hot carrier effects, latchup, radiation effects, and isolation techniques. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 584 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**ECE 685: Nanoelectronics.** 3 credits.
Emphasizes the fundamental concepts and principles that govern the operation of nano-electronic devices (100 nm down to 1 nm). Addresses basic device building blocks such as quantum dot (QD), single electron tunneling transistor (SETT), carbon nanotube (CNT), nanowire, etc. Considers the design and analysis of a variety of nanodevices ("quantum" or "mesoscopic" devices) and examine some notable applications. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 584

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 698:** Independent Reading and Research. 1-3 credits.
Independent study under the supervision of a faculty member, resulting in an acceptable technical report. No more than a combined total of 3 credits may be taken towards satisfying the master’s degree, although students may register for more credits. No more than a combined total of 3 credits may be taken of ECE 698 and ECE 798 towards satisfying the master’s degree, although students may register for more credits. Students may not count both ECE 799 and ECE 698 for master’s credit. Notes: Requires written report. May be taken no more than twice for graduate credit. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** At least two core courses and permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Research

**ECE 699:** Advanced Topics in Electrical and Computer Engineering. 1-6 credits.
Advanced topics of current interest in electrical and computer engineering. Topics chosen so they do not duplicate other courses in department. Active participation encouraged in form of writing and presenting papers in research areas. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 700 Level Courses**

**ECE 721:** Nonlinear Systems. 3 credits.
Includes motivating examples; analysis techniques include basic fixed-point theory, implicit function theorem, and dependence of trajectories on initial data and parameters. Also covers computational simulation techniques; stability theory including Lyapunov’s direct method; nonlinear control systems of input-output and absolute stability; strong positive real transfer functions; feedback linearization of nonlinear systems; nonlinear canonical forms; nonlinear decoupling; sliding control; and applications to adaptive control, neural networks, and robotics. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 620 or ECE 621.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 722:** Kalman Filtering with Applications. 3 credits.
Detailed treatment of Kalman Filtering Theory and its applications, including some aspects of stochastic control theory. Topics include state-space models with random inputs, optimum state estimation, filtering, prediction and smoothing of random signals with noisy measurements, all within the framework of Kalman filtering. Additional topics are nonlinear filtering problems, computational methods, and various applications such as global positioning system, tracking, system control, and others. Stochastic control problems include linear-quadratic-Gaussian problem and minimum-variance control. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 521 and 528 or equivalent, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 728:** Random Processes in Electrical and Computer Engineering. 3 credits.
Recommended for advanced master’s and doctoral students. Provides background in random processes needed for pursuing graduate studies and research in statistical signal processing, communications, control, and computer networks. Covers probability spaces, random variables, Lebesque integration, conditional mean on a sigma field, convergence of random variables, limit and ergotic theorems, Markov processes, and Martingales. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** ECE 528 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ECE 731:** Digital Communications. 3 credits.
Digital transmission of voice, video, and data signals. Covers signal digitization, pulse code modulation, delta modulation, low bit-rate
coding, multiplexing, synchronization, intersymbol interference, adaptive
equalization, frequency spreading, encryption, transmission codes, digital
transmission using band-width compression techniques, and satellite
communications. Offered by Electrical & Computer Engineer (p. 1018).
May not be repeated for credit.

Recommended Prerequisite: ECE 630 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of
Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 732: Mobile Communication Systems. 3 credits.
Topics include modeling of mobile communication channel, signal
set and receiver design for mobile communication channel, access
and mobility control, mobile network architectures, connection to
fixed network, and signaling protocols for mobile communication
systems. Examples of mobile communication systems are presented,
including pan-European GSM, North American D-AMPS, and personal
communication systems. Offered by Electrical & Computer Engineer
(p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 542 and 630.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of
Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 734: Detection and Estimation Theory. 3 credits.
Introduces detection and estimation theory with communication and
radar and sonar applications. Topics include classical detection and
estimation theory, detection of known signals in Gaussian noise, signal
parameter and linear waveform estimation, and Wiener and Kalman
filters. Offered by Electrical & Computer Engineer (p. 1018). May not be
repeated for credit.

Recommended Prerequisite: ECE 528.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of
Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 738: Advanced Digital Signal Processing. 3 credits.
Theory and practice of advanced digital signal processing techniques.
Topics may include efficient high-speed algorithms for convolution,
correlation, orthogonal transforms, multirate processing of digital signals,
multiresolution time-frequency and time-scale analysis of one- and two-
dimensional signals, and multitaper spectral estimation. Offered by
Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 528 and ECE 535.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of
Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 740: Digital Signal Processing Hardware Architectures. 3 credits.
Addresses topics that include high-level DSP optimizations, such as
pipelining, unfolding, and parallel processing; common DSP structures
such as FFTs, filters, direct digital frequency synthesizers, and
correlators; modeling of DSP algorithms in MATLAB and conversion of
MATLAB models into fixed-point VHDL blocks; platform implementation
issues: hardware vs. software, FPGA vs. ASIC, power, area, throughput,
and applications of DSP hardware. Offered by Electrical & Computer
Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 535 and ECE 545 or equivalents or
permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of
Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 741: Wireless Networks. 3 credits.
Theoretical foundation and practice in design of wireless networks.
Emphasizes mobility and teletraffic modeling aspects, and networking
issues and state-of-the-art performance evaluation methods of radio and
system infrastructure applicable to wireless cellular and local networks.
Topics include analysis of mobility, handoff, control traffic loading,
resource allocation techniques, multiaccess protocols, admission policy
and call control, network infrastructure and multilayer configuration,
wireless LANs, and packet data systems. Offered by Electrical & Computer
Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 642 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of
Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 742: High-Speed Networks. 3 credits.
Theories for design, analysis and evaluation of high-speed networks
including scalability, performance, and issues related to local area,
metropolitan, and wide area networks. Includes architecture, protocols,
and applications of high-speed networks; performance modeling of
high-speed networks; flow control and routing; design issues for high-
speed switches, interfaces, and controllers; all optical networks and their architectures; examples of high-speed computer networks and Internet working; video, imaging, and multimedia applications; software issues, robustness, and applications; and selected topics in current research areas in high-speed computer networks. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 528 and 642, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 745: ULSI Microelectronics. 3 credits.
Studies UltraLargeScaleintegration (more than a million devices in a single chip) by considering limits of packing density, modeling of devices, and circuit topology. Semiconductor material and device physics imposed "second order effects" and limitations on deep submicron CMOS performance. Reliability studied through analytical (compact) modeling and numerical simulations. Presents and evaluates new ULSI technologies such as SOI CMOS. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 684.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 746: Advanced Applied Cryptography. 3 credits.
Discusses complex cryptographic algorithms and their implementations in software and hardware. Provides mathematical background necessary to understand, implement, and break modern cryptalgorithms. Covers implementations of cryptosystems using smart cards, network processors, and other platforms. Discusses side channel attacks against implementations of cryptography, including timing attacks, power analysis, fault analysis, cache attacks, etc. Introduces advanced topics, such as random and pseudorandom number generators, secret sharing, zero-knowledge, and quantum cryptography. Requires a semester-long project devoted to implementation of selected algorithms or protocols in software or hardware, and/or comparative analysis of various algorithms, protocols, or implementations. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 646 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 747: Cryptographic Engineering. 3 credits.
Discusses efficient implementations of cryptographic algorithms and protocols in hardware and software, ranging from high-performance to low-power, as well as resistance to side-channel and fault attacks. Covers code breaking algorithms and practical implementations of side-channel attacks. Introduces research techniques. Requires semester-long project devoted to study of a cryptographic engineering problem, including a comprehensive literature review, problem definition, and research plan.
Notes: Course will be partially lecture style, partially seminar. Students will give hour long, in depth presentations on their research topics. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 528 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 751: Information Theory. 3 credits.
Introduces information theory, which is mathematical theory of communication systems. Topics include measures of information such as entropy, relative entropy, and mutual information; Shannon-McMillan-Breiman theorem and applications to data compression; entropy rate and source coding theorem; Huffman, arithmetic and Lempel-Ziv codes; method of types, channel capacity, and channel-coding theorem; joint source-channel coding theorem; differential entropy; Gaussian channel; rate distortion theory; and vector quantization. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ECE 528 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ECE 754: Optimum Array Processing I. 3 credits.

Recommended Prerequisite: ECE 528 or ECE 535.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**ECE 780**: Radio Frequency Electronics. 3 credits. This course addresses the design of electronic building blocks for radio frequency (RF) microelectronic circuits. Topics include trade-offs in RF design, transceiver architectures, low-noise amplifiers, mixers, oscillators, frequency-synthesizers, phase-locked loops, and power amplifiers. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite**: ECE 587, 684, or permission of instructor.

**Registration Restrictions**: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**ECE 795**: Engineering Seminar. 0 credits. Fulfills seminar requirement for MS in electrical and computer engineering programs. Invited speakers, faculty, and ECE graduate students lecture on current topics and research. Notes: Students must enroll in ECE 795 the final semester they file to graduate. Once the department verifies that the seminar requirement has been met, a grade of S (satisfactory) will be submitted. Students who have not met the seminar requirement in their final semester must continue to register for ECE 795 in subsequent semesters until the requirement is met. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum credits.

**Registration Restrictions**: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Seminar

**ECE 797**: Scholarly Paper. 0 credits. Student must develop a rigorous, technical report (called Scholarly Paper) on a topic of current interest in Electrical and Computer Engineering and make an oral presentation of this report. Students fulfill this requirement through and individual project in a 600-level or above ECE graduate course. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum credits.

**Recommended Prerequisite**: Completed 18 credit hours of graduate work.

**Registration Restrictions**: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Thesis

**ECE 799**: Master's Thesis. 1-6 credits. Research project chosen and completed under guidance of graduate faculty member that results in technical report and oral defense acceptable to thesis committee of three faculty members. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree.

**Recommended Prerequisite**: 9 graduate credits, and permission of instructor.

**Registration Restrictions**: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Thesis

**800 Level Courses**

**ECE 899**: Research Topics in ECE. 3 credits. Studies advanced research areas in Electrical and Computer Engineering within a course format. Students will develop specialized research skills, which will also involve the presentation of their own work, developed individually and within groups. This course may be repeated for credit if the research areas differ. Notes: This will be an irregularly scheduled course intended for advanced master's students who want to pursue a specific topic to more depth than a typical course offers at the master's level. It will prepare students to undertake their individual research topics when they move on to pursue a Ph.D. program, or enter a research environment in their chosen professional careers. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 9 credits.
Recommended Prerequisite: Completion of at least one 600 or 700 level course in the Research Topic area; and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Research

900 Level Courses

ECE 998: Doctoral Dissertation Proposal. 1-12 credits.
Work on research proposal that forms basis for doctoral dissertation.
Notes: No more than 24 credits of ECE 998 and 999 may be applied to doctoral degree requirements. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Dissertation

ECE 999: Doctoral Dissertation. 1-12 credits.
Formal record of commitment to doctoral dissertation research under direction of ECE faculty member. Notes: Students must complete minimum 12 credits of doctoral proposal (ECE 998) and doctoral dissertation research (ECE 999) Maximum of 24 credits of ECE 998 and 999 may be applied to degree. Students who choose to take less than 24 credits of ECE 998 and 999 may earn remaining credits from approved course work. Students cannot enroll in ECE 999 before research proposal accepted and approved by dissertation committee. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Volgenau School of Engineering college.

Schedule Type: Dissertation

Engineering (ENGR)

100 Level Courses

ENGR 107: Introduction to Engineering. 2 credits.
Introduces engineering profession fundamentals and problem-solving. Topics include description of engineering disciplines, functions of the engineer, professionalism, ethics and registration, problem solving and representation of technical information, estimation and approximations, and analysis and design. Offered by Electrical & Computer Engineer (p. 1018). Limited to two attempts.

Mason Core: Information Technology: Ethics Only (p. 135)

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

200 Level Courses

ENGR 202: Thermodynamics. 3 credits.
Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Schedule Type: Lecture

300 Level Courses

ENGR 395: Engineering Internship. 3 credits.
Students will participate in experiential learning in an industrial setting. Students must identify work opportunity and seek advisor approval prior to registering. Course credit will not satisfy degree requirements. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Completion of at least 30 credit hours.

Schedule Type: Internship

ENGR 396: Engineering Co-Op I. 3 credits.
1st Semester of a multi-semester co-operative education experience. Students will apply concepts and theories from the classroom to an industrial setting. Students must identify work opportunity and seek advisor approval prior to registering. Course credit will not satisfy degree requirements. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: Completion of at least 30 credit hours.

Schedule Type: Lecture

ENGR 397: Engineering Co-Op II. 3 credits.
Second Semester of a multi-semester co-operative education experience. Students will apply concepts and theories from the classroom to an industrial setting. Students must continue employment from ME 396 and seek advisor approval prior to registering. Course credit will not satisfy degree requirements. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: ME 396.

Schedule Type: Internship

400 Level Courses

ENGR 498: Independent Study in Engineering. 1-3 credits.
Directed self-study of special topics of current interest in ENGR. Notes: May be repeated if topics substantially different. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

ENGR 499: Special Topics in Engineering. 4 credits.
Topics of special interest to undergraduates. Notes: May be repeated if topics substantially different. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 11 credits.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
700 Level Courses

ENGR 794: Graduate Internship. 3 credits.
Students with an Internship/Externship/Co-op opportunity will gain practical experience while engaging in an experiential learning opportunity. Offered by Volgenau School of Engineering (p. 953). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Completion of at least 18 credit hours.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Volgenau School of Engineering college.

Schedule Type: Internship

English (ENGH)

100 Level Courses

ENGH 100: Composition for Multilingual Writers. 4 credits.
Intensive practice in drafting, revising, and editing expository essays of some length and complexity. Studies logical, rhetorical, and linguistic structure of expository prose, with attention to particularly difficult aspects of the language for multilingual writers. Methods and conventions of preparing research papers. Notes: Students must attain minimum grade of C to fulfill degree requirements. Offered by English (p. 350). May not be repeated for credit. Equivalent to ENGH 101, ENGH 122.

Mason Core: Written Communication (lower) (p. 135)

Schedule Type: Lecture, Recitation

ENGH 101: Composition. 3 credits.
Intensive practice in drafting, revising, and editing expository essays of some length and complexity. Studies logical, rhetorical, and linguistic structure of expository prose. Methods and conventions of preparing research papers. Notes: Students must attain minimum grade of C to fulfill degree requirements. Offered by English (p. 350). May not be repeated for credit. Equivalent to ENGH 100, ENGH 122.

Mason Core: Written Communication (lower) (p. 135)

Schedule Type: Lecture

ENGH 121: Enhanced Composition For Multilingual Writers of English I. 3 credits.
Provides intensive practice in drafting, revising and editing essays in common academic genres such as argumentation and research based writing, with additional language support for building English fluency. Addresses logical, rhetorical, and linguistic structures of expository prose, and builds critical reading strategies. This course is the first of a two-part course for students in the Undergraduate International Pathway Program. Notes: Students must attain minimum grade of C to fulfill Mason Core degree requirement for written communication (lower level). Offered by English (p. 350). May not be repeated for credit. Equivalent to ENGH 100, ENGH 101.

Specialized Designation: Discovery of Scholarship

Recommended Prerequisite: Satisfactory progress in ENGL 121/ENGH 121.

Schedule Type: Lecture

200 Level Courses

ENGH 201: Reading and Writing about Texts. 3 credits.
Close analysis of literary texts, including but not limited to poetry, fiction, and drama. Emphasizes reading and writing exercises to develop basic interpretive skills. Examines figurative language, central ideas, relationship between structure and meaning, narrative point of view. Offered by English (p. 350). May not be repeated for credit.

Mason Core: Literature (p. 135)

Recommended Prerequisite: 3 credits of 100-level English.

Schedule Type: Lecture

ENGH 202: Texts and Contexts. 3 credits.
Studies literary texts within the framework of culture. Examines texts within such categories as history, gender, sexuality, religion, race, class, and nation. Notes: Builds on reading and writing skills taught in ENGH 201. Offered by English (p. 350). May be repeated within the term.

Mason Core: Literature (p. 135)

Recommended Prerequisite: 3 credits of 100-level English.

Schedule Type: Lecture

ENGH 203: Western Literary Tradition. 3 credits.
Major works of Western literature in historical progression. Focuses on writers such as Homer, Sophocles, Euripides, Dante, Cervantes, Machiavelli, and Montaigne. Notes: All readings are in modern English. Courses build on reading and writing skills taught in ENGH 201. Offered by English (p. 350). May not be repeated for credit.

Mason Core: Literature (p. 135)

Recommended Prerequisite: 3 credits of 100-level English.

Schedule Type: Lecture

ENGH 204: Western Literary Traditions. 3 credits.
Major works of Western literature in historical progression. Covers writers such as Moliere, Mme. de Lafayette, Goethe, Ibsen, Flaubert, Dostoyevski, Tolstoy, Mann, Kafka, Borges, and Soyinka. All readings are in modern English. Notes: Courses build on reading and writing skills taught in ENGH 201. Offered by English (p. 350). May not be repeated for credit.
Mason Core: Literature (p. 135)

Recommended Prerequisite: 3 credits of 100-level English.

Schedule Type: Lecture

300 Level Courses

ENGH 300: Cover to Cover. 3 credits.
Introduction to various topics in English; many have an interdisciplinary emphasis. Appropriate for non-majors. Topic changes each time course is offered. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ENGL 101/ENGH 101

Schedule Type: Lecture

ENGH 301: The Fields of English. 3 credits.
Introduces the fields of English studies, focusing on discipline-specific forms of practice within the concentrations in the major. Explores central concepts including reading, language, medium, text, author/producer. Maps histories and contexts of English as a discipline. Offered by English (p. 350). May not be repeated for credit.

Specialized Designation: Discovery of Scholarship

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 302: Advanced Composition. 3 credits.
Intensive practice in writing and analyzing expository forms such as essay, article, proposal, and technical or scientific reports with emphasis on research related to student's major field. Notes: Students must attain minimum grade of C to fulfill degree requirements. Schedule of Classes designates particular sections of ENGH 302 in business, humanities, natural sciences and technology, and social sciences. Offered by English (p. 350). May not be repeated for credit.

Mason Core: Written Communication (upper) (p. 135)

Recommended Prerequisite: Completion of 45 credits including the Mason Core literature requirements, requires a grade of C or better.

Registration Restrictions:
Required Prerequisites: ENGH 100C, 101C, U101C, 122C, ENGL 100C, 101C, U101C, 122C, HNRS 110C, NCLC 203C or INTS 203C.
C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Schedule Type: Lecture

ENGH 303: Humanities College to Career. 1 credit.
Focuses on career choices and effective self-presentation for soon-to-be graduating students with majors in the humanities. Explores how skills typically learned in humanities majors can be leveraged for a successful transition to post-graduation employment. Offered by English (p. 350). May not be repeated for credit. Equivalent to FRLN 309, HIST 385, PHIL 393.

Schedule Type: Lecture

ENGH 304: Topics: Literary Surveys. 3 credits.
Advanced introduction to major movements and representative figures of two or more centuries or periods of American, British, European, or world literature. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 305: Dimensions of Writing and Literature. 3 credits.
Teaches students the conventions of writing in literary studies while emphasizing writing process. Develops interpretive skills for further study in the major though the teaching of in-depth close reading, intertextual analysis, and critical reading in scholarship. Offered by English (p. 350). May not be repeated for credit.

Specialized Designation: Scholarly Inquiry, Writing Intensive in the Major

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 307: English Grammar. 3 credits.
Overview of grammatical structure of English including word classes, phrases, and complex sentences. English grammar analyzed using modern syntactic theory. Students engage in language description through problem solving. Offered by English (p. 350). May not be repeated for credit. Equivalent to LING 307.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture, Recitation

ENGH 308: Theory and Inquiry. 3 credits.
Investigates a problem or debate central to the discipline of English. Teaches students how to read, understand, and engage with theoretical texts. Notes: May be repeated for credit when topic is different. Offered by English (p. 350). May be repeated within the term.

Schedule Type: Lecture

ENGH 309: Topics in Literature. 1-3 credits.
Studies literature by topics, such as women in literature, science fiction, and literature of the avant garde. Notes: Topic varies. May be repeated for credit when topic is different. Offered by English (p. 350). May be repeated within the term.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 310: Topics: Women and Literature. 3 credits.
Explores experiences of women as both authors and subjects of imaginative literature. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits. Equivalent to WMST 305.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.
Schedule Type: Lecture

ENGH 315: Folklore and Folklife. 3 credits.
Topics include folktales, personal narratives, legends, proverbs, jokes, folk songs, folk art and craft, and folk architecture. Considers ethnicity, community, family, festival, folklore in literature, and oral history. Discusses traditions in students' own lives. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 316: Topics in Myth and Literature. 3 credits.
Studies how traditional mythologies are reflected in English and American literature and other texts as themes, motifs, and patterns. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 318: Introduction to Cultural Studies. 3 credits.
Introduces interpretive practices associated with cultural studies. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 319: Popular Culture. 3 credits.
Emphasizes popular fiction and adaptation of popular prose genres to media that have strong verbal and visual elements. Relationship between verbal and nonverbal elements of media such as film, comics, and radio. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 320: Literature of the Middle Ages. 3 credits.
Selected English narrative, dramatic, and homiletic literature written between 1300 and 1500, exclusive of Chaucer. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 321: English Poetry and Prose of the 16th Century. 3 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 322: Shakespeare. 3 credits.
Introduction to Shakespeare's art. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 323: Shakespeare: Special Topics. 3 credits.
Study of one aspect of Shakespeare's art or critical issues surrounding it. Offered by English (p. 350). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 324: English Renaissance Drama. 3 credits.
Major dramas and dramatists of English Renaissance, such as Lyly, Marlowe, Jonson, Middleton, Webster, and Ford. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 325: English Poetry and Prose of the 17th Century. 3 credits.
English poetry and prose from 1603 to 1688, excluding Milton. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 330: Augustan Age: 1660-1745. 3 credits.
English literature from late 17th century to mid-18th century. Includes Dryden, Rochester, Behn, Defoe, Swift, Pope, and Montagu. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 331: Age of Sensibility: 1745-1800. 3 credits.
English literature of later 18th century, time of American and French Revolutions, including new developments in novel, drama, biography, and poetry. Includes Johnson, Boswell, Blake, Goldsmith, Sterne, Gray, Cowper, Burney, Godwin, and Wollstonecraft. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 332: Restoration and 18th Century Drama. 3 credits.
Restoration comedy of manners, sentimental comedy, and neoclassical and bourgeois tragedy. Theories of drama and conventions of staging. Includes writers such as Wycherley, Behn, Congreve, and Cowley. Offered by English (p. 350). May not be repeated for credit.
Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 333: British Novel of the 18th Century. 3 credits. English novel from its beginnings through turn of 19th century. Covers works by Behn, Defoe, Haywood, Richardson, Fielding, Sterne, Burney, Smollett, and Austen. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture


Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 335: Prose and Poetry of the Victorian Period. 3 credits. Poetry and nonfiction prose by such authors as Carlyle, Arnold, Tennyson, Elizabeth Barrett Browning, Robert Browning, Ruskin, Mill, and Wilde. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 336: British Novel of the 19th Century. 3 credits. Works by Dickens, Thackeray, the Brontes, Eliot, Trollope, and Hardy. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 337: British Poetry after 1900. 3 credits. Emphasizes Hardy, Yeats, Lawrence, Graves, Auden, Thomas, and Hughes. Fiction works employing poetic techniques, such as Joyce's Ulysses, may also be studied. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 338: British Novel after 1900. 3 credits. Works by Conrad, Forster, Lawrence, Joyce, Woolf, Greene, Lessing, Spark, and Fowles. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 339: British and Irish Drama after 1900. 3 credits. English or Irish drama from Yeats to the present. Plays by authors such as Yeats, Synge, O'Casey, Osborne, Wesker, Pinter, Friel, Churchill, and Gems. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 340: Early American Literature. 3 credits. Works of first 200 years of American literature, including Edwards, Franklin, Irving, Cooper, and Bryant. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 341: Literature of the American Renaissance. 3 credits. Major writers of American Renaissance (1830-1865), with emphasis on Emerson, Thoreau, Hawthorne, Melville, Whitman, Poe, Stowe, Douglass, and Dickinson. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 342: Development of the American Novel to 1914. 3 credits. Major American novels of the pre-World War I period with emphasis on Brown, Cooper, Hawthorne, Melville, Twain, Howells, James, Crane, Dreiser, Norris, and others. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 343: Development of the American Novel since 1914. 3 credits. Works by Fitzgerald, Hemingway, Faulkner, Dos Passos, Wolfe, Bellow, and Nabokov. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 344: American Drama of the 20th Century. 3 credits. American drama of 20th century, with special attention to playwrights such as Glaspell, O'Neil, Miller, Williams, Fones, and Albee. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 345: American Poetry of the 20th Century. 3 credits. Emphasizes work of Robinson, Frost, Stevens, Williams, Pound, Crane, Eliot, and Lowell. May include work of fiction employing poetic techniques, such as Faulkner's The Sound and the Fury. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.
Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 348: Beginnings of African American Literature Through 1865. 3 credits.
Concentrating on such poets as Phillis Wheatley, Jupiter Hammon, Lucy Terry, and George Moses Horton, examines significant African American literary, social, and political texts produced through 1865. Special attention to narrative accounts of enslavement and freedom by Frederick Douglass, Harriet Jacobs, and Olaudah Equiano; political writings and orations of David Walker and Sojourner Truth; fiction of Harriet Wilson and William Wells Brown; and nonwritten cultural artifacts such as slave songs and spirituals. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture


Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 350: African American Literature Through 1946. 3 credits. Focusing on fiction, poetry, drama, and autobiography, explores evolution of African American literature and aesthetics and major social, cultural, and historical movements such as the Harlem Renaissance of the 1920s and emergence of black naturalism, realism, and modernism in the 1930s-40s. Major authors include Zora Neale Hurston, Langston Hughes, Jessie Fauset, James Weldon Johnson, Jean Toomer, Nella Larsen, Margaret Walker, Chester Himes, Richard Wright, and Ann Petry. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 351: Contemporary African American Literature. 3 credits. Encompassing array of genres and forms, examines black writing from mid-20th century to present. Engages textual, critical, political, and theoretical issues related to cardinal literary movements, such as Black Arts Movement of 1960s and Third Renaissance of 1980s-90s. Examines how musical forms such as blues, jazz, and rap shaped literary production. Major authors include Ralph Ellison, Gwendolyn Brooks, James Baldwin, Lorraine Hansberry, Amiri Baraka, Alice Walker, Ernest Gaines, Gloria Naylor, August Wilson, and Toni Morrison. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 352: Topics in Ethnic American Literature. 3 credits. Studies particular ethnic American literatures. Focuses on literatures such as Asian American, Native American, Latino/a, Arab American, or Jewish American. Notes: May be repeated when topic (expressed by course subtitle and content) is different. Offered by English (p. 350). May not be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 355: Recent American Fiction. 3 credits. American short story writers and novelists from World War II to present, including Mailer, Barth, Cheever, Oates, Gass, Beattie, Updike, and Morrison. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture


Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 357: Continental Fiction, 1770-1880. 3 credits. Selected European novels in translation. Focuses on continental novel from 18th century to end of 19th century. Includes works of Balzac, Goethe, Gogol, Stendhal, Turgenev, Flaubert, Dostoieievski, Tolstoy, and Chekhov. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 360: Continental Fiction, 1880-1950. 3 credits. Offered in cooperation with the Department of Modern and Classical Languages. Focuses on continental novel from beginning of 20th century to present. Includes Proust, Mann, Gide, Kafka, Yourcenar, Beauvoir, Calvino, and Garcia Marquez. Attention to influence of this literature on novel in English. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 361: Continental Fiction, 1880-1950. 3 credits. Studies two cultures other than contemporary British or American culture through exploration of several textual forms such as written literature, oral literature, film, folklore, or popular culture. Specific cultures vary,
but at least one is non-Western. Notes: May be repeated for credit when topic is different. Offered by English (p. 350). May be repeated within the degree.

**Mason Core:** Global Understanding (p. 135)

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 366: The Idea of a World Literature.** 3 credits.
Examines history and current status of conceptions of world literature, considering such topics as non-European influences on Western literature, shifting horizons of comparative literature, rise of postcolonial literature, place of translation, and role of international institutions such as UNESCO and the Nobel Prize. Focuses on degree to which these initiatives have been successful in promoting global understanding of literary production. Offered by English (p. 350). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 367: World Literatures in English.** 3 credits.
Study of selected topics, periods, genres, or authors in literature written in English, originating in Canada, Australia, New Zealand, South Asia, or Africa, for example. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 368: Modern Drama.** 3 credits.
Representative plays of most influential European and American dramatists, with emphasis on dramatic styles such as realism, expressionism, epic, and existentialism. Studies Chekhov, Ibsen, Strindberg, Brecht, and Beckett. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 370: Introduction to Documentary.** 3 credits.
Considers fundamental concepts of documentary form, style, and subject matter, ethical considerations, and theories of documentary. Includes close analysis of a series of representative film and television texts. Offered by English (p. 350). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 371: Television Studies.** 3 credits.
Learn to identify and analyze formal elements of television. Learn how to situate and evaluate television in their cultural and historical contexts, interpret specific texts, and understand the relationships among broadcasting and networks, citizenship, audiences, and the public sphere. Offered by English (p. 350). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 372: Introduction to Film.** 3 credits.
Introduces film medium as an art form. Offered by English (p. 350). May not be repeated for credit. Equivalent to ENGH 555.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 373: Film and Video Forms.** 3 credits.
Teaches students the formal elements of fiction films/videos and documentaries. Develops analytical writing skills in film and video studies with an emphasis on collaboration. Focuses on reading and practicing artistic processes of filmic storytelling, understanding films and videos in multiple contexts, including production and distribution industries and political and commercial systems. Offered by English (p. 350). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**ENGH 375: Web Authoring and Design.** 3 credits.
Provides a rhetorical foundation for web authoring and design in professional settings. Students will learn basic principles of writing for the web, information architecture, coding for accessibility, and usability testing. The production-oriented component of the course provides instruction in writing valid code and practice with web- and graphic-editing software tools. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 376: Rhetoric and New Media.** 3 credits.
Critical reading of new media texts and creation of technology-enriched texts in variety of rhetorical genres. Instructs students in rhetoric of new media, whether produced as hypertext, multimedia, or interactive digital productions. Technology-enriched activities present complex textuality of words, images, word-as-image, and kinetic text. Offered by English (p. 350). May not be repeated for credit. Equivalent to NCLC 343.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture
ENGH 377: Digital Creative Writing. 3 credits.
Combined workshop and studio course in technological and aesthetic issues of reading and writing hypermedia texts with emphasis on poetry, fiction, creative nonfiction, mixed genre, drama, or performance. Explores how genre meets hypertext and hypermedia in original creative work. Includes techniques in authoring interactive hypermedia projects using digital media tools. Notes: May include reading assignments in hypertext and hypermedia theory. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: ENGL 396/ENGH 396 or permission of instructor.

Schedule Type: Lecture

ENGH 380: Introduction to Writing and Rhetoric. 3 credits.
Introduces students to the field of writing studies, with a focus on definitions of writing and rhetoric and research methods applied to the study of writing from the perspective of multiple disciplines. Provides an overview of both historical and contemporary approaches to studying writing as object, process, practice, and occupation. Offered by English (p. 350). May not be repeated for credit.

Specialized Designation: Discovery of Scholarship

Recommended Prerequisite: ENGL 302/ENGH 302 is recommended.

Schedule Type: Lecture

ENGH 382: Writing Nonfiction Genres. 3 credits.
Advanced practice in analyzing and writing nonfiction forms such as essay, profile, article, and technical or scientific report, depending on student’s interests. Notes: Not to be taken concurrently with ENGH 399 or 486, and not to be taken by students who have taken ENGH 486. Not a remedial course. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 386: Editing for Audience, Style, and Voice. 3 credits.
Introduces editing as a textual and rhetorical practice. Addresses copyediting, style, design; revisions based on audience, purpose, and genre; multimedia editing; interactions between editors and authors. (Not a remedial course in fixing sentence errors.) Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 388: Professional and Technical Writing. 3 credits.
Intensive study and practice in various forms of professional and technical writing, including proposals, reports, instructions, news releases, white papers, and correspondence. Emphasizes writing for variety of audiences, both lay and informed, and writing within various professional and organizational contexts. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: ENGL 302/ENGH 302.

Schedule Type: Lecture

ENGH 391: Forms of Poetry. 3 credits.
Intensive study of and practice in formal elements of poetry through analyzing models and weekly writing assignments. Depending upon specific instructor, can cover rhyme, meter, rhythm, lineation, stanza pattern, traditional and experimental forms, free verse and open-form composition, lyric, narrative, and dramatic modes. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: ENGH 396.

Schedule Type: Lecture

ENGH 392: Forms of Fiction. 3 credits.
Intensive practice in the elements and forms of fiction, through analyzing models and completing weekly writing assignments. Covers short stories, short-shorts, longer narratives, and such elements as plot, narrative technique, dialogue, point of view, voice and style, along with tools such as evocation, description, and epiphany. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: ENGH 396.

Schedule Type: Lecture

ENGH 393: Forms of Nonfiction. 3 credits.
Intensive study of and practice in various forms of nonfiction writing, through analyzing models and completing weekly writing assignments. Includes in-depth discussion and practice in such forms as biographies, documentaries, editorials, interviews, reports, reviews, and essays. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: ENGH 396.

Schedule Type: Lecture

ENGH 396: Introduction to Creative Writing. 3 credits.
Assignments include writing exercises and original works of poetry and fiction. May also include drama or creative nonfiction. Includes reading assignments in covered genres, and may include oral presentations or in-class performance. Original student work read and discussed in class and conference with instructor. Offered by English (p. 350). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 397: Poetry Writing. 3 credits.
Workshop in reading, writing poetry. Original student work read and discussed in class and conferences with instructor. Technical exercises in craft of poetry; may include writing assignments. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: ENGL 396/ENGH 396 or permission of instructor.

Schedule Type: Lecture

ENGH 398: Fiction Writing. 3 credits.
Workshop course in reading and writing fiction. Original student work read and discussed in class and conferences with instructor. Includes
technical exercises in craft of fiction; may include reading assignments. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** ENGL 396/ENGH 396 or permission of instructor.

**Schedule Type:** Lecture

**ENGH 399:** *Creative Nonfiction Writing.* 3 credits.
Workshop in reading and writing of nonfiction that makes use of literary techniques normally thought of in context of fiction, such as evoking senses and use of dialog. Original student work read and discussed in class and conferences with instructor. Includes technical exercises in artful creating of nonfiction; may include reading assignments. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** ENGL 309/ENGH 382 or ENGL 396/ENGH 396, or permission of instructor.

**Schedule Type:** Lecture

**400 Level Courses**

**ENGH 400:** *Honors Seminar.* 3 credits.
Emphasizes growth in awareness of literary scholarship as a discipline, providing opportunity for advanced study in literary and cultural criticism. Covers variety of topics, including consideration of a literary period, genre, author, work, theme, discourse, or critical theory. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Open only to English department honors students.

**Schedule Type:** Lecture

**ENGH 401:** *RS: Honors Thesis Writing Seminar.* 3 credits.
Provides guidance in research methods to students writing an honor thesis as well as workshop for critiquing works in progress. May be taken concurrently with another approved course offered by English Department, in which case thesis work may substitute for some assigned work in second course by arrangement of both instructors. Offered by English (p. 350). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** Acceptance into English honors; permission of department and ENGH 400/ENGL 414 or ENGH 402/ENGL 416.

**Schedule Type:** Lecture

**ENGH 402:** *Honors Independent Study.* 1-3 credits.
Intensive writing course. Honors students concentrating in nonfiction writing and editing may use English 416 to replace English 414 as first course in honors program. Notes: Honors students concentrating in creative writing may use ENGH 402 to replace ENGH 401. Honors students concentrating in nonfiction writing who take ENGH 401 and complete a nonfiction thesis may use ENGH 402 in conjunction with an advanced course in nonfiction writing to replace ENGH 400. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Admission to honors program in English, and permission of instructor.

**Schedule Type:** Independent Study

**ENGH 408:** *Topics in Criticism.* 3 credits.
Studies selected approach to literary criticism, as announced, with exercises in critical analysis. Includes new criticism, structuralism, psychoanalysis, and Marxism. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 409:** *Literary Modes.* 3 credits.
Theory and practice of such modes as tragedy, comedy, tragicomedy, romance, and satire, considered in separate semesters and drawn from variety of periods ranging from biblical times to present, with examples from drama, poetry, and fiction. Notes: May be repeated with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 412:** *Topics in Folklore Studies.* 3 credits.
Exploration of various aspects of folklore and folklife such as folklore and literature, folk arts, folk song, and material culture. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 414:** *Folklore of the Spirit World.* 3 credits.
Examines traditional narratives and beliefs about otherworldly experiences and beings. Introduces traditional narrative theory and discusses how people construct and tell their stories about encounters with the supernatural. Considers the conflicts, worldviews, and competing values these stories bring into material form. Focuses on traditions from around the world as well as on personal experiences of students. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 415:** *Folk Arts and Folk Artists.* 3 credits.
Examines the traditional arts of everyday life, such as festive foods, mementos and other objects of memory, textile arts, pottery, carving in wood and stone, roadside shrines, and more. Explores the folk aesthetics of group-based creativity through the lenses of biography, history, literature, and folklore studies. Considers traditional objects as narratives in material form. Examples drawn from multiple cultures as well as traditions in students’ own lives. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.
Schedule Type: Lecture

ENGH 416: Ethnicity and Migration in Folklore. 3 credits.
Explores U.S. immigration trends and the historical basis for the concepts of ethnicity, identity, and immigration in folklore scholarship, literature, film, and popular media. The course explores at least three of the following ethnic groups: Latino, Asian, Jewish, European, Arab, or African. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Independent Study

ENGH 417: RS: Topics in Folklore Research. 3 credits.
Topic-based course in research methods. Students conduct advanced research in folklore studies using traditional and digital research tools and approaches. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

Mason Core: Capstone (p. 135)

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: ENGH 305 (3 credit) and 85 credit hours earned.

Schedule Type: Lecture

ENGH 418: Cultural Constructions of Sexualities. 3 credits.
Introductory survey of cultural, literary, and theoretical constructions of sexuality that seek to complicate traditionally fixed categories of identity. Examines various representations of human sexuality, with particular attention to intersections with gender, race, ethnicity, nationality, and class. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 419: Topics in Popular Literature. 3 credits.
Studies specific topic or theme in popular literature. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 421: Topics in Medieval and Renaissance Literature. 3 credits.
Studies selected topics, genres, themes or authors in medieval or Renaissance literature and culture. Notes: May be taken for credit by English or history majors. Specific topic may vary. Primary emphasis is literary or historical, depending on discipline of instructor. May consider relevant material from philosophy, theology, and art. May be repeated when topic is different. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits. Equivalent to FRLN 431, HIST 431.

Specialized Designation: Scholarly Inquiry

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 422: Chaucer. 3 credits.
Major works of Chaucer, with emphasis on The Canterbury Tales . Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 424: Spenser. 3 credits.
Poetry of Edmund Spenser, with central emphasis on The Faerie Queene . Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 428: Milton. 3 credits.
Milton’s major poetic works, with emphasis on Paradise Lost . Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 431: Topics: British Literary Periods. 3 credits.
In-depth study of selected period of British literature. In addition to literary examples, materials may be chosen from art, philosophy, or popular culture of the time. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 432: Topics: British Authors. 3 credits.
Study of one or two major figures in British literature. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 441: Topics: American Authors. 3 credits.
Study of one or two major figures in American literature. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.
ENGH 442: Topics in American Literary Periods. 3 credits.
In-depth study of selected period of American literature. In addition to literary examples, materials may be chosen from art, philosophy, or popular culture of time. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 451: Science Fiction. 3 credits.
Major works of science fiction in terms of mode, themes, and narrative techniques, especially role of hypothesis in science fiction. Focuses on novels, short stories from early 19th century to present. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 452: Critical Study of Children's Literature. 3 credits.
Examines the history and criticism of children's literature and the strategies used by authors of children's literature to address their audience. Selected readings range from Puritan to contemporary writing for children, as well as influential works in educational philosophy, such as those by Locke and Rousseau. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 453: Topics in Fiction. 3 credits.
Study of selected topics, periods, or authors. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 454: Topics in Poetry. 3 credits.
Study of selected topics, periods, or poets. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 455: Topics in Drama. 3 credits.
Studies selected topics, periods, or playwrights. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 456: Topics in Literary Nonfiction. 3 credits.
Special studies in literary nonfiction by topic, such as the personal essay, New Journalism, the "nonfiction novel," the memoir, or historical traditions of literary nonfiction. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Satisfaction of University requirements in 100-level English and in Mason Core literature.

Schedule Type: Lecture

ENGH 458: RS: Topics in Literary Research. 3 credits.
Topic-based course in research methods. Students conduct advanced research in literary studies using traditional and digital research tools and approaches. Notes: May be repeated when the topic is different. Offered by English (p. 350). May be repeated within the degree.

Mason Core: Capstone (p. 135)

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: ENGH 305 (3 credit) and 85 credit hours earned.

Schedule Type: Lecture

ENGH 459: Internship. 1-3 credits.
Under supervision of a faculty director, students report and reflect on their work as interns at organizations of their choosing, usually in writing and/or editing positions. For 3 credits, students work on site at least 135 hours as specified in the agreement developed with the internship supervisor and approved by the faculty director. Notes: Contact the English Department one semester prior to enrollment. No more than 3 credits can be counted in concentration or English minor. May be repeated with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Permission of internship director. 60 credits. English majors need 18 credits of English (3 credits of 100-level English course; 3-6 credits of 200-level English courses; 3 credits of ENGL302/ENGH 302 and 6-9 credits of upper-level English courses). Non-English majors must meet the same requirements, except that they replace one upper-level English course with an upper-level course in their major.

Schedule Type: Internship

ENGH 470: RS: Topics in Film/Media History. 3 credits.
Advanced studies of development of film language, both as cultural practice and medium for formal innovation. Topics might include studies of national cinemas, historical periods, genres, or individual directors. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

Mason Core: Capstone (p. 135)

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: ENGL 332/ENGH 372 or permission of instructor.

Schedule Type: Lecture

ENGH 472: Topics in Film/Media Theory. 3 credits.
Advanced studies of theories about various aspects of production, distribution, and reception of film-mediated experiences. Topics may
include theories of spectator, semiotics, feminist film theory, theories of narrativity, structuralist film theory, or deconstruction. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum of 6 credits.

**Recommended Prerequisite:** ENGL 332/ENGH 372 or permission of instructor.

**Schedule Type:** Lecture

**ENGH 474:** Topics in Film/Media Studies. 3 credits. American and foreign films selected by type, period, or director with emphasis varying from year to year. Required viewings, student discussion, and written critiques. Notes: May be repeated for a maximum of 6 credits with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum of 6 credits.

**Recommended Prerequisite:** ENGL 332/ENGH 372 or permission of instructor.

**Schedule Type:** Lecture

**ENGH 483:** Technical Editing. 3 credits. Instruction in revising, editing, and preparing specialized writing for print production. Emphasizes methods of achieving clarity, accuracy, and completeness. Lecture and discussion on editing and printing techniques; practical exercise in revision, layout, and production. Offered by English (p. 350). May not be repeated for credit.

**Schedule Type:** Seminar

**ENGH 484:** RS: Writing Ethnography. 3 credits. Study and practice of ethnographic writing. Students conduct ethnographic investigations and practice journal keeping, field note recording, interviewing, transcription, and interpretation. Includes introduction to current issues in ethnographic writing. Offered by English (p. 350). May not be repeated for credit. Equivalent to ENGH 384.

**Mason Core:** Capstone (p. 135)

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** ENGH 302.

**Schedule Type:** Lecture

**ENGH 485:** Document Design. 3 credits. Theory and practice of using computer programs to design and produce publications including brochures, fliers, newsletters, and small magazines. Includes readings, writing papers, and producing and editing copies and original publications. Offered by English (p. 350). May not be repeated for credit.

**Schedule Type:** Seminar

**ENGH 486:** RS: Writing Nonfiction for Publication. 3 credits. Workshop course. Intensive practice in advanced nonfiction writing; emphasizes writing for publication. Occasional special topics sections in such forms as autobiography and scientific writing. Offered by English (p. 350). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** ENGL 309/ENGH 382 or ENGL 399/ENGH 399 or permission of instructor.

**Schedule Type:** Lecture

**ENGH 488:** Topics in Writing and Rhetoric. 3 credits. Advanced studies in rhetoric and writing. Introduces key rhetorical terminology and examines how texts construct meaning and how those meanings are determined within social contexts. Topics may include the relationship between rhetorics and poetics, rhetoric and new media, histories of rhetoric, global rhetorics, argument theory, discourse analysis, theories of technical communication, or advanced theories of composition and pedagogy. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum of 6 credits.

**Recommended Prerequisite:** Satisfaction of University requirements in 100-level English and in Mason Core literature.

**Schedule Type:** Lecture

**ENGH 489:** Proposal Writing and Development. 3 credits. Provides foundation in the skills and knowledge required to effectively create proposals for various types of organizations. Emphasizes best practices in management, presentation, and research skills necessary to find funding, manage proposal efforts, and build relationships with funders. Reviews editing, concision, and technical writing skills required for proposal writers. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** ENGH 302.

**Schedule Type:** Seminar

**ENGH 492:** Advanced Fiction Writing Workshop. 3 credits. Workshop; intensive practice in creative writing and study of creative process. Intended for students already writing original creative work. Notes: Enrollment is controlled. Submit 8-10 pages of fiction to instructor for review. May be repeated with permission of instructor. Offered by English (p. 350). May be repeated within the degree for a maximum of 6 credits.

**Recommended Prerequisite:** ENGH 396, ENGH 399.

**Schedule Type:** Lecture

**ENGH 493:** Advanced Workshop in Nonfiction. 3 credits. Workshop in varieties of nonfiction, along with creative process and techniques such as research and interview methods. Includes reading and writing of essays, biographies, autobiographies, travel, journalism, etc. Notes: Registration is controlled. Submit 8-10 pages of nonfiction to instructor for review. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** ENGH 396, ENGH 399.

**Schedule Type:** Lecture

**ENGH 494:** Advanced Poetry Writing Workshop. 3 credits. Intensive practice in the craft of poetry and study of the imagination in creative process. Intended for students already writing original poetry. Notes: Enrollment is controlled. Submit 8-10 pages of poetry to instructor for review. May be repeated with permission of instructor. Offered by
**500 Level Courses**

**ENGL 501: Introduction to Professional Writing and Rhetoric.** 3 credits. 
Provides historical and theoretical background in professional writing and editing in a seminar format. Explores professional writing's emergence as a field of scholarship and practice, emphasizes the relationships between rhetorical theories and practice, and introduces students to bibliographic research in the field. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Lecture

**ENGL 502: Research Methods in Rhetoric and Professional Writing.** 3 credits. 
Introduces theory, methods, and ethics of conducting research in rhetoric and professional writing. Students learn to conduct and evaluate research that may include rhetorical analysis, discourse analysis, historical methods, ethnography, user-centered design, document and usability testing, and others. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Lecture

**ENGL 503: Theory and Practice of Editing.** 3 credits. 
Instruction in revising, editing, and preparing specialized writing for printing. Emphasizes methods of achieving clarity, accuracy, and completeness. Lecture and discussion on editing and printing techniques; practical exercise in revision, layout, and production. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Seminar

**ENGL 504: Internship.** 1-6 credits.
Under supervision of a faculty director, students report and reflect on their work as interns at organizations of their choosing, usually in writing and/or editing positions. For 3 credits, students work on site at least 135 hours as specified in the agreement developed with the internship supervisor and approved by the faculty director. Notes: Contact the English Department one semester prior to enrollment. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Internship

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English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** ENGL 397/ENGH 397 and manuscript review.

**Schedule Type:** Lecture

**ENGL 495:** Capstone and Thesis. 3 credits. 
Presentations of original work for critique by peers and faculty. Students synthesize what they have learned during prior work in the program through workshops for final revisions of manuscripts for the BFA portfolio. Students submit the revised manuscripts as their final submission for evaluation by faculty. Students receive guidance in research methods as they investigate the lives of writers and learn the procedures for such tasks as submitting original work for publication and applying for jobs. Offered by English (p. 350). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Recommended Prerequisite:** ENGL 396; ENGL 391, 392, or 393; ENGL 397, 398, and 399.

**Schedule Type:** Lecture

**ENGL 497:** Topics in Creative Writing. 3 credits. 
Intensive practice in creative writing and study of creative process. Workshop course. Concentrates on specialized literary type other than short story or poetry such as playwriting, screenwriting, children's literature, travel literature, autobiography, gothic novel, or translation. Notes: For students already writing original creative work. Students must submit typed manuscript at least one week before registration. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** ENGL 396/ENGH 396 or equivalent and manuscript review. Enrollment is controlled. Contact instructor for manuscript guidelines.

**Schedule Type:** Lecture

**ENGL 499:** Independent Study. 1-6 credits. 
Intensive study of particular author, genre, period, or critical or theoretical problem in literature or linguistics, to be conducted by student in close consultation with instructor. Student produces at least one substantial piece of written work during semester on research findings. Notes: May be repeated with approval of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

**Schedule Type:** Independent Study

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ENGH 505: Document Design. 3 credits.
Theory and practice of using computer programs to design and produce publications including brochures, fliers, newsletters, and small magazines. Includes readings, writing papers, and producing and editing copies and original publications. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 506: Research for Narrative Writing. 3 credits.
Combines study of basic research tools with field work and writing workshop experience. Helps students develop techniques and skills necessary for writing a research-dependent project of sufficient complexity to be of book or long essay length. Emphasis on finding story behind facts, using material from numerous sources. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

ENGH 507: Web Authoring and Design. 3 credits.
Provides a rhetorical foundation for web authoring and design in professional settings. Teaches basic principles of writing for the web, information architecture, coding for accessibility, and usability testing. Production-oriented component provides instruction in writing valid code and practice with web- and graphic-editing software tools. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

ENGH 508: Digital Rhetoric. 3 credits.
Provides an examination of major works on digital rhetoric and digital media framed by contemporary rhetorical theories that inform the emergent field of digital rhetoric. Course work includes projects that engage in the design, analysis, and assessment of digital media. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 509: Proposal Writing and Development. 3 credits.
Provides foundation in the skills and knowledge required to effectively create proposals for various types of organizations. Emphasizes best practices in management, presentation, and research skills necessary to find funding, manage proposal efforts, and build relationships with funders. Reviews editing, concision, and technical writing skills required for proposal writers. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

ENGH 511: Graduate Literature Survey. 3 credits.
Advanced survey of selected genres, periods, areas, styles, and theoretical issues in literature. Notes: Baccalaureate degree highly recommended. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 15 credits of advanced undergraduate work and approval of the department. Baccalaureate degree highly recommended.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 513: Topics in Literary and Cultural Studies. 3 credits.
Intensive study of topics involving literary or other texts such as film, television, opera, and folklore. Notes: May be repeated with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 15 credits of advanced undergraduate English courses and permission of department; or baccalaureate degree.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
ENGH 514: *Theories of Comparative Literature.* 3 credits.
Intensive study of major theories of comparative literature with special emphasis on development and redefinition of comparative outlook, from Great Books and Western Canon to transnationalism, multiculturalism, and intercultural studies. Offered by English (p. 350). May not be repeated for credit. Equivalent to CL 514.

**Recommended Prerequisite:** CL 300 and senior standing, or B.A. degree, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 526: *Special Topics in the History and Criticism of Children's Literature.* 3 credits.
Focuses on the history and criticism of children’s literature by concentrating on selected historical periods and literary modes such as “Golden Age” children’s literature, contemporary fantastic and children’s literature, or Romantic and Victorian children’s literature. Notes: May be repeated with permission of instructor. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 530: *Graduate Survey in African American Literature.* 3 credits.
Advanced survey of a period in African-American literature with focus to be determined by instructor. Considers different genres including autobiography, fiction, drama, poetry, essays, and oral artifacts such as slave songs, spirituals, and hip-hop. Notes: Topics vary. May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 551: *Introduction to Literary Theory.* 3 credits.
Introduction to selected critical theories pertinent to textual analysis. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:**
ENGL 332/ENGH 372 may not take this course for credit. Offered by English (p. 350). May not be repeated for credit.

**Registeration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 555: *Introduction to Cinema Studies.* 3 credits.
Advanced introduction to film study, including overview of approaches to study of cinema, methods of close analysis, basic concepts of film form and style, and contemporary theories of film. Notes: Students who have taken ENGL 332/ENGH 372 may not take this course for credit. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Students who have taken ENGL 332/ENGH 372 may not take this course for credit.

**Registeration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

ENGH 564: *Form of Poetry.* 3 credits.
Intensive study of and practice in various forms of poetry. Intended for students already writing original poetry. Covers rhyme, meter, rhythm, lineation, stanza pattern, traditional and experimental forms, free verse and open-form composition, lyric, narrative, and dramatic modes. Notes: Other interested students should contact the English Department at (703) 993-1180. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MFA concentration in poetry; ENGL 464/ENGH 494 or equivalent, or permission of instructor.

**Registeration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
English Department at (703) 993-2763. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MFA concentration in nonfiction; ENGL 489/ENGH 486 or equivalent, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 566:** *Forms of Fiction.* 3 credits.
Students seeking permission must submit typed manuscript of original fiction. Intensive practice in formal elements of fiction through analyzing models and weekly or biweekly writing assignments. Intended for students already writing original fiction. Covers description, narration, plot, dialogue, voice, point of view, style, epiphany, and antifiction techniques. Notes: Other interested graduate students should contact the English Department at (703) 993-1180. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** ENGL 458/ENGH 492 or equivalent or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 570:** *Graduate Survey in Film and Media Studies.* 3 credits.
Advanced survey of topics in film and media including theories of production and the circulation of meanings in visual culture. Notes: May be repeated with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** ENGL 458/ENGH 492 or equivalent or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 590:** *Topics in Folk Narrative.* 3 credits.
Explores types of folk narratives such as mythology, folktale, fairy tale, legend, family narrative, personal narrative. Focuses on tales from around the world. Considers aspects of storytelling such as storytelling as performance, storytelling as therapeutic modality, and storytelling during crises and conflicts. Notes: May be repeated when topic is different.

Offered by English (p. 350). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 591:** *Topics in Folklore Studies.* 3 credits.
Explores folklore and folklife topics such as folk narrative and storytelling, folklore and literature, folksong, and folk arts. Notes: May be repeated with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 592:** *Historical Studies of the English Language.* 3 credits.
Either a chronological survey of development of English from Old and Middle English to Modern English and American English; or intensive study of grammar and syntax of Old English as literary language in representative texts of period. Notes: May be repeated for credit with permission of department. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**ENGH 604:** *Internship in Folklore.* 1-6 credits.
Unpaid, approved work-study positions at specific sites arranged by interested students and their advisor. Under supervision of faculty advisor, student works as intern with site supervisor in agency of student’s choosing, given advisor’s permission. Notes: For 3 credits, students work 120 hours on site and write 3,500 words, or equivalent, given contract with advisor. Contact English Department one semester prior to enrollment. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** A course in folklore, which may be taken concurrently.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

ENGH 608: Craft Seminars. 3 credits.
Non-MFA students seeking permission must submit manuscript of original written work in appropriate genre. Various sections offer work in fiction, poetry, and nonfiction, each focusing in different ways on the practices and the craft development of writers. Numerous writing assignments mixed with reading followed by careful analytical and craft discussions. Notes: Assignments vary with genre and specific topic. May be taken concurrently with ENGH 564, 565, 566. Offered by English (p. 350). May be repeated within the term for a maximum 15 credits.

Recommended Prerequisite: Admission to MFA program or ENGL 464/ENGH 494, ENGL 458/ENGH 492, ENGL 489/ENGH 486, or permission of instructor. Non-MFA students must submit manuscript for review prior to registration.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ENGH 609: Online Writing. 3 credits.
Offers a craft seminar in writing for social media and online platforms. Students develop an online identity and presence, and compose work for public dissemination. Numerous writing assignments mixed with reading followed by careful analytical and craft discussions. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ENGH 610: Proseminar in Teaching the Reading of Literature. 3 credits.
Methods of teaching literature. Includes study of methods of literary analysis, and ways of developing student responses to literature, with some classroom practice. Notes: Does not satisfy Virginia certification requirement in diagnostic or developmental reading. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ENGH 611: Studies in Rhetoric. 3 credits.
Reading and discussion of several major texts that address patterns of discourse, communication, and other issues of rhetoric. Notes: Content varies. Recent offerings include 20th century rhetoric, collaborative writing, and computers and rhetoric. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ENGH 612: Cultures of Professional Writing. 3 credits.
Students work as ethnographers, studying selected sites where people write professionally, and analyzing ways production and reception of writing contribute to and result from local culture of each site. Lecture and workshop format. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ENGH 613: Technical Communication. 3 credits.
Intensive study of theory and practice of technical and scientific writing, with emphasis on writing for variety of audiences. Focuses on writing and evaluating formal reports, articles for lay and technical audiences, proposals, theses, manuals, and other forms of technical prose. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ENGH 614: Internship in the Teaching of Writing. 1-3 credits.
Internships provide experience working in a teaching program such as school or writing center. Under direction of faculty member, students must secure cooperation of on-site supervisor. Notes: Students work minimum 3 hours per week per credit to be awarded, keep a weekly
reflective and analytical log, and communicate regularly with faculty director. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**ENGH 615:** Proseminar in Composition Instruction. 3 credits.
Methods of teaching expository writing. Includes consideration of planning courses, practice in teaching and grading papers, and study of recent developments in teaching writing. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**ENGH 616:** Nonfiction Writing Workshop. 1-6 credits.
Intensive practice in craft of nonfiction and study of creative process. Intended for students already familiar with traditional and contemporary nonfiction, and already writing original nonfiction. Notes: At discretion of instructor, reading may be required. May be repeated for credit with permission of department. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** ENGL 565/ENGH 565 which may be taken concurrently, and permission of instructor, except for MFA students in the concentration.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 617:** Poetry Writing Workshop. 1-6 credits.
Intensive practice in craft of poetry and study of creative process. Intended for students already familiar with traditional and contemporary poetic modes and already writing original poetry. Notes: At discretion of instructor, reading may be required. May be repeated for credit with permission of department. Registration is open only to students in the MFA program. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** ENGL 564/ENGH 564, which may be taken concurrently.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 618:** Fiction Writing Workshop. 1-6 credits.
Intensive practice in craft of fiction and study of creative process. Intended for students already familiar with traditional and contemporary fiction and already writing original fiction. Notes: At discretion of instructor, reading may be required. May be repeated for credit with permission of department. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** ENGL 566/ENGH 566, which may be taken concurrently or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 619:** Special Topics in Writing. 3 credits.
Workshop course. Intensive practice in creative writing and study of creative process. Concentrates on specialized literary type other than short story, such as essay, playwriting, film writing, children's literature, travel literature, autobiography, gothic novel, and translation. Notes: Intended for students already writing original creative work. Other interested graduate students should contact the English department at (703) 993-1180. May be repeated for credit with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 30 credits.

**Recommended Prerequisite:** Intended for students already writing original creative work.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ENGH 620:** Topics in Pedagogy. 3 credits.
Offers advanced study of teaching practices in literature, composition, creative writing, linguistics, folklore, or film and media studies. Notes:
May be repeated for credit when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**ENGH 642:** Seminar in British Literature. 3 credits.
Intensive study of a selected period, movement, or genre in British or world Anglophone literature. Offered by English (p. 350). May be repeated within the degree for a maximum 24 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 644:** Seminar in American Literature. 3 credits.
Intensive study of a selected period, movement, or genre in American literature. Offered by English (p. 350). May be repeated within the degree for a maximum 24 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 646:** Seminar in Advanced Research. 3 credits.
Intensive study using research methods associated with specific topics, archives, or databases. Notes: Topics vary. May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**ENGH 661:** Seminar in African-American Literature. 3 credits.
Intensive study of a period in African-American literature between 1800 and present with focus to be determined by instructor. Considers different genres including autobiography, fiction, drama, poetry, essays, and oral artifacts such as slave songs, spirituals, and hip-hop. Notes: May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**ENGH 662:** Seminar in Literary Studies. 3 credits.
Intensive study of selected genres, periods, areas, styles, and theoretical issues in literature. Notes: Topics vary. May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 665:** Seminar in Global Culture. 3 credits.
Examines various cultural texts such as literature, drama, film, and folklore in terms of transnational circulation or production and reception in locations around the world other than Britain and United States. Engages with issues arising from globalization of English and interplay of global cultures. Notes: Texts studied in English or English translation. May be repeated with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**ENGH 670:** Seminar in Film and Media Studies. 3 credits.
Advanced seminar in topics in visual representation including film, television, and video, and in theories of production and circulation of meanings in visual culture. Notes: May be repeated with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ENGH 675: Feminist Theory and Criticism. 3 credits.
Presents historically based introduction to major debates within feminist theory and criticism. Stressing gender in literature and its interpretation, explores diverse collection of feminist interpretive practices. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ENGH 676: Introduction to Cultural Studies. 3 credits.
Advanced introduction to theoretical practice known as cultural studies, with attention to role in textual studies. Part of interdisciplinary cultural studies PhD and MA in English programs. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ENGH 681: Advanced Topics in Folklore Studies. 3 credits.
Explores advanced folklore and folklife topics such as bodylore, sense of place, festival, folk drama, and folk narrative studies. Notes: May be repeated when topic is different. Offered by English (p. 350). May be repeated within the degree for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ENGH 684: Proseminar in Poetry. 3 credits.
For students working on independent reading and research in poetry. Designed for students preparing to take the MFA reading exam in poetry but open to others with comparable reading projects in poetry. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ENGH 685: Selected Topics, Movements, or Genres of Literature in English. 3 credits.
Content varies. Notes: May be repeated with permission of department. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ENGH 689: Advanced Proposal Writing. 3 credits.
Introduces the federal contract and grants proposal process and provides an overview of the federal acquisition process, the capture and proposal management processes, and best practices for writing winning proposals in the federal arena. Students work individually and in teams to write and manage proposals. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ENGH 509.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ENGH 690: Special Topics in Writing and Rhetoric. 3 credits.
Includes readings and discussion in a wide range of topics related to writing and rhetoric. May focus on a specific theory, method or practice in writing and rhetoric. Notes: May be repeated for credit when topic varies. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

ENGH 695: Northern Virginia Writing Project Inservice Program. 1-3 credits.
Offered at request of school division or other education agency to assist teachers in improving student writing and use of writing to learn. Notes: Content varies. May be repeated for credit with permission of
department. Offered by English (p. 350). May be repeated within the term. Equivalent to EDUC 695.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 696:** Northern Virginia Writing Project Teacher/Research Seminar. 3 credits.
Acquaints classroom teachers with current research on composing as well as methods of studying writing in school settings. Participants collect data and write up results of their research. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** ENGL 615/ENGH 615, ENGL 695/ENGH 695 the Northern Virginia Writing Project Summer Institute, or other course in the teaching of writing.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**ENGH 697:** Composition Theory. 3 credits.
Acquaints classroom teachers with theory relating to writing and teaching composition. Focuses on explaining theories of participants, reading works of leading theorists, and developing statement describing implications of theoretical consistency in teaching writing. Offered by English (p. 350). May not be repeated for credit. Equivalent to EDUC 697.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 699:** Workshop in English. 1-3 credits.
Concentrated workshops, educational tours, independent studies, and special seminars dealing with selected topics in writing, linguistics, film, electronic media, and literature written in English. Notes: All tours are optional, and may be replaced by specified work conducted on campus. May be repeated for a maximum of 12 credits with permission of department, but no more than 6 credits of ENGH 699 may be applied to master’s degree in English. No more than 3 credits of 699 may be applied to literature requirement for MFA degree. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** Admission to MFA program or permission of department. Other interested graduate students should contact the English Department at (703) 993-1180.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 700 Level Courses**

**ENGH 701:** Research in English Studies. 3 credits.
Introduces research in English studies, including practice in library methods, writing critical bibliography, evaluating issues and problems, and surveying scholarly activities in department. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 702:** Research Methods in Rhetoric and Writing. 3 credits.
Explores a variety of text-based and empirical approaches and methods for addressing questions and problems related to public rhetoric and writing programs. Seminar participants work through a complete research design and pilot study. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 705:** Literary Theory and Criticism. 3 credits.
Major theories of literature and methods of analyzing and evaluating literary works. Notes: Topics vary. May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 720:** Histories of Institutional Rhetorics. 3 credits.
Examines the development of rhetorics within their historical and institutional contexts. Investigates rhetoric and rhetoricians across the development of oral rhetorics and the shift to written genres, the rise of scientific discourses, and the establishment of educational and bureaucratic organizations. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ENGH 722: Composition Pedagogies and Programs in Context.** 3 credits.
Examines scholarship on pedagogy, curriculum design and assessment, faculty development, and program management related to the practice of teaching or training writers in an institutional setting: two- and four-year colleges, K-12 schools, and workplace training seminars. Students will complete independent projects analyzing a current or potential writing program. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**ENGH 724:** 

**Schedule Type:** Lecture

**ENGH 724: Professional Writing Theory and Research.** 3 credits.
Examines current research in the field and the theories that inform it. Special emphasis is placed on workplace contexts and users in technological contexts. Course may include theories and methods such as activity theory, actor-network theory, complexity theory, cross-cultural rhetoric, digital rhetoric, discourse analysis, ethnography, genre theory, usability, and systems theory. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**ENGH 726:** 

**Schedule Type:** Lecture

**ENGH 726: Rhetorical Theory and Public Spaces.** 3 credits.
Covers the major theories of public rhetoric and the public sphere; explores how rhetoric influences public perceptions; examines publics as a site of interpretive mediation. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**ENGH 740:** 

**Schedule Type:** Lecture

**ENGH 740: Seminar in English/Cultural Studies.** 3 credits.
Analyzes historical shifts in literary and cultural discourse or of relationships between literary and nonliterary elements of culture within specific historical moment. Notes: Major research paper required. Topics vary. May be repeated when topic is different with permission of department. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 9 credits of graduate English credits, ENGL 701/ENGH 701, or permission of department.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**ENGH 750:** 

**Schedule Type:** Lecture

**ENGH 750: Advanced Workshop in Poetry Writing.** 3 credits.
Intensive practice in craft of poetry for experienced writers. Notes: May be repeated for credit with permission of department. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** Admission to MFA concentration in poetry, ENGL 564/ENGH 564, and ENGL 617/ENGH 617.

**Registration Restrictions:**
Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**ENGH 751:** 

**Schedule Type:** Lecture

**ENGH 751: Advanced Workshop in Fiction Writing.** 1-6 credits.
Intensive practice in craft of fiction for experienced writers. Notes: May be repeated for credit with permission of department. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** ENGL 566/ENGH 566, and ENGL 618/ENGH 618.

**Registration Restrictions:**
Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**ENGH 752:** 

**Schedule Type:** Lecture

**ENGH 752: Advanced Workshop in Nonfiction Writing.** 1-6 credits.
Intensive practice in craft of nonfiction for experienced writers. Notes: May be repeated for credit with permission of department. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** ENGL 565/ENGH 565 and ENGL 616/ENGH 616.

**Registration Restrictions:**
Enrollment is limited to students with a major in Creative Writing.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**ENGH 790:** 

**Schedule Type:** Seminar

**ENGH 790: Projects in Literary Studies.** 3 credits.
Students complete a capstone project guided by instructor and a faculty consultant based on work produced in a previous graduate course. Class meetings focus on building skills in research, revision, and editing, discussing topics related to professionalization both in and out of academia, and revising work in a workshop environment. Students will produce a professional-quality article or similar final project. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** 21 credits in MA coursework including ENGH 701, permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**ENGH 797:** Projects in Professional Writing and Rhetoric. 3 credits. Students complete a capstone project guided by instructor and a faculty consultant. Reflecting on theories and methods learned in previous course work and applying them to a concrete rhetorical situation, students produce a professional-quality project for a primary audience located in the professional workplace or the discipline of rhetoric and professional writing. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** 21 credits in MA coursework, including the core, theory, PWR and Writing requirements, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**ENGH 798:** Directed Reading and Research. 1-6 credits. Reading, research, and writing on specific project under direction of department member. Notes: Oral or written report required. For MA students: May be repeated for a maximum of 6 credits with permission of department. For MFA students: 12 credits may be applied to the MFA requirements but no more than 3 credits may count toward completing the literature requirement. Offered by English (p. 350). May be repeated within the degree.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

ENGH 797: Thesis. 1-6 credits. Students who take ENGH 798 to develop thesis topic and then elect thesis option receive 3 credits for ENGH 799 on completion of thesis. Students who do not take ENGH 798, or who take it to work on project unrelated to thesis, receive up to 6 credits for ENGH 799 on completion of thesis. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:**
Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Thesis

**ENGH 824:** Studies in Composition. 3 credits. Offers advanced study of theoretical, practical, or pedagogical topics related to composition. Notes: May be repeated for credit when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ENGH 826:** Studies in Public Rhetorics. 3 credits. Offers advanced study of theoretical, practical, or pedagogical topics related to public rhetorics. Notes: May be repeated for credit when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ENGH 822:** Studies in Professional Writing. 3 credits. Offers advanced study of theoretical, practical, or pedagogical topics related to professional writing and technical communication. Notes: May be repeated for credit when topic is different. Offered by English (p. 350). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**ENGH 821:** Writing Program Design and Administration. 3 credits. Examines the theory and practice of writing program leadership. Investigates the principles that inform faculty support, curriculum development, program assessment, institutional alignment, and leadership approaches with regard to administering writing instruction. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**ENGH 897:** Directed Research. 1-3 credits. Reading, research, and writing on a specific project under direction of faculty member. Offered by English (p. 350). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Completion of 36 credits in coursework in the writing and rhetoric PhD Program.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

**ENGH 898:** Qualifying Exams Seminar. 1-3 credits. Work on PhD qualifying exams. Offered by English (p. 350). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

**ENGH 899:** Doctoral Dissertation Proposal. 1-6 credits. Work on research proposal that forms the basis for the doctoral dissertation. Offered by English (p. 350). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Advancement to candidacy.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.
Schedule Type: Dissertation

ENGH 999: Doctoral Dissertation. 1-12 credits.
Doctoral dissertation research and writing under direction of student’s dissertation committee. Offered by English (p. 350). May be repeated within the degree for a maximum 21 credits.

Recommended Prerequisite: ENGH 898.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

English for Academic Purposes (EAP)

000 Level Courses

EAP 097: Verbal Preparation for the Graduate Record Examination. 0 credits.
Prepares students in the International Graduate Pathways requiring the general Graduate Record Examination test for progression to take the computer adaptive version of the exam where the emphasis is placed primarily on the verbal section. This course primarily emphasizes the verbal portion of the exam along with text language and testing strategies; identifying common test-taking errors; and managing in test anxiety. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 0 credits. Equivalent to PROV 095, PROV 097.

Schedule Type: Seminar

EAP 098: Individualized Language Instruction. 0 credits.
Individualized language instruction for Pathway students. Focus on reading, writing, listening, and speaking skills. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 4 credits. Equivalent to PROV 098.

Schedule Type: Independent Study

EAP 099: Individualized Language Instruction. 0 credits.
Individualized language instruction for Pathway students. Focus on reading, writing, listening, and speaking skills. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 4 credits. Equivalent to PROV 099.

Schedule Type: Independent Study

100 Level Courses

EAP 100: Special Topics. 1 credit.
EAP 100 is to be used as an incubator for special topics courses under development in the Undergraduate Pathway program at INTO Mason. EAP 100 will be used for the various content-based English Language Support courses that are paired with major or content courses required by Undergraduate Pathways students. Language support courses such as EAP 100 run concurrently with credit-bearing undergraduate content course. Offered by INTO Mason (p. 123). May not be repeated for credit.

Schedule Type: Lecture

EAP 102: Language Support for American Cultures. 1 credit.
Academic language support course for Undergraduate Pathways students taking American Cultures. Designed to increase students’ ability to comprehend and respond to readings, discussions, and lectures related to American Cultures. Emphasizes the development of successful strategies for intrapersonal and small/large group communication activities, student familiarity with anthropological and sociological terminology and effective application of reading/annotating strategies. Also listed as PROV 102. Notes: Students must attain minimum grade of C to fulfill program requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: PROV 102.

Schedule Type: Lecture

EAP 103: Language Support for Public Speaking. 1 credit.
Academic language support course for Public Speaking. Focus on increasing students’ comprehension and use of key grammatical structures, vocabulary, word forms, and reading/annotating strategies in oral speech. Notes: Students must attain minimum grade of C to fulfill program requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits. Equivalent to PROV 103.

Recommended Corequisite: COMM 100.

Schedule Type: Seminar

EAP 104: Language Support World History. 1 credit.
Academic language support course for Introduction to World History. Focus on increasing students’ comprehension and use of key grammatical structures, vocabulary, word forms, and reading/annotating strategies in literacy/reading. Notes: Students must attain minimum grade of C to fulfill program requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits. Equivalent to PROV 104.

Recommended Corequisite: HIST 125.

Schedule Type: Seminar

EAP 107: The Grammar of Academic Writing. 3 credits.
This course is designed to improve students’ understanding of written language and to provide mechanisms that allow students to take advantage of this flexible but structured form of communication. Providing this knowledge and these tools will improve students’ abilities to identify and correct grammatical mistakes, write cohesive and coherent paragraphs, and condense essential information-necessary skills for effective academic writing. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum credits. Equivalent to PROV 107.

Schedule Type: Lecture

EAP 108: Language Support for Business in American Society. 1 credit.
Academic language support course for Undergraduate Pathways students taking Business in American Society. This course is designed to increase students’ ability to read and analyze qualitative and quantitative information, understand and use business terminology, and utilize oral English fluency and literacy practices/strategies in anticipation of group discussions, debates, and oral/written critiques of business-related current events. Also listed as PROV 108. Notes: Students must attain minimum grade of C to fulfill program requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: SOM 100.

Schedule Type: Seminar
EAP 109: College Reading Skills. 1 credit. 
Academic reading support for Undergraduate Pathways students in specific pathways. Designed to increase students’ ability to read, summarize, and analyze texts, including information graphics and visuals. Focuses on student comprehension and utilization of discipline-specific genres/terminology and effective literacy practices/strategies in anticipation of group discussions, reading research, and responding to writing assignments. Also listed as PROV 109. Notes: Students must attain minimum grade of C to fulfill requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Schedule Type: Seminar

EAP 111: Language Support for Introduction to Information Technology. 1 credit.
Academic language support for Undergraduate Pathways students taking Information Technology. Designed to increase students’ IT literacy, including familiarity and accurate usage of terms related to digital devices, computer hardware, software, telecommunications, networking and multimedia. Supports students’ oral and written academic English skills in anticipation of class lectures, textbook readings, individual assignments, and online discussion boards. Also listed as PROV 111. Notes: Students must attain minimum grade of C to fulfill program requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: IT 101.

Schedule Type: Seminar

EAP 112: Language Support for Introduction to Computer Programming. 1 credit.
Academic language support for Undergraduate Pathways students taking Computer Programming. This course is designed to increase students’ ability to respond accurately to computer programming problems in English, understand and use programming terminology, and utilize oral English fluency and literacy practices/strategies in anticipation of class lectures, lab work, individual assignments, and online discussion boards. Also listed as PROV 112. Notes: Students must attain minimum grade of C to fulfill program requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: CS 112.

Schedule Type: Seminar

EAP 113: Language Support for University Physics. 1 credit.
Academic language support course for Undergraduate Pathways students taking program University Physics I. This course is designed to increase students’ ability to respond accurately to physical problems in English, understand and use mathematical and physics terminology, and utilize oral English fluency and literacy practices/strategies in anticipation of class lectures, lab/recitation work, and online discussion boards. Also listed as PROV 113. Notes: Students must attain minimum grade of C to fulfill requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: PHYS 160 and PHYS 161.

Schedule Type: Seminar

EAP 114: Language Support for General Chemistry I. 1 credit.
Academic language support for Undergraduate Pathways students taking General Chemistry I. This course is designed to increase students’ ability to read and comprehend qualitative and quantitative information, understand and use general science and chemistry-related terminology, set-up and solve numerical problems in English, and take notes from oral lectures and textbook chapters. Also listed as PROV 114. Notes: Students must attain minimum grade of C to fulfill requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: CHEM 211.

Schedule Type: Seminar

EAP 115: Language Support for Introductory Geology I. 1 credit.
Academic language support for Undergraduate Pathways students taking Introductory Geology I. This course is designed to increase students’ ability to read and comprehend qualitative and quantitative information in English, understand and use general science and geology-related terminology, take notes from oral lectures and textbook chapters, and participate in group discussions. Also listed as PROV 115. Notes: Students must attain minimum grade of C to fulfill program requirements. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: GEOL 101.

Schedule Type: Seminar

EAP 120: Linguistics Capstone. 0 credits.
Required to complete all standard undergraduate pathways. Provides students with opportunity to demonstrate mastery of English language skills in reading, writing, speaking, listening, grammar and/or vocabulary. Builds on work in language support classes. Includes language assessment, feedback on skills, and review of post-program support. Required during second semester of the Undergraduate Pathways program. Also listed as PROV 120. Notes: A passing grade of “S” confirms the student’s English language proficiency is sufficient for degree-seeking study. Offered by INTO Mason (p. 123). May be repeated within the degree for a maximum 0 credits.

Schedule Type: Seminar

500 Level Courses

EAP 503: Interpersonal Communication for International Students: Practicum and Theory. 2 credits.
The course requires that students use intensive practice in oral communication contexts typical at universities to build knowledge and skills for informal interpersonal communication settings with faculty, peers, and students, and skills needed for formal presentations, class discussion, and tutoring. Readings & assignments cover research on first impression management; informative and explanatory communication; conveying emotional support; listening, and narrative skill. Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to PROV 503.

Recommended Prerequisite: Completion of undergraduate degree at a university outside of the US.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EAP 504: Advanced English for Academic Purposes Reading and Writing.** 2 credits.
This 8-week course is designed for graduate international students who are studying abroad, emphasizing advanced skill development in graduate-level English for Academic Purposes for reading and writing within their disciplines. Utilizing a multimodal and interactive format, students will complete guided and independent research papers as well as read, discuss and write about excerpts from college texts and academic journals. Notes: In as much as possible, materials for the course will be discipline specific and individualized course goals will be determined by the needs of the students and their cultural experiences. Offered by INTO Mason (p. 123). May not be repeated for credit.

**Recommended Prerequisite:** EAP 506.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to English Language, Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EAP 505: Special Topics in Advanced English for Academic Purposes.** 2 credits.
This special topics course is tailored to international students who received their undergraduate degrees outside the United States. The course provides intensive practice and individualized feedback in advanced communication methods appropriate at the graduate level. Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to PROV 505.

**Recommended Prerequisite:** Completion of undergraduate degree at a university outside of the US.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**EAP 506: Graduate Communication in the Disciplines I.** 3-4 credits.
Students develop strategies for completing research-based writing and presentations in their field. Students will review rhetorical structures and organizational strategies common to US scholarly communications generally and in their particular field. Students will also practice strategies at sentence and discourse levels to increase the clarity, precision, and appropriateness of their communication skills. Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to PROV 506.

**Recommended Prerequisite:** Completion of undergraduate degree at a university outside of the US.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to English Language, Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EAP 507: Graduate Communication in the Disciplines II.** 3-4 credits.
The second course in a series that helps students develop strategies for completing research-based writing and presentations in their field. Students will review rhetorical structures and organizational strategies common to US scholarly communications generally and in their particular field. Students will also practice strategies at sentence and discourse levels to increase the clarity, precision, and appropriateness of their communication skills. Offered by INTO Mason (p. 123). May not be repeated for credit. Equivalent to PROV 507.

**Recommended Prerequisite:** EAP 506.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EAP 508: Graduate Communication in the Disciplines III.** 4 credits.
Students develop strategies for completing research-based writing and presentations in their field. Students will review rhetorical structures and organizational strategies common to US academic scholarly communications generally and in their particular field. Students will also review and practice strategies at the sentence and discourse levels to increase the clarity, precision and appropriateness of their oral and written communication skills. Group instruction will be supplemented by one-on-one conferencing as students complete a major graduate-level project. Notes: This course may not count towards academic degree requirements at the graduate level without permission from the academic dean/director. Offered by INTO Mason (p. 123). May not be repeated for credit.

**Recommended Prerequisite:** Completion of undergraduate degree at a university outside the United States.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
EAP 510: Linguistic Capstone. 0 credits. Course builds on work in language support classes throughout the program and enables students to demonstrate acceptable mastery of their academic English language skills in reading, writing, speaking, listening, grammar, and vocabulary. Students take proficiency assessment receive feedback on skills, and review post-program language support resources. Offered by INTO Mason (p. 123). May not be repeated for credit.

**Recommended Prerequisite:** Standard pathway students must have completed first semester of program, or at least 9 credits.

**Registration Restrictions:** Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

### Environmental Science and Policy (EVPP)

**100 Level Courses**

**EVPP 110:** The Ecosphere: An Introduction to Environmental Science I. 4 credits.

Studies components and interactions that make up natural systems of our home planet. Teaches basic concepts in biological, chemical, physical, and earth sciences in integrated format with lecture, laboratory, and field exercises. Notes: One of two semesters of environmental lab science that fulfills Mason Core science requirements for non science majors. Along with EVPP 111, can be taken in any order. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to MSU 107.

**Mason Core:** Natural Science with Lab, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Laboratory, Lecture

**EVPP 111:** The Ecosphere: An Introduction to Environmental Science II. 4 credits.

Studies components and interactions that make up natural systems of our home planet. Teaches basic concepts in biological, chemical, physical, and earth sciences in integrated format with lecture, laboratory, and field exercises. Notes: One of two semesters of environmental lab science that fulfills Mason Core science requirements for non science majors. Along with EVPP 110, can be taken in any order. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Mason Core:** Natural Science with Lab, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Laboratory, Lecture

### 200 Level Courses

**EVPP 201:** Environment and You: Issues for the Twenty-First Century. 3 credits.

Introduces broad aspects of human-environmental interactions in the contemporary world. Topics range broadly from global populations and wastewater treatment to environmental law, and genetic engineering. Includes both science and science policy of the environment. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Mason Core:** Natural Science Overview, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Lecture

**EVPP 210:** Environmental Biology: Molecules and Cells. 4 credits.

This course provides environmental science majors with the cellular foundation required for subsequent courses in the BS curriculum with a focus on how biological systems respond to environmental threats. The course emphasizes the connection between cellular processes and a healthy environment, and how this relationship is jeopardized by a variety of chemical and physical environmental perturbations. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Corequisite:** CHEM 211.

**Schedule Type:** Laboratory, Lecture

### 300 Level Courses

**EVPP 301:** Environmental Science: Biological Diversity and Ecosystems. 4 credits.

This course provides environmental science majors with the necessary background in biological diversity and ecological science required for subsequent courses in the BS curriculum. The course reviews the diversity of life on earth and the structure and functioning of ecosystems and populations. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**

**Required Prerequisite:** EVPP 210\(^C\).

\(^C\) Requires minimum grade of C.

**Schedule Type:** Laboratory, Lecture

**EVPP 302:** Environmental Science: Biomes and Human Dimensions. 4 credits.

This course provides environmental science majors with the necessary background in biomes and human dimensions required for subsequent courses in the BS curriculum. The course reviews the functioning of aquatic and terrestrial biomes and human interactions with and impacts on the environment. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor.

**Registration Restrictions:**

**Required Prerequisite:** EVPP 301\(^C\).

\(^C\) Requires minimum grade of C.

**Schedule Type:** Laboratory, Lecture
EVPP 305: *Environmental Microbiology Essentials*. 3 credits.
Provides understanding of microbes and their function as a vital part of an environmental education. The role of microbes is central to many environmental issues such as climate change, biodegradation of toxics, wastewater treatment and drinking water contamination. Course provides an introduction to the breadth of microbiology including essential information for students studying environmental problems and their solution. Notes: Laboratory section (EVPP 305) is a corequisite unless previously completed. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 460.

**Recommended Prerequisite:** EVPP 210 and 30 credit hours, or permission of instructor;

**Recommended Corequisite:** EVPP 306.

**Schedule Type:** Lecture

EVPP 306: *Environmental Microbiology Essentials Laboratory*. 1 credit.
Laboratory study of environmental microbiology. Course provides an introduction to the microbiological techniques for students studying environmental problems and their solution. Examples include microbiology of natural ecosystems (e.g., Potomac River), bacteria in fresh and estuarine waters and sediments, Indicator organisms (e.g., coliform bacteria), molecular identification of unknown bacteria from nature, and visualization of bacteria in their natural habitat. Notes: Lecture section (EVPP 305) is a corequisite. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** EVPP 210 and 30 credit hours, or permission of instructor.

**Recommended Corequisite:** EVPP 305.

**Schedule Type:** Laboratory

EVPP 309: *Introduction to Oceanography*. 3 credits.
Introduces physical, chemical, biological, and geological aspects of oceanic environment. Notes: May include field trip. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 309, GEOL 309.

**Recommended Prerequisite:** Two of the following lab sciences courses are required for a total of 8 credits: [GEOL 101 or 102], [EVPP 110 or 111 or 210], CHEM 211, [BIOL 103 or 213], [PHYS 160 and 161 or 243 and 244].

**Schedule Type:** Lecture

EVPP 318: *Conservation Biology*. 3 credits.
Introduces science used to identify species in need of conservation, and techniques to manage and protect organisms. Notes: Cannot be taken with Smithsonian Seminar (off campus classes). CONS 401, CONS 411. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 318.

**Recommended Prerequisite:** BIOL 308 or BIOL 310, or permission of instructor.

**Schedule Type:** Lecture

EVPP 322: *Business and Sustainability*. 3 credits.
Examines the types of approaches businesses can take to take to respond to sustainability concerns. Designed to prepare students for assisting organizations to incorporate sustainability considerations into their strategic decision-making. Notes: Students from multiple disciplines (business, social sciences, natural sciences, humanities, education, etc.) can participate in the class without having had previous courses in management. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 30 credit hours, recommend EVPP 361/GOVT 361 Introduction to Environmental Policy

**Schedule Type:** Lecture

Overview of current knowledge regarding human and environment interactions and human ecology. Topics include basic theoretical and conceptual issues, relationship between social and biological sciences, human causes and consequences of environmental change, and contemporary perspectives on environmental issues. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** One of either EVPP 110 or EVPP 111 or GEOL 101 or SOCI 101 or ANTH 114 or 60 credits.

**Schedule Type:** Lecture

EVPP 337: *Environmental Policy Making in Developing Countries*. 3 credits.
Overview of environmental policy process in developing countries around the world. Major focus on understanding distinctive problems and dynamics of environmental policy making in poor countries to generate better policy decisions and management. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course, Writing Intensive in the Major

**Recommended Prerequisite:** 60 credits.

**Schedule Type:** Lecture

EVPP 338: *Economics of Environmental Policy*. 3 credits.
Introduction to environmental, resource, and ecological economics for non-economist undergraduates. Covers basic theories of scarce resource allocation and examines conditions under which market allocations are efficient and sustainable. Includes graphical and verbal presentation of theory. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** ECON 100 or ECON 103 or ECON 105 or ECON 110, or permission from instructor.

**Schedule Type:** Lecture

EVPP 350: *Freshwater Ecosystems*. 4 credits.
Studies physical, chemical, and biological processes in lakes, streams, and wetlands. Teaches physical and chemical aspects of aquatic systems and life cycles, and adaptations of aquatic organisms. Lectures, field trips, lab exercises. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 350.

**Recommended Prerequisite:** Either CHEM 211 and CHEM 212 or CHEM 155 and CHEM 156, and either EVPP 110 or BIOL 308, or permission of instructor.
EVPP 355: Ecological Engineering and Ecosystem Restoration. 4 credits.
Provides definition, classification, and practice of ecological engineering and ecosystem restoration. Describes general system ecology, ecosystem restoration (e.g., wetland and river systems), and the use of natural processes to provide ecosystem services to society. Provides students with a systems-oriented perspective on designing and managing ecosystems. Students will study principles in designing field ecological studies, ecological models, ecological engineering, and explore practices in sustainable ecological design by carrying out a hands-on experimental design project with the field wetland mesocosm on the Mason campus. One field trip is required part of the course. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GEOL 363.

Recommended Prerequisite: BIOL/EVPP/GEOL 309 or GEOL 317; or 9 credits in geography, including GGS 309.

Schedule Type: Laboratory, Lecture

EVPP 361: Introduction to Environmental Policy. 3 credits.
Environmental politics and policymaking since the 1970s. Primary focus on United States, with some discussion of global issues. Examines policy strategies and outcomes, ethical and economic debates, political controversies, lawmaking and enforcement, and role of key players. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GOVT 361.

Recommended Prerequisite: 30 credits.

Schedule Type: Lecture

EVPP 362: Intermediate Environmental Policy. 3 credits.
Examines environmental issues building on learning objectives from EVPP 361. Focuses on environmental and policy issues in the US and internationally, exploring the politics of nature and the interaction of environmental science and politics and resulting controversy. Risk and uncertainty loom large in most environmental issues. "Natural" disasters as well as direct "man-made" problems will be covered. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: EVPP 361 or GOVT 361 or permission of instructor.

Schedule Type: Lecture

EVPP 363: Coastal Morphology and Processes. 4 credits.
Studies global coastal geomorphology and processes with emphasis on U.S. Atlantic and gulf coasts. Topics include plate tectonics; sea-level changes; sediment supply; impact of waves, tides, and storms; and human activities. Lectures and extended weekend field trips to mid-Atlantic coast. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GEOL 363.

Recommended Prerequisite: BIOL/EVPP/GEOL 309 or GEOL 317; or 9 credits in geography, including GGS 309.

Schedule Type: Laboratory, Lecture

EVPP 377: Applied Ecology. 3 credits.
Introduces ecosystem concepts and applications to natural and managed ecosystems. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 377.

Recommended Prerequisite: 60 credits including 8 credits of biology, geology, or chemistry, or permission of instructor.

Schedule Type: Lecture

EVPP 378: RS: Ecological Sustainability. 4 credits.
Introduces the concepts and applications of several important topics relating to ecological sustainability. Focuses on the role of soils in maintaining and managing environmental quality. Teaches students how to understand and interpret scientific data presented in various types of literature covering ecological sustainability. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 379.

Mason Core: Capstone (p. 135)

Recommended Prerequisite: EVPP 301 or BIOL 308 or BIOL 310, or permission of instructor.

Schedule Type: Laboratory, Lecture

EVPP 380: Wetlands of the World. 4 credits.
A study of the ecosystems of the world. Emphasizes different types of wetland ecosystems and their services, including water quality, coastal protection, flood mitigation, and wildlife protection. The course includes trips to local wetlands and to the Everglades National Park. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: EVPP 301 or BIOL 308 or BIOL 310, or permission of instructor.

Schedule Type: Laboratory, Lecture

EVPP 395: Undergraduate Research in Environmental Science and Policy. 1-3 credits.
Original research project. May involve field and lab study, computer modeling and analysis, or other original research as appropriate. Research formulated and completed under instructor's guidance. Notes: Culminates in final report. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 10 credits.

Recommended Prerequisite: 45 credits and at least two upper level science lab courses.

Schedule Type: Research

EVPP 396: Directed Topic in Environmental Science and Policy. 1-4 credits.
Study of topics not available in fixed-topics courses. May involve readings, lectures, lab assignments, and tutorials as jointly agreed on by student and instructor. Notes: Culminates in term paper, final exam, or both. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 8 credits.

Recommended Prerequisite: 45 credits.

Schedule Type: Independent Study
400 Level Courses

**EVPP 401: Integrated Environmental Assessment.** 3 credits. Presents strategic planning at the regional level, and focuses on the methods, format, and content of a Strategic Environmental Assessment (SEA), also referred to as a programmatic environmental impact statement (PEIS). Students will conduct research and develop their own SEA for Shenandoah National Park (NP). Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL/EVPP/GEOL 309 or BIOL/EVPP 449; and 60 credit hours.

**Recommended Prerequisite:** 60 credit hours completed.

**Schedule Type:** Lecture

**EVPP 408: Mushrooms, Molds and Society.** 3 credits. Provides a modern, comprehensive knowledge of fungal biology including classification, phylogeny, structure, physiology/metabolism, growth and development, genetics, industrial applications including biotechnology, ecological roles including pathogenic interactions with plants, animals, and man. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 408.

**Recommended Prerequisite:** EVPP 110 and 111 or EVPP 210 or BIOL 213.

**Schedule Type:** Lecture

**EVPP 409: Medical Mycology.** 3 credits. Provides the student with current knowledge of both the medical and microbiological aspects of fungal diseases in humans, including the etiologic agents, geographic distribution, epidemiology, transmission, determinants of pathogenicity, laboratory detection, and therapy associated with the major human mycoses. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 409.

**Recommended Prerequisite:** EVPP 110 and 111 or EVPP 210 or BIOL 213.

**Schedule Type:** Lecture

**EVPP 413: Histotechniques.** 3 credits. Introduces theory and methods for the preparation of tissue samples from animal or plant specimens for examination with light or electron microscopy. Offered by Environmental Sci & Pub Policy. May not be repeated for credit.

**Recommended Prerequisite:** EVPP 210 or permission of instructor.

**Schedule Type:** Lecture

**EVPP 419: Marine Mammal Biology and Conservation.** 3 credits. Covers the evolution, biology, ecology, and behavior of marine mammals from polar bears and sea otters to whales and dolphins. Marine mammal conservation and policy is also a major component of the course; several lecture sessions are devoted to the issue of whaling, threats to marine mammal populations, and recent conservation issues such as marine mammals and noise pollution. The course also includes a number of guest lectures from a variety of international marine mammal experts. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 454, EVPP 519.

**Recommended Prerequisite:** BIOL/EVPP/GEOL 309 or BIOL/EVPP 449; and 60 credit hours.

**Schedule Type:** Lecture

**EVPP 420: Marine Mammal Biology and Conservation Field Course.** 1 credit. This course provides laboratory, seminar sessions and field work to accompany EVPP 419-001 - marine mammal biology and conservation. Field work includes several day-long boat trips. The field course may take place in the US or abroad. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 455.

**Recommended Prerequisite:** EVPP 419 or BIOL 454, concurrent enrollment is permitted.

**Schedule Type:** Seminar

**EVPP 421: Marine Conservation.** 3 credits. Provides an overview of threats to the marine environment, and discusses the scientific, socioeconomic, and political issues behind marine conservation. Covers categories of marine pollutants (chemical, biological, and physical contaminants) and their impacts on the marine ecosystem, as well as impacts on humans (health, social, and economic), threats to key marine species (e.g., coral, sharks, turtles, and marine mammals) and initiatives and laws developed to reduce these threats. Scientific and socioeconomic problems that hinder sustainable fisheries management and the science and policy behind the global warming debate are also discussed. Provides an overview of marine environmental law and policy issues related to marine conservation policy. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 450, EVPP 521.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** BIOL/EVPP/GEOL 309.

**Schedule Type:** Lecture

**EVPP 427: Disease Ecology and Conservation.** 3 credits. Presents the trans-disciplinary discipline of conservation medicine, the study of relationships between organism and ecosystem health and environmental conditions. Topics include infectious and noninfectious diseases, pathogens, processes, and impacts on human, biotic, and ecosystem health, and how to address the consequences of diseases to populations and ecological communities. Notes: This course will co-meet with EVPP 527. Undergraduate students in this course will have separate (shorter) reading and writing assignments and will be graded according to a different rubric than the graduate students. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** 60 credits and BIOL 213 or BIOL/ EVPP 305/306 and BIOL 308.

**Schedule Type:** Lecture

**EVPP 429: Environmental Science Communication.** 3 credits. Communicating environmental science is inherently challenging whether in academia, the public policy realm, or to the general public. The aim of this course is to expose students to the multiple ways environmental science can be communicated. Such exposure will be made both through a theoretical approach by examining science communication literature, as well as through practical, hands-on activities and assignments. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Completion of 60 credit hours.

**Schedule Type:** Lecture
EVPP 430: Fundamentals of Environmental Geographic Information Systems. 3 credits.
Provides the basic knowledge to explore complex environmental data sets and relationships among biological, ecological, physical and anthropogenic variables using geographic information systems. Using spatial mapping and exploration tools students will be capable of independent analysis of complex environment. Notes: Previous knowledge of fundamentals of geography, coordinate systems and map projections is an asset. Knowledge of operating systems, text editor and spreadsheet is required. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: EVPP 110 and 111 or EVPP 210, and IT 103 or CDS 130, and 60 credits hours; or permission of instructor.

Schedule Type: Lecture

EVPP 432: Energy Policy. 3 credits.
Overview of economic, political, and technological aspects of energy policy development. Students will examine various energy sources in the context of national and global considerations regarding electricity generation, efficiency and conservation, energy economics, and climate change. Updated yearly. The course may include one field trip. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: 60 credits and EVPP 361/GOVT 361, or permission of instructor.

Schedule Type: Lecture

EVPP 436: The Human Dimensions of Global Climate Change. 3 credits.
Social science investigation of humans' role(s) in global climate change, including diversity of ecological, cultural and policy issues. Focuses on current science, causes and responses, human rights and social justice, vulnerability of marginalized populations, relevant issues associated with communication and behavior change, place of policy, and the multiple existing and potential roles of academic action. Discussion format. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: EVPP 336, CLIM 101 and 60 credits, or permission of instructor.

Schedule Type: Lecture

EVPP 440: Field Environmental Science. 4 credits.
Directed field studies emphasizing ecology and behavior. Topics vary but include design of field manipulations, data collection and analysis, and introduction to organisms of study site. Notes: Students bear cost of required field trips. May be repeated with permission of Environmental Science and Policy. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 9 credits. Equivalent to BIOL 440.

Recommended Prerequisite: BIOL 308 or 310 or permission of instructor.

Schedule Type: Independent Study

EVPP 442: Urban Ecosystems and Processes. 4 credits.
Provides an overview of the challenges and opportunities that urban environments present to the plants and animals inhabiting cities and the ways that those organisms and entire ecosystems respond. Includes ecosystem ecology for engineered ecosystems, along with reviews of urban metabolism, energy budgets, water cycles, and soil ecology. Students design and conduct a small-scale green infrastructure experiment/project on campus. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 442.

Recommended Corequisite: Prereqs: CHEM 211 and CHEM 213; MATH 113 or equivalent; BIOL 308 or EVPP 301; PHYS 243 or permission of instructor.

Schedule Type: Laboratory, Lecture

EVPP 445: Principles of Environmental Toxicology. 3 credits.
Explores basic principles of toxicology with an emphasis on the environment. Includes the history and scope of the field; absorption, distribution, metabolism and excretion of toxicants; mechanisms of toxic action; genetic toxicology; ecotoxicology as well as specific examples important toxicants. Introduces regulatory toxicology and human and ecological risk assessment. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: EVPP 210 or both EVPP 110 and 111; and CHEM 211 and CHEM 212; and 60 credit hours; or permission of instructor.

Schedule Type: Lecture

EVPP 449: Marine Ecology. 3 credits.
Plants and animals of marine environments and physical and chemical conditions that affect their existence. Notes: Will be cross-listed with BIOL 449. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 449.

Recommended Prerequisite: BIOL 308 and BIOL/EVPP/GEOL 309; or permission of instructor.

Schedule Type: Lecture

EVPP 451: Fungi and Ecosystems. 3 credits.
Considers impact of fungi on ecosystems in terms of effects on biogeochemical cycling, primary and secondary production, and regulating community structure and populations of individual species through activities as symbionts and parasites. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: BIOL 301 or BIOL 308 or course in microbiology; or permission of instructor.

Schedule Type: Lecture

EVPP 468: Vertebrate Natural History. 4 credits.
Introduces vertebrates with emphasis on systematics, evolution, life history, behavior, and ecology. Laboratory emphasis on identification, taxonomy, and natural history of local vertebrates. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 468.

Recommended Prerequisite: EVPP 301 and 302 or BIOL 308 and BIOL 310; or permission of instructor.

Schedule Type: Laboratory, Lecture

EVPP 475: Global Biodiversity Governance. 3 credits.
Study global biodiversity governance from a political/policy science perspective. Regime and governance literature, and empirical examples including intergovernmental policy, such as biodiversity-related climate change policy (REDD+), and certification standards, such as the Forest
Specialized Designation: Green Leaf Course

Recommended Prerequisite: One (environmental) social science course.

Schedule Type: Lecture

EVPP 480: Sustainability in Action. 4 credits.
Provide students with valuable and tangible experience in practical aspects of realizing sustainability goals and to transfer theory into practice. Allows students to engage in real-world, sustainability-related projects that provide benefits for a target community. Identify and attempt to solve a sustainability-related problem or address a sustainability-related need in a specific target community. Notes: Capstone course for the Sustainability Minor see Environmental Science and Policy department listing for details. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Mason Core: Encore:Sustainability, Synthesis (p. 135)

Specialized Designation: Green Leaf Course, Scholarly Inquiry

Recommended Prerequisite: Completed or concurrent enrollment in all other required Mason Core courses; completion of 60 credits

Schedule Type: Seminar

EVPP 490: Special Topics in Environmental Science and Policy. 4 credits.
Studies selected topics in environmental science and policy using lectures, guest lectures, student presentations, or laboratory exercises. Notes: Topics vary, but each offering has coherent syllabus. May be repeated for credit if topics are significantly different. Offered by Environmental Science & Policy (p. 660). May be repeated within the term for a maximum 8 credits.

Recommended Prerequisite: 60 credits and permission of instructor.

Schedule Type: Lecture

EVPP 494: Internship. 1-3 credits.
Involves off-campus, professional student work with approved agencies, institutions, non-profits, or businesses. Work must produce one or more academic products such as: comprehensive report, departmental presentation, poster, or article. At least one substantive piece of work will be assessed for each internship credit being undertaken. Scope of work, credits, and academic product(s) are determined in consultation with the internship instructor. Notes: Credit will be assigned based on the number of hours participating in the internship each week: 1 Credit = 4-6 hours/week, 2 Credits= 8-12 hours/week, 3 Credits= 12-18 hours/week. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 60 credits and permission of instructor.

Schedule Type: Internship

500 Level Courses

EVPP 503: Field Mapping Techniques. 3 credits.
Basic techniques for collecting, recording, and plotting spatial field data, including topographic maps, compass, transit, alidade, and global positioning systems. Field work and field-based research project. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GEOL 506, GEOL 553.

Recommended Prerequisite: MATH 105 or equivalent, EVSC 110, GGS 102, or GEOL 101 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

EVPP 505: Selected Topics in Environmental Science. 4 credits.
Topic depends on instructor’s specialty. Offered by Environmental Science & Policy (p. 660). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: A course in Geology or Ecology, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 506: Science of the Environment I. 3 credits.
Environmental science is explored in this 2-semester sequence providing the foundation in chemistry (I) and biology (II) required for graduate students with social sciences backgrounds seeking a degree and career in environmental science and policy. Notes: For graduate students entering the Environmental Science and Policy or other programs. Not available to students with undergraduate degrees in the natural sciences. This course is in addition to all other degree requirements. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 507: Science of the Environment II. 3 credits.
Environmental science is explored in this 2-semester sequence providing the foundation in chemistry (I) and biology (II) required for graduate students with social sciences backgrounds seeking a degree and career
in environmental science and policy. Notes: For graduate students entering the Environmental Science and Policy or other programs. Not available to students with undergraduate degrees in the natural sciences. This course is in addition to all other degree requirements. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** EVPP 506 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EVPP 515: *Molecular Environmental Biology I.* 3 credits.
Introduces molecular environmental biology covering basic concepts of molecular biology, molecular evolution, and bioinformatics, and application to problems in molecular and environmental biology. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Introductory biology and genetics or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EVPP 518: *Conservation Biology.* 3 credits.
Introduction to the science used to identify species in need of conservation, and techniques to manage and protect organisms. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Course in Ecology.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EVPP 519: *Marine Mammal Biology and Conservation.* 3 credits.
Covers the evolution, biology, ecology, and behavior of marine mammals from polar bears and sea otters to whales and dolphins. Marine mammal conservation and policy is also a major component of the course; several lecture sessions are devoted to the issue of whaling, threats to marine mammal populations, and recent conservation issues such as marine mammals and noise pollution. The course also includes a number of guest lectures from a variety of international marine mammal experts.

Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to EVPP 419.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EVPP 520: *Marine Mammal Biology and Conservation Field Course.* 1 credit.
This course provides laboratory, seminar sessions and field work to accompany EVPP 519-001 marine mammal biology and conservation. Field work includes several day-long boat trips. The field course may take place in the US or abroad, including in Scotland at the University (of London) Marine Biological Station, which is equipped with boats and laboratories. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Corequisite:** EVPP 519.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

EVPP 521: *Marine Conservation.* 3 credits.
Provides an overview of threats to the marine environment, and discusses the scientific, socioeconomic, and political issues behind marine conservation. Covers categories of marine pollutants (chemical, biological, and physical contaminants) and their impacts on the marine ecosystem, as well as impacts on humans (health, social, and economic), threats to key marine species (e.g., coral, sharks, turtles, and marine mammals) and initiatives and laws developed to reduce these threats. Scientific and socioeconomic problems that hinder sustainable fisheries management and the science and policy behind the global warming debate are also discussed. Provides an overview of marine environmental law and policy issues related to marine conservation policy. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to EVPP 421.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

EVPP 519-001: *Marine Mammal Biology and Conservation Field Course.* 1 credit.
This course is in addition to all other degree requirements. Offered by Environmental Science and Policy. Notes: For graduate students entering the Environmental Science and Policy or other programs. Not available to students with undergraduate degrees in the natural sciences. This course is in addition to all other degree requirements. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to EVPP 419.
EVPP 524: *Introduction to Environmental and Resource Economics.* 3 credits.

**Recommended Prerequisite:** Basic algebra skills.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 525: *Economics of Human/Environment Interactions.* 3 credits.
Advanced topics in environmental, natural resource, and ecological economics for noneconomist. Emphasizes sustainability, intergenerational equity, and economic-ecological feedbacks. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GGS 525.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** EVPP 524/GGS 524 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 527: *Disease Ecology and Conservation.* 3 credits.
Presents the trans-disciplinary discipline of conservation medicine, the study of relationships between organism and ecosystem health and environmental conditions. Topics include infectious and noninfectious diseases, pathogens, processes, and impacts on human, biotic, and ecosystem health, and how to address the consequences of diseases to populations and ecological communities. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Courses in microbiology, ecology, or conservation, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 529: *Environmental Science Communication.* 3 credits.
Communicating environmental science is inherently challenging whether in academia, the public policy realm, or to the general public. The aim of this course is to expose students to the multiple ways environmental science can be communicated. Such exposure will be made both through a theoretical approach by examining science communication literature, as well as through practical, hands-on activities and assignments. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** GGS 550 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 531: *Land-use Modeling Techniques and Applications.* 3 credits.
Surveys literature on spatially explicit empirical models of land-use change. Offers hands-on experience developing and running simple models. Includes statistical models, mathematical programming models, cellular automata, agent-based models, and integrated models. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GGS 531.

**Recommended Prerequisite:** GGS 550 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 532: *Animal Behavior.* 3 credits.
Ecological aspects of animal behavior. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 533: *Energy Policy.* 3 credits.
Discusses resource options in the context of 3E’s: energy security, environment, and economics. Examines how these considerations apply to 3 Ps developed by Jennifer Sklarow: priorities, politics, and process. Examines sustainability and environmental angles of resources, reasons for specific nations’ policy choices, and possibilities for future energy policies. Considers how energy policies can create cooperation and
conflict domestically and internationally. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Lecture

**EVPP 536:** *The Diversity of Fishes.* 3 credits.
This course delves into the biology and ecology of fishes. Subjects of this class include fish anatomy, taxonomy, evolution, habitat adaptations, community dynamics, and ecosystem interactions. The course will also touch on human impacts on fishes, and conservation. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 536.

**Recommended Prerequisite:** Course in ecology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 537:** *Ornithology.* 4 credits.
Study of evolution, systematics, physiology, ecology, and behavior of birds, emphasizing field work. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Course in ecology or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 538:** *Mammalogy.* 4 credits.
Study of evolution, systematics, physiology, ecology, and behavior of mammals, emphasizing fieldwork. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 538.

**Recommended Prerequisite:** BIOL 303 and BIOL 307 or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

**EVPP 539:** *Herpetology.* 4 credits.
Study of evolution, systematics, physiology, ecology, and behavior of amphibians and reptiles, emphasizing field work. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Course in ecology or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

**EVPP 542:** *Urban Ecosystems & Processes.* 4 credits.
Provides an overview of the challenges and opportunities that urban environments present to the plants and animals inhabiting cities and the ways that those organisms and entire ecosystems respond. Includes ecosystem ecology for engineered ecosystems, along with reviews of urban metabolism, energy budgets, water cycles, and soil ecology. Students design and conduct a small-scale green infrastructure experiment/project on campus. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 211 and 213; MATH 113 or equivalent; BIOL 308 or EVPP 302; PHYS 243 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

**EVPP 543:** *Tropical Ecosystems.* 4 credits.
Terrestrial, aquatic, and marine ecosystems in the tropics, emphasizing plant communities, plant-animal interactions, and role of humans in tropics. Notes: Requires field trip to tropics as part of lab. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 543.

**Recommended Prerequisite:** A course in ecology and permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

**EVPP 549:** *Marine Ecology.* 3 credits.
Presents the Ecology of Marine Ecosystems including from the intertidal zone to the deep sea, and from coral reefs to seagrass beds and polar seas. Overviews the evolutionary characteristics and ecological
processes and community structure of species and their habitats; and special problems that confront marine organisms due to anthropogenic change. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** EVPP or BIOL 308 and BIOL/EVPP/GEOL 309 (or the equivalent), or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 550:** Waterscape Ecology and Management. 3 credits.
Studies physical, chemical, and biological components of freshwater ecosystems with emphasis on streams, rivers, and lakes; links between watersheds and freshwater ecosystems; and impact of human management. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 550.

**Recommended Prerequisite:** A course in chemistry and a course in ecology.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 551:** Fungi and Ecosystems. 3 credits.
Considers impact of fungi on ecosystems in terms of effects on biogeochemical cycling, primary and secondary production, and regulating community structure and populations of individual species through activities as symbionts and parasites. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 559.

**Recommended Prerequisite:** BIOL 304 and/or a course in microbiology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 555:** Lab in Waterscape Ecology. 1 credit.
Field and laboratory approaches to freshwater ecology with emphasis on study design, sampling methods, laboratory and data analysis, and report writing. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 555.

**Recommended Prerequisite:** EVPP 550 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**EVPP 560:** Infectious Diseases of Wildlife. 3 credits.
Examines infectious diseases of wildlife with emphasis on causes and mechanisms, pathobiology, ecology and epidemiology and population significance. Explores methods of diagnosis, control, prevention and outbreak investigation as they apply to management and conservation of wildlife populations. Also, diseases crossing species barriers will be examined. Note: Course will co-meet with BIOL 460/EVPP 460.Offered by Environmental Science & Policy. May not be repeated for credit. Equivalent to BIOL 560.

**Recommended Prerequisite:** Courses on evolution, ecology, zoology, and conservation biology or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 563:** Coastal Morphology and Processes. 4 credits.
Studies global coastal geomorphology and processes, emphasizing U.S. Atlantic and gulf coasts. Topics include plate tectonics; sea-level changes; sediment supply; impact of waves, tides, storms; and human activities. Lecture, extended weekend field trips to mid-Atlantic coast. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GEOL 563.

**Recommended Prerequisite:** Course in Geology, Oceanography, Marine Science, or Physical Geography; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 575:** Global Biodiversity Governance. 3 credits.
Study global biodiversity governance from a political/policy science perspective. Regime and governance literature, and empirical examples including intergovernmental policy, such as biodiversity-related climate change policy (REDD+), and certification standards, such as the Forest
Stewardship Council (FSC), will be examined, with guest lecturers and a simulation of an inter governmental negotiation. Designated a Green Leaf Course. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** One (environmental) social science course.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 577:** Biogeochemistry: A Global Perspective. 3 credits.
Structure and function of ecosystems, their interactions as components of landscapes, and contributions to the global environment. Emphasizes biogeochemical cycles of natural, disturbed, and managed ecosystems, and integration at landscape and global level as related to current ecological problems such as transfer of nonpoint source pollutants, atmospheric deposition, stratospheric ozone depletion, and global change. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** A course in ecology and a course in chemistry, or Permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 581:** Estuarine and Coastal Ecology. 3 credits.
Emphasizes marine biology of estuarine and coastal habitats of Chesapeake Bay region, and factors affecting distribution and abundance of organisms. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 581.

**Recommended Prerequisite:** Course in ecology and permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 582:** Estuarine and Coastal Ecology Laboratory. 1 credit.
Provides training in field measurement of physical and chemical parameters, and collection and identification of local organisms.

Emphasizes the practice of ecological field research. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 582.

**Recommended Corequisite:** EVPP/BIOL 581.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**600 Level Courses**

**EVPP 607:** Fundamentals of Ecology. 3 credits.
Overview of concepts in physiological, population, community, ecosystem, biogeographical and human ecology. Notes: Restricted to graduate students with little or no background in ecology. Students who have taken BIOL 307 or the equivalent elsewhere are ineligible for this course. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 607.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 608:** Introduction to Environmental Social Science. 3 credits.
The course Environmental Social Science - ESS - aims to provide insight into the some of the most relevant social sciences and social scientific perspectives for studying environmental issues. The course introduces students to different social scientific disciplines. They will also learn about different social scientific theoretical perspectives and concepts, which they will apply in a research project. Designated a Green Leaf Course. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 610:** Bioremediation: Theory and Applications. 3 credits.
Provides basis for understanding proper application of bioremedial technologies to treatment of hazardous wastes. Includes evaluation of data to determine successful treatment. Offered by Environmental
Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 610.

**Recommended Prerequisite:** Course in microbiology and either organic chemistry or biochemistry or Permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 613: Environmental Geochemistry and Mineralogy.** 3 credits.
Explores hot topics and aids students in developing intellectual skills to identify key research problems. Students will also improve their writing and presentation skills. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 615: Molecular Environmental Biology II.** 4 credits.
Applied course covering theory and methodology of molecular environmental biology, including analysis of selected case studies in conservation biology of macro-organisms, molecular systematics, and microbial ecology. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** EVPP 515 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 619: The Challenge of Biodiversity.** 3 credits.
The Challenge of Biodiversity examines the science and policy of biodiversity conservation, through case studies, current events, guest speakers, class discussion, reading and assignments. Emphasis is placed on problem solving, communication skills and critical thinking. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** 6 credit hours of graduate course work or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 620: Development of U.S. Environmental Policies.** 3 credits.
Examines nature and historical development of environmental policy in the United States, including consideration of social, political, economic and environmental factors, and ways it is expressed and implemented. Also considers sustainability and emerging issues. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 8 graduate credits including graduate course in policy process and course in ecology; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 621: Overview of Biodiversity Conservation.** 3 credits.
Lectures, reading assignments, class discussions, and orally presented and written case studies to explore what biodiversity is, why it is important, how conservation has evolved, and status today. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** 8 credits of graduate environmental policy and/or science, including ecology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 622: Management of Wild Living Resources.** 3 credits.
Examines management of different types of wild living resources: animal and plant, aquatic and terrestrial. Reviews status of resources, analyzes factors that have led to present situation, and considers what may be required to achieve effective and sustainable management. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 8 graduate credits of ecology or permission of instructor.
EVPP 627: Environmental Policy in Latin America. 3 credits.
Examine environmental policy in Latin America. Reviews evolution of environmental policy and relationship between environment and development, considers background and history leading up to the present, and considers requirements to achieve more effective and sustainable results. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: A course in policy process, a course in international development and a course in ecology, or Permission of Instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 626: Environment and Development in Asia. 3 credits.
Examine environment and development in selected countries of South, Southeast, and East Asia. Reviews relationship between environment and development, considers background and history leading up to the present, and considers requirements to achieve more effective and sustainable results. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: A course in policy process, a course in international development and a course in ecology, or Permission of Instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 631: Spatial Agent-based Models of Human-Environment Interactions. 3 credits.
Discusses key challenges in spatial modeling of human-environment interactions. Reviews agent-based modeling applications in urban and rural interactions, agriculture, forestry, and other areas. Hands-on development of simple ABM models, and investigation of links between

Recommended Prerequisite: 8 graduate credits in policy process, international development, and ecology, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 630: Methods and Logic of Social Inquiry. 3 credits.
Emphasizes gathering, interpretation, and evaluation of scientific evidence. Develops critical thinking skills and covers logic of scientific inquiry, including various data collection methods such as experiments, observational research, and Q methodology. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: An undergraduate course in statistics and research methods or Permission of Instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
GIS and ABM. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GGS 631.

**Recommended Prerequisite:** EVPP 531 or CSS 600 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 632:** *Qualitative Research Methods for Environmental Scientists.* 3 credits.
Course engages questions of qualitative research methods for scientists conducting human-environment research. Focuses on tools to investigate the human-environment nexus, including community-based conservation and management research and decolonizing methodologies. Students discuss and practice 'triangulation'– the integration of qualitative and quantitative methods– a necessary skill for environmental/human-environment research. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 635:** *Environment and Society.* 3 credits.
Human-environment interactions in human ecology perspective, historical basis of human environmental impact, indigenous and nonindigenous worldviews in context of modernization, environmental degradation and globalization, and contemporary policy and research initiatives geared toward resilience and sustainability. Discussion format. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 637:** *Human Dimensions of Climate Change.* 3 credits.
Examines human dimensions of climate change, biodiversity loss, ozone depletion, and related anthropogenic alterations of biosphere. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 638:** *Corporate Environmental Management and Policy.* 3 credits.
Provides understanding of how environmental issues interact with business strategy decisions. Emphasizes learning about proactive win-win environmental management strategies being implemented by world's leading firms, and shows how government policies and regulations can be designed to simultaneously promote higher environmental protection and competitiveness. Combines mini lectures, participatory discussions. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EVPP 641:** *Environmental Science and Public Policy.* 3 credits.
Effects of human activities on environment. Considers airborne, waterborne, and solid waste contaminants with respect to sources, control, and effect on ecosystems and humans. Focus is on scientific and technical aspects of environmental contamination. Includes discussion of science policy related to these topics. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 641.

**Recommended Prerequisite:** A course in Ecology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 642: Environmental Policy. 3 credits.
In-depth examination of U.S. efforts since 1970 to mitigate pollution of air, land, and water. Addresses issues of global concern, including biodiversity loss, ozone depletion, and climate change. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to PUAD 642.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 643: Microbial Ecology. 4 credits.
Studies relationships between microorganisms and their natural environment, and methodology for observing the microbes in nature and the biochemistry of environmental systems. Includes discussion of the role of microbes both in creating and removing toxic threats in the environment. Laboratory component includes field sampling/analyses and laboratory isolation and identification of microbes as well as measurement of their physiological activities. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 643.

Recommended Prerequisite: A course in microbiology or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

EVPP 645: Freshwater Ecology. 3 credits.
Studies biotic and abiotic interactions that affect structure and composition of freshwater ecosystems. Emphasizes research literature. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: EVPP 550 or Permission of Instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 646: Wetland Ecology and Management. 3 credits.
Emphasizes structure, functions, and ecological processes of created and natural wetlands from an ecosystem perspective. Students will be expected to develop an understanding of hydrologic, physicochemical, and ecological aspects of wetlands and the management of these systems through in-class and field/lab works. Each student is required to carry out an individual research project that involves field and lab works, and write a research paper. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: BIOL 307 or EVPP 377, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

EVPP 647: Wetland Ecology Lab and Field. 1 credit.
Use laboratory and field work to study the structure and function of wetland ecosystems. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

Recommended Prerequisite: EVPP 646 (formerly EVPP 644).

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EVPP 648: Population Ecology. 3 credits.
Surveys ecological models and theory. Topics include population growth and regulation, competition, predator-prey, herbivore-plant, and parasite-host interactions, mutualism, and metapopulation ecology. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 648.

Recommended Prerequisite: A Course in ecology or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
EVPP 650: *Ecosystem Analysis and Modeling.* 4 credits.
Introduces principles, history, and methodologies of systems ecology, emphasizing development and simulation of ecological models for natural resource/ecosystem management, conceptual and symbolic models, and simulation techniques on microcomputers. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 650.

**Recommended Prerequisite:** A course in ecology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory, Lecture

EVPP 651: *Multivariate Data Analysis for Ecology and Environmental Science.* 3 credits.
Provides graduate students in ecology and environmental science with tools needed to analyze multivariate data sets. Topics include classification and ordination. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** EVPP 607 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 652: *The Hydrosphere.* 3 credits.
Components and transfer processes within hydrosphere, which consists of aqueous envelope of Earth including oceans, lakes, rivers; snow, ice, glaciers, soil, moisture, ground water, and atmospheric water vapor. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GGS 656.

**Recommended Prerequisite:** 2 semesters of calculus and partial differential equations.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

Uses ecological principles to manage natural resources. Emphasizes hierarchical levels of organization within ecological systems, and management of ecosystems to conserve biodiversity, natural resources, and environment. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 607 or EVPP 607 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 670: *Environmental Law.* 3 credits.
Studies environmental laws such as the National Environmental Policy Act, and regulatory issues such as the Clean Water and Clean Air Acts. Emphasizes critical evaluation of alternatives to unresolved issues in environmental policies. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Course in Ecology, Environmental Biology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 675: *Environmental Planning and Administration.* 3 credits.
Examines interaction of man and ecological systems; causes of damage or deterioration in environment; content, overviews, and externalities in management decision processes that affect environment and effectiveness of plan implementation; means of assessing environmental impact; and administrative approaches for minimizing environmental impact. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

EVPP 681: *Introduction to Bioinformatics.* 3 credits.
Overview of methods and tools in bioinformatics including Internet interfaces to sequence databases, methods for performing searches of biological databases, sequence alignment, phylogenetic analysis, other types of DNA sequence analysis, web-based tools, and databases in structural biology. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.
Environmental Conflict Resolution and Collaboration.

This course is the capstone course for the Graduate Certificate in Practicum/Capstone.

**EVPP 684:**

**Schedule Type:** Lecture

**Recommended Prerequisite:** A course in molecular biology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Recommendations:**
- **EVPP 682:** Principles of Environmental Conflict. 3 credits.
  - Explores the nature and characteristics of environmental conflict and efforts to manage, resolve or transform it. Students will develop a capacity to assess the strengths and weaknesses of environmental conflict resolution processes while learning about best practices for preventing, preparing for, and addressing environmental conflict. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to CONF 682.
  - **Recommended Prerequisite:** EVPP 607, CONF 501, and CONF 502, or permission of instructor.
  - **Registration Restrictions:**
    - Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
    - Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
    - Students in a Non-Degree Undergraduate degree may **not** enroll.

  - **Schedule Type:** Lecture
  - **EVPP 683:** Environmental Conflict Resolution: Situation Assessment, Process Design and Best Practices. 3 credits.
    - This course explores best practices for managing, resolving, and transforming environmental conflict using environmental conflict resolution (ECR) processes. Nature and dynamics of environmental disputes, methods for assessing conflict situations, and methods for conducting various forms of ECR processes will be covered in the context of selected case studies with emphasis on student involvement. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to CONF 683.
    - **Recommended Prerequisite:** EVPP 682 or CONF 682, or permission of instructor.
    - **Registration Restrictions:**
      - Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
      - Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
      - Students in a Non-Degree Undergraduate degree may **not** enroll.

  - **Schedule Type:** Lecture
  - **EVPP 730:** Environmental Policy Research in Practice. 3 credits.
    - Course is designed for students interested in social science-oriented environmental research. Student learn how to ground their research ideas in social science theory, develop a central research question and construct original research hypotheses that are grounded in social science literature. They also hone their peer reviewing skills by assessing other students’ research and offering constructive commentary. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to CONF 684.
    - **Recommended Prerequisite:** EVPP 682 or CONF 682, and EVPP 683 or CONF 683.
    - **Registration Restrictions:**
      - Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

      - Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
      - Students in a Non-Degree Undergraduate degree may **not** enroll.

  - **Schedule Type:** Research

**700 Level Courses**

**EVPP 730:** Environmental Policy Research in Practice. 3 credits.

Course is designed for students interested in social science-oriented environmental research. Student learn how to ground their research ideas in social science theory, develop a central research question and construct original research hypotheses that are grounded in social science literature. They also hone their peer reviewing skills by assessing other students’ research and offering constructive commentary. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to CONF 684.
by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 12 credit hours of graduate course work at Mason or approval of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**EVPP 738: Sustainable Enterprise Theory.** 3 credits.
This course is designed to critically evaluate the scholarly research related to sustainable enterprise. The class provides an overview of the major theories, research designs, and methodologies associated with this emerging research domain. Students apply these theories to develop social science research proposals for empirical investigation. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit.

**Recommended Prerequisite:** Environmental Science & Policy (p. 660). May be repeated for credit if topics significantly differ. Offered by Environmental Science & Policy (p. 660). May be repeated for credit if topics significantly differ.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**EVPP 741: Advanced Topics in Environmental Science and Public Policy.** 4 credits.
Studies selected advanced topics in environmental science and public policy. Lectures, guest lectures, student presentations, laboratory exercises. Notes: Topics vary; each offering has coherent theme. May be repeated for credit if topics significantly differ. Offered by Environmental Science & Policy (p. 660). May be repeated within the term for a maximum 10 credits.

**Recommended Prerequisite:** Eight hours of graduate coursework in Environmental Science and Public Policy, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 745: Environmental Toxicology.** 3 credits.
Studies nature, distribution, and interaction of toxic chemicals released into environment. Topics include acute, subchronic, and chronic toxicity testing; uptake, distribution and metabolism of toxins as well as their distribution in the environment. Emphasizes effects on nonhuman biota, detection and fate of chemicals, and includes discussion of implications for government regulation. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to BIOL 745.

**Recommended Prerequisite:** EVPP 445 or EVPP 545 or equivalent; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EVPP 792: Seminar in Earth Systems Science.** 2 credits.
Seminar for Earth systems science graduate students with background in major systems. Capstone experience. Seminars presented by faculty and students. Notes: Topics vary from semester to semester. Offered by Environmental Science & Policy (p. 660). May not be repeated for credit. Equivalent to GGS 792.

**Recommended Prerequisite:** Environmental Science & Policy (p. 660). May be repeated for credit if topics significantly differ. Offered by Environmental Science & Policy (p. 660). May be repeated for credit if topics significantly differ.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**EVPP 793: Research in Environmental Science and Public Policy.** 1-3 credits.
Library, laboratory, or field investigation under supervision of instructor. Notes: Short proposal required. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 8 graduate credits in EVPP and Permission of Instructor and Chair.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Research

**EVPP 797: Master's Thesis Proposal.** 1-3 credits.
Work on research proposal that forms basis for a master's thesis. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** 12 credits and permission of major professor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Research

**EVPP 798: Master's Research Project in Environmental Science and Public Policy.** 1-3 credits.
Experimental, observational, literature-based, or theoretical research project chosen and completed under guidance of faculty member. Proposal required before enrollment. Comprehensive report acceptable to student's committee required for completion. Notes: Students taking EVPP 798 may receive no more than 6 credits for both EVPP 793 and EVPP 798. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Approved project proposal and permission of instructor and Chair.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**EVPP 799: Master’s Thesis in Environmental Science and Public Policy.** 1-6 credits.
Experimental, observational, or theoretical research under instructor’s supervision that culminates in production of thesis. Thesis work should be potentially publishable. Notes: No more than 6 credits of EVPP 793 and EVPP 799 may be applied to master’s degree. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree.

**Recommended Prerequisite:** Approved thesis proposal and permission of instructor and Chair.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**800 Level Courses**

**EVPP 894: Supervised Internship.** 3-12 credits.
Training in application of ecological skills to environmental management and policy under supervision of a qualified environmental scientist at governmental agency, consulting firm, industry, or other acceptable organization. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Permission of student’s doctoral committee, graduate program director and department chair.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Internship

**900 Level Courses**

**EVPP 991: Advanced Seminar in Environmental Science.** 2 credits.
Topics generally address interface between environmental science and public policy. Offered by Environmental Science & Policy (p. 660). May be repeated within the term.

**Recommended Prerequisite:** 8 hours of Ecology or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**EVPP 998: Doctoral Dissertation Proposal.** 1-6 credits.
Work on research proposal that forms basis for a doctoral dissertation. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree.

**Recommended Prerequisite:** Admission to doctoral candidacy.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**EVPP 999: Doctoral Dissertation Research.** 1-12 credits.
Research on basic or applied problem in environmental science and public policy. Offered by Environmental Science & Policy (p. 660). May be repeated within the degree.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**Executive MBA (EMBA)**

**500 Level Courses**

**EMBA 500: Workshop.** 0 credits.
Workshop. Offered by School of Business (p. 846). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

**Schedule Type:** Laboratory

**600 Level Courses**

**EMBA 603: Managerial Economics.** 3 credits.
Develops and applies economic analysis tools in managerial decision situations. Focuses on economic analysis to understand firm’s competitive environment. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EMBA 612: Cost Accounting.** 1-3 credits.
Focuses on developing accounting information for use by managers in planning and control activities. Examines traditional and emerging cost-management systems. Special emphasis on information for decision-making, operational control, and performance evaluation. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EMBA 613: Financial Accounting.** 3 credits.
Develops framework of concepts and procedures essential for interpreting general-purpose financial statements and internal managerial accounting reports. Emphasizes understanding basic concepts and applying selected procedures to problem-solving situations. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EMBA 623: Marketing.** 3 credits.
Develops market-based knowledge and skills for effective marketing strategy design, implementation, and evaluation. Develops ability to make marketing decisions in wide variety of institutional and competitive situations. Addresses the importance of companies being market-driven and customer-focused. Emphasis on case studies, team work, and projects. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EMBA 633: Statistics for Business Decision Making.** 3 credits.
Applies statistical methods in analyzing problems in business decision-making. Topics include descriptive statistics, probability distributions, estimation and hypothesis testing, and linear regression. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EMBA 638: Services and Operations Management.** 3 credits.
Integrates theory and practice of operations management with mathematical modeling and quantitative techniques of management science. Addresses range of operations management issues, including technology and strategy decisions, systems design issues, project operations, quality control, and inventory planning. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EMBA 641: Building the High-Performing Team.** 3 credits.
Develops the knowledge and skills needed for creating powerful, high-performance teams within and among organizational units. Strategies are offered for alignment of goals, building conditions for coordinated action, generating innovation, and resolving breakdowns. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EMBA 643: Managerial Finance.** 3 credits.
Introduces theories of finance and their application to the formulation of business policy. Topics include internal financial analysis, financial forecasting, valuation, risk and return analysis, capital allocation, and capital structure. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**EMBA 653: Organizational Behavior and Teams.** 3 credits.
Examines development, theories, and practice of management within organizations. Emphasizes human behavior and how it influences
organizational effectiveness. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EMBA 660: Management of Information Technology.** 3 credits.
Examines computer-based information technologies and their interrelation with management processes, especially problem-solving and decision-making at individual, work group, and organization levels. Topics include management information system life cycle, with emphasis on manager's perspective, and modeling and analysis to support decision-making. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EMBA 673: Legal Environment for Executives.** 1.5 credit.
Examines the managerial impact of the law upon decision-making processes in business organizations. Lectures as well as discussions of judicial opinions and readings. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EMBA 674: Business Ethics.** 1-3 credits.
Designed to strengthen the ability to identify, critically analyze, appropriately respond to, and provide leadership regarding the issues of ethical and socially responsible behavior you may confront as an executive in charge of people, projects, and organizations. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**EMBA 697: Special Topics in Executive MBA.** 1-3 credits.
Sections established as necessary to focus on various topical issues that emerge in practice of executive business administration. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
700 Level Courses

**EMBA 703: Financial Markets.** 3 credits.
Explores the relationships between financial markets and their impact on corporate financial decision making. Considers cross-market interrelationships, including how financial markets respond by creating financial instruments to meet the varying financial requirements of business firms. The course includes a domestic financial residency in New York that focuses on contemporary developments in these markets. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EMBA 710: Global Macro Economics.** 1.5 credit.
Focuses on the modern system of international trade and the opportunities that the global trading environment creates for firms. Attention will be directed toward the roles of national policies, international agreements, and business activities in the development of the system. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EMBA 712: International Macroeconomics.** 1.5 credit.
Focuses on the basic concepts of international macroeconomics? national income accounts, monetary and fiscal policies, balance of payments, and exchange rates. These concepts are introduced and discussed in situations where national economic strategies affect the decisions and performance of business operations. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EMBA 716: Managing Change.** 1.5 credit.
Focuses on how organizations can successfully adapt and change. Topics include understanding forces that make change necessary, developing vision of appropriate course, aligning organization behind that vision, and motivating people to achieve it. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.
EMBA 730: Introduction to National Security. 1-3 credits.
The seminar topics would incorporate student and industry partner feedback and consultation by the Program Director and Academic Director with the GPC and Area Chairs. Possible topics include: National Defense Commercial Strategy, Competing Internationally in National Defense Commercial Strategy, European Union, Global Social Entrepreneurship, Emerging Markets and Product Development. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment is limited to students with a major in EMBA - Distance Learning or Executive MBA.

EMBA 740: Preparation for National Security. 1-3 credits.
This course takes the concepts from previous Critical Infrastructure Protection track courses and provides an opportunity to see these concepts in a "field environment." The course will engage with decision makers to learn how they operate profit generating firms in the critical infrastructure sectors while addressing considerations of security and resilience. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in EMBA - Distance Learning or Executive MBA.

EMBA 734: Critical Infrastructure Protection Residency. 3 credits.

Schedule Type: Lecture

EMBA 741: Introduction to Global Business. 1-3 credits.

Schedule Type: Lecture

EMBA 735: Systems Thinking and Dynamics. 1-3 credits.

Schedule Type: Lecture

EMBA 732: Critical Infrastructure Security and Resilience and Cybersecurity. 1-3 credits.

Schedule Type: Lecture

Students in a Non-Degree Undergraduate degree may not enroll.

Registration Restrictions:
Enrollment is limited to students with a major in Executive MBA.

EMBA 733: Advanced Topics in Critical Infrastructure Protection. 1-3 credits.

Schedule Type: Lecture

EMBA 740: Preparation for National Security. 1-3 credits.

Schedule Type: Seminar

EMBA 741: Introduction to National Security. 1-3 credits.

Schedule Type: Seminar

EMBA 731: Partnering and Information Sharing for Critical Infrastructure Security and Resilience. 1-3 credits.

Schedule Type: Lecture

EMBA 734: Critical Infrastructure Protection Residency. 3 credits.

Schedule Type: Lecture

EMBA 735: Systems Thinking and Dynamics. 1-3 credits.

Schedule Type: Lecture

EMBA 732: Critical Infrastructure Security and Resilience and Cybersecurity. 1-3 credits.

Schedule Type: Lecture

EMBA 733: Advanced Topics in Critical Infrastructure Protection. 1-3 credits.

Schedule Type: Lecture

EMBA 731: Partnering and Information Sharing for Critical Infrastructure Security and Resilience. 1-3 credits.

Schedule Type: Lecture

EMBA 732: Critical Infrastructure Security and Resilience and Cybersecurity. 1-3 credits.

Schedule Type: Lecture

EMBA 733: Advanced Topics in Critical Infrastructure Protection. 1-3 credits.

Schedule Type: Lecture

EMBA 731: Partnering and Information Sharing for Critical Infrastructure Security and Resilience. 1-3 credits.

Schedule Type: Lecture

EMBA 732: Critical Infrastructure Security and Resilience and Cybersecurity. 1-3 credits.

Schedule Type: Lecture

EMBA 733: Advanced Topics in Critical Infrastructure Protection. 1-3 credits.
Registration Restrictions:
Enrollment is limited to students with a major in EMBA - Distance Learning or Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

EMBA 742: Advanced Topics in Global Business. 1.5 credit.
The course discusses current issues in globalization and the ramifications of globalization on business strategy; comparatively reviews emerging markets and development in Asia, Africa, and Latin America and in financial services, healthcare, and eGovernment; considers the role of ICT and mobiles in international development; and reviews the role and development of institutions and significance for business in emerging markets. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in EMBA - Distance Learning or Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EMBA 743: Advanced Topics in National Security. 1.5 credit.
Students will be provided an in-depth look at the strategy side of the National Security industry and will learn how security business position and re-position themselves in this changing market place. The process that firms go through to determine their overall strategy will be explored. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in EMBA - Distance Learning or Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EMBA 745: Special Topics in Finance. 1-6 credits.
In-depth examination of advanced topics in finance. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to students with a major in EMBA - Distance Learning or Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EMBA 750: Capstone Project: Part 1. 1.5 credit.
Lab-based course provides action learning experience that integrates course content from throughout the EMBA program. Students work in teams to develop solutions to organizational challenges and opportunities. They select a project, evaluate the strategic issues for their assigned clients, design a solution, and present results to an executive panel. Depending on the nature of the issue and faculty requests, team presentations of results include one or more of the following sections: an analysis of the situation; recommendations including changes in goals and organizational design; a plan of action integrating marketing, human resource development, organizational design, finance, and operations; an implementation plan using theories of communication and change management, to include the business case and a business plan. Students are expected to draw upon coursework from multiple disciplines in completing this project. Offered twice in spring semester for a total of 3 credit hours. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EMBA 751: Corporate Global Strategy. 1.5-3 credits.
Examines issues in strategy for firms operating in multiple markets or businesses, including diversification, portfolio approaches to corporate strategy, mergers and acquisitions, corporate alliances and joint ventures, restructuring, and coordinating multibusiness corporations. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EMBA 752: A Strategic View of the Firm. 3 credits.
Examines the interplay between the industry environment and a firm's resources and capabilities to drive superior performance. The course seeks to integrate multiple functional perspectives to arrive at a complete understanding of the firm within its environment. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EMBA 754: Capstone Project: Part 2. 1.5 credit.
Students will work in teams to develop solutions to complex organizational challenges and opportunities. The Capstone project is divided into two parts with regard to course work. In Part II, students will evaluate the strategic issues for their client based upon interviews, outside primary and secondary research, and industry analysis. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in EMBA - Distance Learning or Executive MBA.

Schedule Type: Lecture
**EMBA 755: Special Topics in Management.** 1-6 credits.
In-depth examination of advanced topics in management. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EMBA 790: National Security Residency.** 3 credits.
Develops National Security perspective through seminars led by professors and high-level managers; briefings by officials of government and other policy-making organizations. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EMBA 791: The Regulatory and Business Environment of the European Union.** 1.5 credit.
Considers contemporary interactions of businesses, government, and regulation. Seminars and presentations with business, government, and regulatory officials. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EMBA 795: Global Residency.** 3 credits.
Develops global perspective through seminars led by professors and high-level managers; briefings by officials of government and other policy-making organizations; and site visits to production and distribution facilities, research centers, IT units, and other corporate offices. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Executive MBA.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**Exercise, Fitness, and Health Promotion (EFHP)**

**500 Level Courses**

**EFHP 500: Workshop in Exercise, Fitness, and Health Promotion.** 1-3 credits.
Provides concentrated full-time workshops, weekend seminars, and workshops on selected topics in exercise, fitness, and health promotion.

**Notes:** No more than 6 credits may be applied for degree credit. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 520: Medical Terminology of Health Professionals.** 3 credits.
Analyzes foundation of scientific and medical vocabulary including prefixes, suffices and stems used to form compound words for health professionals. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 522: Functional Anatomy for Health and Wellness Practitioners.** 3 credits.
Promotes familiarity and proficiency with anatomy of neuromuscular and musculoskeletal systems, which relate directly to sports related injuries. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** BIOL 124, 125 (or equivalent)

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 526: Prevention, Recognition, and Management of Fitness Related Injuries.** 3 credits.
Promotes familiarity and proficiency with assessment and physical examination of sports-related injuries. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
**Recommended Prerequisite:** BIOL 124, 125 (or equivalent).

**Recommended Corequisite:** EFHP 522.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**EFHP 598:** Special Topics. 1-6 credits.
Focuses on projects related to exercise, fitness, or health promotion. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 599:** Independent Study EFHP. 1-3 credits.
Studies problem areas in exercise, fitness, and health promotion research, theory, or practice under direction of faculty member. May be repeated. No more than 3 credits may be earned. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**600 Level Courses**

**EFHP 605:** History of American Sport, Exercise, and Physical Culture. 3 credits.
Role of sport and physical education in Europe and its impact on developments in America. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 610:** Advanced Exercise Physiology. 3 credits.
Lecture, demonstration, and seminar experiences in applying research findings to understanding physiological function and effects of exercise on people. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 611:** Movement and Fitness Assessment. 3 credits.
Covers common movement and fitness assessments that can be used to develop an individualized exercise program for various populations. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 612:** Scientific Foundation of Applied Kinesiology. 3 credits.
An integrated study of human anatomy, physiology, chemistry, and microbiology, presenting a complete picture of how the body functions and the diseases and disorders that cause the body to malfunction. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EFHP 613:** Advanced Applied Biomechanics. 3 credits.
Examines kinetic and kinematic concepts and how they apply to the qualitative and quantitative assessment of human movement. Discusses advanced applied motion analysis techniques. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Schedule Type: Lecture

EFHP 614: Advanced Exercise Nutrition. 3 credits.
Advanced study of nutrition’s relation to physical activity, exercise, and sports. Reviews biochemical, physiological, and behavioral aspects of nutrition in promoting health, fitness, and sports performance. Focuses on nutrient needs during life cycle stages. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 615: Epidemiology and Environmental Health. 3 credits.
Principles, methods, and application of epidemiology. Reviews behavioral, psychological, social, and environmental risks to disease distribution. Focuses on lifestyle, exercise patterns, and environmental factors to health and disease conditions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 616: Motor Behavior and Development. 3 credits.
Human motor behavior development and theory with application to evaluation of skill acquisition. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 618: Exercise and Sport Psychology. 3 credits.
Covers psychological and social-psychological antecedents and consequences of exercise, physical activity, and sports participation. Emphasizes theory and research on personality, motivation, arousal, cognition, attributions, attitudes, self-efficacy, leadership effectiveness, and group dynamics. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 620: Research Methods for Applied Kinesiology. 3 credits.
Introduction to the techniques of research generally employed in the fields of exercise science and health. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 621: Statistical Methods for Applied Kinesiology. 3 credits.
Introduction to practical and applied aspects of both descriptive and inferential statistics in exercise science and health. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: MATH 102, STAT 250.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 630: Exercise, Health, and Fitness Program Development. 3 credits.
Covers exercise and health program development related to fitness and health of adult populations. Notes: Provides 3 to 6 hours of field experience. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 640: Principles of Strength and Conditioning. 3 credits.
Analyzes exercise techniques, training program designs, organization and administration, and testing and evaluation using scientific principles of strength and conditioning. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EFHP 650: Scientific Principles of Motor Learning.** 3 credits.
Biomechanical analysis and application of scientific principles of movement to instructing sport skills in physical education and sport programs. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EFHP 660: Management of Exercise, Fitness, and Health Promotion Organizations.** 3 credits.
Advanced study in management and administration of organizations dedicated to human development and improvement of quality of life. Covers application of theories and practices of management and behavioral sciences, fiscal management, marketing, and evaluation research. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EFHP 680: Ethical Issues in Exercise, Fitness, and Health Promotion.** 3 credits.
Covers formulation of coherent framework for ascertaining good, right, and just; and for assessing evidence and reason underlying positions and arguments. Examines ethical issues in exercise, fitness, and health promotion. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EFHP 690: Scientific Communications.** 3 credits.
Studies and applies written and verbal communication skills in reading, analyzing, writing, and distributing scientific information in Applied Kinesiology. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**EFHP 730: Motor Learning.** 3 credits.
Appraisal of motor learning theories and an analysis of motor skill development including the roles of information processing, practice, feedback, and motivation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EFHP 798: Project.** 1-3 credits.
Addresses an applied exercise, fitness, and health promotion issue under supervision of graduate faculty member. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**EFHP 799: Thesis.** 1-6 credits.
Explores exercise, fitness, and health promotion problem using appropriate research methodology and under supervision of graduate faculty member. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree.

**Recommended Prerequisite:** Completion of all coursework.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**800 Level Courses**

**EFHP 802: Readings for the Doctor of Arts in Community College Education.** 3-9 credits.
Intensive reading in recent scholarship in physical education and related fields. Students must propose reading list that must be approved by faculty advisor and use list to prepare potentially publishable literature
review. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 9 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

EFHP 810: Neurornuscular Responses to Exercise. 3 credits.
Provides an in-depth study of the muscular systems of the human body and how these systems are altered in response to acute and chronic physical activity. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 811: Motor Learning and Control. 3 credits.
Examines motor learning theories and analyzes motor skill development including the roles of information processing, practice, feedback, and motivation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 813: Musculoskeletal Biomechanics in Human Movement. 3 credits.
Advanced study of the biomechanical analysis of the musculoskeletal system, including collecting, interpreting, and modeling biomechanical data. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Graduate Standing or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 815: Measurement Techniques and Instrumentation. 3 credits.
Explores the application and implementation of conventional measurement techniques and instrumentation to collect data in Exercise, Fitness, and Health Promotion. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EFHP 820: Careers in the Academy Seminar. 3 credits.
Examines careers in the academy in a seminar format including faculty role, institutional fit, and the higher education academic job search (including developing cover letters and job portfolio outlines); introduces teaching, research, and service expectations at higher education institutions to help prepare for future academic careers. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

EFHP 825: Data Analytics in Exercise, Fitness, and Health Promotion. 3 credits.
Examines data processing, analysis and interpretation using software applications common in Exercise, Fitness and Health Promotion. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

EFHP 840: Doctoral Seminar in Exercise, Fitness, and Health Promotion. 3 credits.
Examines problem areas in Exercise, Fitness, and Health Promotion research, theory, or practice using a combination of self-directed, guided learning, and critical peer reviews in a seminar format. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

EFHP 880: Grant Writing. 3 credits.
Provides an overview of grants and contracts; examines federal and non-federal proposal development guidelines; emphasizes National Institutes of Health (NIH) research grant mechanisms as a ‘gold standard’. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

Film and Video Studies (FAVS)

100 Level Courses

FAVS 100: Film and Video Studies Colloquium. 1 credit.
Students are exposed to the film and video industry through film professionals. Students are required to attend all sessions, review the speaker’s materials prior to the class, prepare questions, and complete written critiques. Notes: Only 2 credits of C or better may be applied to
the end of the semester, each student will have produced a variety of
analyses and/or blueprints for creative moving image projects including
short fiction, commercial advertisement, scripted television, collaborative
fiction, short non-fiction reality programming, and other forms. Offered
by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.
Registration Restrictions:
Enrollment is limited to students with a major in Film and Video Studies.
Schedule Type: Lecture

200 Level Courses

FAVS 225: The History of World Cinema. 3 credits.
This course is a survey of the history of cinema. It explores the
development of world cinema from its beginnings in the late nineteenth
century to the 1990s. The course will enable students to comprehend the
evolution of the history and language of cinema in order to connect the
art of filmmaking with the "outside forces" (i.e., the economic institutions,
key figures, historical events and social issues) that profoundly shape
and influence it. Offered by Coll Visual & Performing Arts (p. 763). May
not be repeated for credit. Equivalent to FAVS 355.
Mason Core: Global Understanding (p. 135)
Schedule Type: Lecture

FAVS 250: Business of Film and Video. 3 credits.
This course provides an overview of the film industry from a business
perspective. Students learn basic business practices, film financing,
business plans, film distribution, and management and marketing
techniques appropriate for the film industry. Offered by Coll Visual &
Performing Arts (p. 763). May not be repeated for credit. Equivalent to
FAVS 355.
Schedule Type: Lecture

FAVS 255: Video Production for Film. 3 credits.
This course is a hands-on methods course in video production for film.
Through practice, reading, film viewing and discussions, you will be
introduced to the art and activity of digital filmmaking across film genres.
Students must complete reading, writing, and production assignments
that justify and plan for their creative choices. Handouts describing
projects, expectations and evaluative criteria will be provided. Offered
by Coll Visual & Performing Arts (p. 763). May not be repeated for credit. Equivalent to
FAVS 355.
Registration Restrictions:
Enrollment is limited to students with a major in Film and Video Studies.
Schedule Type: Lecture

FAVS 260: Video Editing for Film. 3 credits.
This course will instruct on the theories and technical expertise
pertaining to video editing by utilizing various video editing software.
The course will combine lectures, discussions, and demonstrations with
hands on projects. Offered by Coll Visual & Performing Arts (p. 763). May
not be repeated for credit. Equivalent to COMM 360.
Registration Restrictions:
Required Prerequisites: AVT 204 C and (FAVS 255 C, COMM 355 C or 208 C).
C Requires minimum grade of C.
Schedule Type: Lecture

FAVS 280: Writing for the Moving Image. 3 credits.
This course is an introduction to writing for the moving image through
lecture, discussion, and critiques of exercises and written works. By
the end of the semester, each student will have produced a variety of
Registration Restrictions: 
Required Prerequisites: AVT 204\(^C\) and (FAVS 255\(^C\), COMM 355\(^C\) or 208\(^C\)). 
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Film and Video Studies.

Schedule Type: Lecture

FAVS 335: Sound and Lighting for Film and Video. 3 credits.
This course will instruct students on the theories, techniques, and technologies pertaining to recording audio and lighting scenes in both field and studio video productions. The course will be lecture based with practical lab styled exercises reinforcing topics presented during lecture. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: COMM 355 or permission of instructor.

Schedule Type: Lecture

FAVS 352: Ethics of Film and Video. 3 credits.
An examination of ethical issues associated with image production and consumption. Topics include the technological development of the film apparatus, privacy, the pursuit of objectivity, excess, consent, and representing others. All issues highlight the increasingly sophisticated and powerful role of film and media authorship. Students will develop a more complex view of the ethics of screen representation (both fiction and nonfiction) and be encouraged to take stock of the ethics of their own media literacy. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Recommended Prerequisite: Completion or concurrent enrollment in all other required Mason Core courses and completion of 21 credits within the FAVS program.

Registration Restrictions: 
Enrollment is limited to students with a major in Film and Video Studies.

Schedule Type: Lecture

FAVS 356: Film Marketing. 3 credits.
Provides students with a variety of film and television marketing business strategies and creative skills, including publicity, press kits, advertising, trailers, poster design, film credits, box art, branding, licensing & merchandising, and distribution. As aspiring media entrepreneurs, students learn to professionally manage their careers whether in low-budget independent film or Hollywood blockbuster tracks via self-promotion & publicity. 201770 Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Registration Restrictions: 
Required Prerequisites: FAVS 250\(^C\) or 355\(^C\). 
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

FAVS 357: New Media and Film Distribution. 3 credits.
This course explores how emerging media technologies function and how the film and video firms are changing with the advent of new media technologies. Through research and guided projects, students learn how new media technologies are altering the financing, distribution, exhibition, and marketing of films and videos. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: FAVS 250 or other business course as approved by instructor.

Schedule Type: Lecture

FAVS 365: Documentary Filmmaking. 3 credits.
An introduction to documentary filmmaking in which each student makes a short digital documentary, from concept development to finished piece. The class covers essential technical skills, emerging styles of nonfiction film, and documentary storytelling techniques. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Registration Restrictions: 
Required Prerequisites: AVT 204\(^C\), FAVS 250\(^C\) and 280\(^C\) and (FAVS 255\(^C\), COMM 355\(^C\) or 208\(^C\)). 
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Film and Video Studies.

Schedule Type: Lecture

FAVS 375: Fiction Film Directing. 3 credits.
This course examines techniques for directing fiction films. Students study the directorial approaches of a variety of directors by viewing and critiquing classic films. Students learn about the director’s role in each stage of film production. Students shoot, direct and edit fictional scenes and sequences intended to develop and convey the beginnings of the authorial signatures. Notes: Intended for Film and Video Studies majors only. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Registration Restrictions: 
Required Prerequisites: AVT 204\(^C\), FAVS 250\(^C\) and 280\(^C\) and (FAVS 255\(^C\), COMM 355\(^C\) or 208\(^C\)). 
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

FAVS 378: Web Series. 3 credits.
A production course that explores the creative and logistical process of creating a fiction series for the web. Production techniques for web series will be explored, including permissions, contracts, and budgets for web development. The course will consider and study successful web series and explore contemporary discussions and professional organizations centered on web series. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Registration Restrictions: 
Required Prerequisites: AVT 204\(^C\), FAVS 250\(^C\) and 280\(^C\) and (FAVS 255\(^C\), COMM 355\(^C\) or 208\(^C\)). 
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Film and Video Studies.

Schedule Type: Lecture

FAVS 399: Special Topics in Film and Video Studies. 1-3 credits.
In-depth presentation and exploration of topical studies. Notes: Subject matter varies. May be repeated when taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 12 credits.

Schedule Type: Lecture
400 Level Courses

FAVS 400: Film and Video Career Seminar. 1 credit.
This course is designed to guide students through the portfolio process. At the end of the semester, students will have a completed, professionally reviewed resume and demo reel, and have experienced a professional interview. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of required courses within chosen concentration or permission of instructor.

Schedule Type: Seminar

FAVS 450: Internship in Film and Video Studies. 3 credits.
On-the-job training in film and video studies through approved fieldwork study programs. Internships are arranged and supervised by the FAVS director. Notes: Required for all FAVS majors. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 75 credits, 15 credits in core/elective FAVS courses, and permission of the Internship Coordinator.

Schedule Type: Internship

FAVS 453: Film and Video Studies Pedagogy and Principles. 3 credits.
Theory and practice in facilitating the learning of principles and skills in film and video. Students work as instructor aids under the supervision of a faculty member. Activities include facilitating small group activities and individually critiquing classroom performances. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Declared FAVS major. Student must have successfully completed the course they will facilitate with a grade of B or better, have comparable experience, or receive permission from the instructor.

Schedule Type: Internship

FAVS 455: Studio and Field Productions Practicum. 3 credits.
Practical knowledge in studio and field productions. Students complete a minimum 150 hours of work as assistants to engineers, producers, directors, and organizers of video production facilities on campus. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: COMM 355 and permission of instructor.

Schedule Type: Internship

FAVS 460: Advanced Video Editing. 3 credits.
This course will instruct students on the theories, techniques and technologies pertaining to video editing for fiction and documentary films, as well as commercials. The course will combine lectures, discussions, and demonstrations with hands on projects. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: FAVS 260C or COMM 360C.
C Requires minimum grade of C.

Schedule Type: Lecture

FAVS 470: Film and Video Screenwriting. 3 credits.
The purpose of this course is to build a strong foundation in fundamental, narrative, screenwriting techniques for film. Students will learn how to express their unique story ideas through character development, plot and dialogue. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisite: FAVS 280C.
C Requires minimum grade of C.

Schedule Type: Lecture

FAVS 483: Feature-Length Scriptwriting. 3 credits.
This course is an introduction to the development and analysis of feature length screenplays. The approach combines lecture, discussion, screening and presentation of student work. By the end of the semester, each student should have a complete first draft of an original screenplay. Students will also complete story reports/coverage reports of screenplays by other writers. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: FAVS 470 or THR 482 or permission of instructor.

Schedule Type: Independent Study

FAVS 490: Independent Study. 1-6 credits.
Independent research on specific project under direction of selected faculty member. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to students with a major in Film and Video Studies.

Schedule Type: Independent Study

FAVS 496: Advanced Visual Storytelling. 3 credits.
A culminating seminar devoted to analyzing and synthesizing knowledge and skills gained through undergraduate course work in the screenwriting concentration, resulting in substantial individualized writing projects. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: AVT 204, FAVS 250, FAVS 255 or COMM 355, FAVS 280, FAVS 483, and THR 482 or FAVS 470. Must be a senior.

Registration Restrictions:
Enrollment is limited to students with a major in Film and Video Studies.

Schedule Type: Lecture

FAVS 497: Senior Film Practicum. 3 credits.
A senior capstone course for students in the Production/Post- Production and Producing concentration. Students put their area of focus (cinematography, editing, sound design, producing, etc.) into practice. Students play a key role in film projects directed by other students throughout the semester. This course includes a written/research
component. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Capstone (p. 135)

**Recommended Prerequisite:** AVT 204, FAVS 260 or COMM 360, FAVS 250, FAVS 255 or COMM 355, and FAVS 280. Must be a senior.

**Registration Restrictions:** Enrollment is limited to students with a major in Film and Video Studies.

**Schedule Type:** Lecture

FAVS 498: Creative Producing and Development. 3 credits.
An introduction to the creative process of researching and developing material for film and video for senior projects. The course examines evaluating and developing existing literary material, documentary work, and/or fictional material. Notes: Must have permission of instructor. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** Must have all lower-level FAVS Core Courses and Concentration Requirements completed. Must be a senior and have permission of instructor.

**Registration Restrictions:** Enrollment is limited to students with a major in Film and Video Studies.

**Schedule Type:** Lecture

FAVS 499: Senior Project. 3 credits.
Culminating capstone course in producing and directing that results in the completion of a senior project and related written and visual promotional materials. A senior project in Directing and Producing is constituted by a short fiction or documentary film, webseries episode(s) or parallel film project with a running time of 15 minutes or less. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Registration Restrictions:**

**Required Prerequisite:** FAVS 498 C.

C Requires minimum grade of C.

Enrollment is limited to students with a major in Film and Video Studies.

**Schedule Type:** Lecture

500 Level Courses

FAVS 535: Sound and Lighting. 3 credits.
This course will instruct students on the theories, techniques, and technologies pertaining to recording audio and lighting scenes in both field and studio video productions. The course will be lecture based with practical lab styled exercises reinforcing topics presented during lecture. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MAIS in Film and Video Studies or permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Lecture

FAVS 550: Internship. 3 credits.
On-the-job training in film and video studies through approved fieldwork study programs. Internships are arranged and supervised by the FAVS director. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

FAVS 556: Documentary Filmmaking. 3 credits.
A documentary filmmaking workshop in which each student makes a short digital documentary, from concept development to finished piece. The class covers essential technical skills, emerging styles of nonfiction film, and documentary storytelling techniques. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MAIS in Film and Video Studies or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

FAVS 570: Screenwriting. 3 credits.
Screenwriting course emphasizing student development in screenplay form, structure, and storytelling with emphasis on craft, character, and story culminating in a screenplay. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate degree or equivalent, or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
FAVS 575: Fiction Film Directing. 3 credits.
This course examines techniques for directing fiction films. Students study the directorial approaches of a variety of directors by viewing and critiquing classic films. Students learn about the director's role in each stage of film production. Students shoot, direct, and edit fictional scenes and sequences intended to develop and convey the beginnings of the authorial signatures. Offered by Coll Visual & Performing Arts (p. 763). May not be repeated for credit.

Recommended Prerequisite: Admission to the MAIS in Film and Video Studies or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FAVS 590: Independent Study. 1-6 credits.
Independent research on specific project under direction of selected faculty member. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Undergraduate degree or equivalent or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

FAVS 597: Independent Production. 1-3 credits.
Media or creative production activities under direction of faculty member. Requires completed production; written report, oral exam may be required. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

FAVS 598: Seminar in Film and Video Studies. 3 credits.
Develop tools and techniques for successful pursuit of a career in film and video production, distribution, and marketing through readings, original projects, case studies, analysis of industry practices, and study of film and media tools and projects. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Coll Visual Performing Arts or Humanities Social Sciences colleges.

Schedule Type: Seminar

FAVS 599: Special Topics. 1-6 credits.
In-depth presentation and exploration of topical studies. Notes: Subject matter varies. May be repeated when taken under different topics. Offered by Coll Visual & Performing Arts (p. 763). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: Undergraduate degree or equivalent, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Finance (FNAN)

300 Level Courses

FNAN 300: Personal Financial Management. 3 credits.
Emphasis is on understanding the importance of developing financial goals and how financial decisions affect those goals throughout their lifetime. In addition, students will develop their own financial goals along with a financial plan that would enable them to meet those goals. This course may be taken for regular grading or S/NC. Students must notify instructor which option they want. FNAN 300 may be taken for general elective credit by School of Business students. Offered by School of Business (p. 846). May not be repeated for credit.

Schedule Type: Lecture

FNAN 301: Financial Management. 3 credits.
Introduction to managing a firm's financial resources given wealth maximization decision criterion. Includes working capital management, fixed-asset investment, cost of capital, capital structure, and dividend decision analysis. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in FNAN 301. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. Notes: Lecture, problems, and discussion. Requires attendance in weekly lectures and recitations. The final exam for FNAN 301 may be scheduled to take place for all sections at the same time during the final exam period. Accommodations will be made for exam and religious conflicts and for certain official university-sponsored activities. Students cannot receive credit for both FNAN 301 and FNAN 303. Offered by School of Business (p. 846). Limited to three attempts. Equivalent to FNAN 303.

Schedule Type: Lecture
FNAN 301: Financial Management. 3 credits.
Introduces analysis of the valuation of equity and debt securities given modern capital market theory. Includes discussion of portfolio analysis as related to valuation of securities. Notes: Lecture, discussion, and computer-assisted research. Offered by School of Business (p. 846). May not be repeated for credit.

Required Prerequisites: (FNAN 301\textsuperscript{B} or 303\textsuperscript{B}).
\textsuperscript{B} Requires minimum grade of B-.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Schedule Type: Lecture

FNAN 302: Introduction to Firm Valuation. 3 credits.
Examines techniques for analyzing, understanding, and applying financial information in decision situations. Topics include financial statement analysis, development of financial models, and financial planning and forecasting. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to FNAN 302.

Registration Restrictions:
Required Prerequisites: (FNAN 301\textsuperscript{C} or 303\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from BU major attribute may not enroll.

Non-Degree level students may not enroll.

Schedule Type: Lecture

FNAN 303: Principles of Investment. 3 credits.
Studies dimensions and specialties involved in public control and private development, sale, finance, and management of real estate. Includes land planning, land-use control, appraisal, finance, brokerage, property management, and investment. Notes: Lecture, discussion, and computer-assisted research. Offered by School of Business (p. 846). May not be repeated for credit.

Required Prerequisites: (FNAN 301\textsuperscript{C} or L301) or FNAN 303\textsuperscript{C} or L303.
\textsuperscript{C} Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Schedule Type: Lecture

FNAN 321: Financial Institutions. 3 credits.
Discusses basic objectives of financial institutions in light of industry structure and regulatory environment, and decision variables that management should concentrate on to achieve objectives. Includes role of financial institutions in allocation of funds in financial markets. Notes: Lecture, discussion, and computer-assisted research. Offered by School of Business (p. 846). May not be repeated for credit.

Required Prerequisites: (DESC 210\textsuperscript{C}, OM 210\textsuperscript{C} or U210) and (ECON 103\textsuperscript{C} or U103) and (ACCT 203\textsuperscript{C}, U203, 204\textsuperscript{C} or U204).
\textsuperscript{C} Requires minimum grade of C.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture, Recitation

FNAN 331: Advanced Financial Management. 3 credits.
Analyzes decision-making in firm, emphasizing conceptual structure of problems and using advanced analytic techniques. Topics include current asset management, capital budgeting and structure, dividend policy, long-term financing, mergers, and corporate planning models. Notes: Lecture, discussion, and case analysis. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (FNAN 301\textsuperscript{B} or 303\textsuperscript{B}).
\textsuperscript{B} Requires minimum grade of B-.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

FNAN 411: Investment Analysis and Portfolio Management. 3 credits.
Analyzes modern techniques of portfolio management including evaluating standards for selecting individual securities to include or delete from portfolios. Presents risk-return analysis for portfolios and portfolio performance measures. Lecture, discussion, computer-assisted research. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (FNAN 311<sup>C</sup> or L311).
<sup>C</sup> Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

FNAN 412: Futures and Options Markets. 3 credits.
Introduces options, commodity, and financial futures markets as they function to provide pricing mechanisms and alternative investment vehicles. Lecture, discussion, and computer-assisted research. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (FNAN 311<sup>C</sup> or L311).
<sup>C</sup> Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

FNAN 421: Money and Capital Markets. 3 credits.
Discussion of how financial markets are organized, their role in the allocation of funds to various market segments, and interaction between markets. Topics include aggregate flow of funds analysis; and money, government, corporate, and mortgage markets. Lecture, discussion, and computer assisted research. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (FNAN 321<sup>C</sup> or L321).
<sup>C</sup> Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

FNAN 430: Empirical Methods in Finance. 3 credits.
Examines statistical and econometric techniques used in analyzing financial data and developing financial models. Combines development of understanding of fundamental concepts with applications. Includes extensive use of standard software. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: BS degree status.

Registration Restrictions:
Required Prerequisites: (FNAN 311<sup>C</sup> or 321<sup>C</sup>).
<sup>C</sup> Requires minimum grade of C.

Schedule Type: Lecture

FNAN 431: Venture Capital and Private Financing of Startups. 3 credits.
This course focuses on how venture capitalists arrange the financing for a company; what they look for in a business plan; how they value a business; and how they structure the terms of an agreement. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: FNAN 301<sup>B</sup>, 303<sup>B</sup> or L303.
<sup>B</sup> Requires minimum grade of B-.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

FNAN 432: Fixed-Income Securities. 3 credits.
Focuses on analysis of fixed-income securities, including corporate and government bonds, mortgage-backed securities, and derivatives. Major topics include institutional features of fixed-income securities markets, valuation, analysis of risks, and portfolio management decisions. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: BS degree status.

Registration Restrictions:
Required Prerequisite: (FNAN 311<sup>C</sup>).
<sup>C</sup> Requires minimum grade of C.

Non-Degree level students may not enroll.

Schedule Type: Lecture

FNAN 436: Probability Methods for Finance. 3 credits.
This course focuses on the development and use of probability models for analyzing risks and financial decisions. Emphasis is on Monte Carlo simulation modeling, linear programming, and decision analysis of complex problems in corporate finance and in investment analysis. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (FNAN 301<sup>C</sup>, L301<sup>C</sup>, 303<sup>C</sup> or L303<sup>C</sup>) and (OM 210<sup>C</sup> or BUS 210<sup>C</sup>.
<sup>C</sup> Requires minimum grade of C.

Schedule Type: Lecture

FNAN 440: International Financial Management. 3 credits.
Introduces management of contemporary firm’s international financial operations. Topics include foreign exchange risk, political risk, returns and risks of international projects, international money and capital markets, financial accounting, capital structure, and cost of capital. Lecture, discussion, readings, and problems. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: FNAN 301\textsuperscript{B} or 303\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**FNAN 441: Advanced Topics in Firm Valuation.** 3 credits.
Course will focus on complex valuation techniques and build on the knowledge and skills developed in FNAN 341. Course will cover: research and valuation companies of different sizes, value private equity, mezzanine financing, develop advance discounted cash flow models, and other relevant topics. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: FNAN 341\textsuperscript{C} or 302\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**FNAN 454: Real Estate Development.** 3 credits.
Examines commercial real estate development process and principles plus actual residential, office, retail, and industrial projects. Includes financial analytical techniques to investigate project feasibility, density, financing viability, cash flows, and valuation. Emphasis placed on real-world, entrepreneurial, decision-making skills for developing commercial real estate. Lecture, discussion, project analysis. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (FNAN 351\textsuperscript{C} or L351).
\textsuperscript{C} Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**FNAN 462: Honors Seminar in Finance.** 3 credits.
Provides an in-depth study and analysis of contemporary developments and topics of interest in finance. Topics and format will vary. Enrollment is limited and competitive. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Senior Plus or Senior.

Enrollment is limited to students with a major in Finance.

Non-Degree or Washington Consortium level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**FNAN 498: Contemporary Topics in Finance.** 3 credits.
Course focuses on contemporary topics in finance and will be writing Intensive. Possible topics include: financial institutions, asset pricing, valuation and capital markets, 2008 crisis and the Federal Reserve/Treasury's intervention, emerging economies and exchange rate conversion, stability of the European Union and its currency. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (FNAN 301\textsuperscript{C} or L301) or FNAN 303\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

**FNAN 499: Independent Study.** 1-3 credits.
May be repeated to a maximum of 6 credits if topics vary. Degree status. Research and analysis of selected problems or topics in finance. Notes: Must be arranged with instructor and approved in writing by associate dean for undergraduate programs before registration. Written report required. May be repeated if topics vary. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Finance majors with at least 9 upper-level credit hours.

Registration Restrictions:
Students with a class of Freshman or Sophomore may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Independent Study
Foreign Language (FRLN)

300 Level Courses

FRLN 309: Humanities College to Career. 1 credit.
Focuses on career choices and effective self-presentation for soon-to-be graduating students with majors in the humanities. Explores how skills typically learned in humanities majors can be leveraged for a successful transition to post-graduation employment. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ENGH 303, HIST 385, PHIL 393.

Schedule Type: Lecture

FRLN 330: Topics in World Literature. 3 credits.
Major works of world literature with varying perspectives and topics, such as specific cultures, histories, myths, or music and the arts, as represented in literature. Notes: May be repeated when topic differs with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 9 credits.

Mason Core: Literature (p. 135)

Recommended Prerequisite: ENGL 101/ENGH 101 and 45 credits or permission of instructor.

Schedule Type: Lecture

FRLN 331: Topics in World Cinema. 3 credits.
Major works of world cinema with varying perspectives and topics, such as specific genres, periods, schools. Notes: Coursework in English. May be repeated when topic is different with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: ENGL 101 or permission of instructor.

Schedule Type: Seminar

FRLN 380: Topics in the Sociopolitics of Language. 3 credits.
Addresses relationship between language and other social and cultural systems (macro sociolinguistics), and critical study of people's ideas about language (language ideology). Utilizes comparative approach to explore ways people use language to perform and communicate various social identities and categories; how and why people attach social meanings and values to particular ways of using language; development of official and unofficial language policies; and impact of language policies. Notes: May be repeated when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: ENGL 101/ENGH 101 and 45 credits, or permission of instructor.

Schedule Type: Lecture

FRLN 385: Multilingualism, Identity, and Power. 3 credits.
Study of individual and societal aspects of multilingualism including language choice, linguistic maintenance and shift, code-switching, language planning, educational policy, and representations of multilingualism. Interdisciplinary approach emphasizes the social and political aspects of multilingualism, as well as the relationship of language to cultural, ethnoracial, and national identities and categories.

Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Recommended Prerequisite: Completion or concurrent enrollment in all other required Mason Core courses.

Schedule Type: Lecture

400 Level Courses

FRLN 430: Topics in Comparative World Literatures. 3 credits.
Explores comparative studies of a topic through literary works written in at least two different languages. All material provided in translation. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

FRLN 431: Medieval Intellectual Topics. 3 credits.
Focuses on topic in intellectual history of Middle Ages. Emphasizes literary or historical, depending on discipline of instructor. Relevant material may be drawn from philosophy, theology, and art. Notes: May be taken for credit by English or history majors. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ENGH 421, HIST 431.

Schedule Type: Lecture

FRLN 490: Internship in Foreign Language Studies. 1-6 credits.
Qualified students work with schools, social service programs, government agencies, interest groups, museums, or corporations locally or abroad. Specific arrangements must be made with, and approved by, a faculty member of the specific language program during semester prior to enrollment. For each credit, student works on site at least 45 hours. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Internship

500 Level Courses

FRLN 510: Bibliography and Research in Foreign Languages and Literature. 3 credits.
Use of basic bibliographical tools and methodologies for scholarly research in French, German, and Spanish. Taught in cooperation with university library staff. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in English

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRLN 525: Literary Translation. 3 credits.
Critical approach and analysis of diverse texts such as poetry, drama, essay, and novel excerpts. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.
**Recommended Prerequisite:** Graduate standing or permission of department and advanced coursework in literary translation.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**FRLN 550:** *Special Topics.* 3 credits.
Themes, periods, or genres vary from semester to semester. Focuses on topics that incorporate one or more languages taught in department, but instruction is in English. Notes: May be repeated with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**FRLN 551:** *Special Topics.* 3 credits.
Themes, periods, or genres vary from semester to semester. Focuses on topics that incorporate one or more languages taught in department, but instruction is in English. Notes: May be repeated with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**FRLN 555:** *Special Topics.* 3 credits.
Lectures on nature, function of translating process. Evaluates theories of translation with respect to text typology. Critiques selected translations from target languages to English and vice versa. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**FRLN 556:** *Theory of Translation.* 3 credits.
Lectures on nature, function of translating process. Evaluates theories of translation with respect to text typology. Critiques selected translations from target languages to English and vice versa. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**FRLN 557:** *Heritage Language Education.* 3 credits.
Overview of the field of heritage language education, including consideration of the linguistic and sociocultural characteristics of heritage language students, empirical research on heritage language education, and a range of instructional approaches, including critical pedagogy. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in English

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture
FRLN 590: Internship and Seminar in Translation. 3 credits.
Internships are nonpaying, work-study positions that focus on the practice of translation. Qualified students placed with area institutions, interest groups, agencies, or corporations. Notes: Placement depends on availability of positions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Corequisite: Internships are nonpaying, work-study positions that focus on the practice of translation. Qualified students are placed with area institutions, interest groups, agencies or corporations. Requires admission to the translation certification program. Please contact Dr. Cordero in the department. Individualized Section Form required.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

600 Level Courses
FRLN 600: Workshop in Foreign Languages. 1-6 credits.
In-service workshops, tours, and seminars on selected topics in literature, language, bilingualism, culture, methodology. Notes: May not be applied toward MA in foreign languages without permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRLN 620: Literary Theory and Criticism. 3 credits.
Studies nature of literary work, and analyzes contemporary critical approaches to literature. Notes: May not be taken for credit by students who previously received credit for FRLN 615. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRLN 650: The Teaching of Culture in Foreign Language Programs. 3 credits.
Purpose and methods of study of culture, with emphasis on strategies and techniques for teaching culture in foreign language programs.

Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRLN 660: Approaches to the Study of Language. 3 credits.
Linguistics and its relationship to other disciplines, including study of generative grammar with syntactic problems drawn from commonly taught foreign languages. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRLN 670: Foreign Language Learning and Teaching. 3 credits.
Theories, methods, and strategies of second and foreign language learning and teaching. May not be taken by students who have completed FRLN 570. Notes: May not be taken by students who have completed FRLN 570. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Forensic Science (FRSC)

200 Level Courses
FRSC 200: Survey of Forensic Science. 3 credits.
This course will familiarize students with the basic principles, professional practice, quality assurance, and quality control measures employed in the practice of forensic science in the American system of justice. An introduction to topics including the nature of evidence and the law, crime scene investigations, serology, DNA analysis, bloodstain pattern, trace evidence, microscopy, forensic pathology, anthropology, odontology and entomology/ Offered by College of Science (p. 593). May not be repeated for credit.

Schedule Type: Lecture
FRSC 201: Introduction to Criminalistics. 3 credits.
This course will provide an overview of the field of criminalistics, with a focus on the recognition, collection, preservation, and analysis of physical evidence. During the course, the student will be introduced to topics such as fingerprints, question documents, firearms, drugs of abuse, explosives and arson to prepare them for additional, more in-depth classes in criminalistics/forensic science. Offered by College of Science (p. 593). May not be repeated for credit.

Schedule Type: Lecture

300 Level Courses

FRSC 302: Forensic Trace Analysis. 3 credits.
This course will provide an overview of the field of forensic science with specific emphasis on areas of trace and biological evidence, including topics such as the analysis of hair, soil, glass, paint, and other trace material. A laboratory component provides an introduction to microscopy which assists students master the foundation tools used in analyzing forensic trace evidence. Offered by College of Science (p. 593). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: FRSC 200\(^C\) and 201\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

FRSC 303: Forensic Evidence and Ethics. 3 credits.
This course will acquaint the student with the application of scientific methods and the interaction it may have with legal principles. It will prepare the student for future applications of forensic science with its role in the administration of justice, courtroom testimony, and the ethical rules and duties under codes of professional conduct and practice. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: FRSC 200\(^C\) and CRIM 100\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

FRSC 304: Forensic Chemistry. 3 credits.
Introduction to the chemical principles and methods used in the application of forensics toward the elucidation of criminal activity and to support litigation. Students will be learning the fundamentals of statistics (QA/QC), chromatography (GC and LC), and instrumentation (microscopy, FTIR, and MS) that will enable forensics analysis of trace evidence relating to: drugs, explosives, toxicology, arson, firearms, volatiles, and hair/fibers. Offered by College of Science (p. 593). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: FRSC 200\(^C\), 201\(^C\), CHEM 211\(^C\), 213\(^C\), 212\(^C\) and 214\(^C\).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

400 Level Courses

FRSC 401: Crime Scene Investigations. 3 credits.
This course provides the scientific principles of crime scene investigations by applying the basic knowledge of proper documentation, collection and preservation of physical evidence. Proper crime scene protocols and evidence processing techniques will be performed in areas such as, forensic photography, sketching, blood stain pattern analysis, trajectory, skeletal remains, and fingerprinting. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: FRSC 200\(^C\), 201\(^C\) and 303\(^C\).
\(^C\) Requires minimum grade of C.

Enrollment limited to students in the BS Forensic Science program.

Schedule Type: Research

FRSC 405: Independent Research Methods. 3 credits.
This course is designed to allow students to complete an approved independent forensic science research project under the guidance of a faculty mentor. A formal research proposal will be prepared and submitted. In addition to conferring with the instructor regularly regarding the process of their research, students will also be introduced to research and writing methods throughout the course. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Completion of 90 credits or permission of instructor.

Registration Restrictions:
Enrollment limited to students in the BS Forensic Science program.

Schedule Type: Research

FRSC 406: Forensic Internship. 3 credits.
This course is designed to allow students the opportunity to enhance their academic coursework with field work either at an approved agency or under the guidance of an approved faculty mentor that will substantially correlate with a discipline of forensic science. For successful completion, the student must complete a minimum of 135 hours of work. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Completion of 60 credits or permission of instructor.

Registration Restrictions:
Enrollment limited to students in the BS Forensic Science program.

Schedule Type: Internship

FRSC 415: Selected Topics in Forensic Science. 3 credits.
Topics vary according to instructor’s specialty. Notes: May be repeated only with permission of program chair. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Permission of instructor

Schedule Type: Lecture

FRSC 420: Forensic Toxicology. 3 credits.
Examines toxic substances and their effects on human cellular and organ systems. The course focuses on human physiological concepts, the human enzymatic detoxification processes, methodologies for identifying...
toxins, and specific toxic analytes. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** Completion of Forensic Science Foundation courses

**Schedule Type:** Lecture

**FRSC 440:** Advanced Forensic Chemistry. 3 credits.
The principles of forensic chemistry will be addressed in this course, including analytical chemistry, instrumentation, sample handling, drug chemistry and pharmacology, and analysis of physical evidence such as papers, inks, paints, and coatings. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** Completion of Forensic Science Foundation courses

**Schedule Type:** Lecture

**FRSC 460:** Forensic DNA Sciences. 3 credits.
This course will provide an understanding of body fluid identification and molecular biology testing methodologies as applied to the analysis of forensic samples. The process of forensic DNA analysis will be covered in depth. Current topics in forensic DNA analysis will be reviewed including population genetics, validation, quality assurance, the CODIS database, Y-STRs, mitochondrial DNA testing, SNPs and contemporary research. Offered by College of Science (p. 593). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** FRSC 200C, 201C, BIOL 213C and 311C.

**Schedule Type:** Lecture

**FRSC 499:** Comprehensive Examination. 0 credits.
The comprehensive examination ensures that the student is prepared to engage in an entry level forensic profession, in advanced forensic training or a graduate program. Students are required to pass this examination prior to graduation. Offered by College of Science (p. 593). May be repeated within the degree for a maximum of credits.

**Recommended Corequisite:** FRSC 304, 401 and 460.

**Registration Restrictions:**
**Required Prerequisites:** FRSC 200C, 201C, 302C and 303C.

**Schedule Type:** Independent Study

**500 Level Courses**

**FRSC 500:** Introduction to Forensic Science. 3 credits.
Overview of forensic science and related investigative techniques. Includes coverage of crime scene investigation, crime scene procedures, the role of the forensic pathologist, the modern forensic laboratory, DNA analysis techniques, microanalysis, examination of trace evidence, hair and fibers, examination of questioned documents, forensic anthropology, forensic odontology, homicide investigation, and analysis of a mock crime scene. Offered by College of Science (p. 593). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 510:** Basic Crime Analysis. 3 credits.
Examines the role of the first officer at the scene, search, seizure and related legal issues, traditional crime scene measurements, photogrammetry, processing latents, crime scene reconstruction methods, 2-D and 3-D impressions, blood spatter analysis, collection of trace evidence, packaging and preserving evidence, outdoor crime scenes, and explosion and fire scenes. Offered by College of Science (p. 593). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 511:** Advanced Crime Scene Analysis. 3 credits.
Advanced Crime Scene Analysis is designed to build on concepts introduced in FRSC 510 (Basic Crime Scene Analysis), and to provide an enhanced foundation in the field of criminalistics for those students who are interested in learning the application of science to solving crimes. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** FRSC 510 or permission of instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 512:** Physical Evidence Analysis. 3 credits.
This is a series of practical laboratory exercises that introduces the student to sophisticated crime scene documentation techniques including collection of evidence, examination of hairs, fibers, toolmarks and other trace evidence. Advanced topics in blood spatter, trajectory, pattern casting, and alternate light sources will be explored. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** FRSC 510 or permission of instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**FRSC 513: Forensic Photography.** 3 credits.
This series of lecture and practical exercises introduces the student to sophisticated crime scene documentation techniques including photography, digital imaging, use of lighting, and legal issues relating to images. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** Admitted to the Forensic Science Master's Program, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 515: Selected Topics in Forensic Science.** 3 credits.
Topics vary with instructor's specialty. May be repeated only with permission of program chair. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 517: Questioned Document Examination.** 3 credits.
Theory and principles of handwriting, duplicating and printing processes, paper manufacture and fiber analysis, fracture match comparison, ink analysis, and indented writing examinations; methods of examining questioned documents. Offered by College of Science (p. 593). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 520: Toxicology.** 3 credits.
Examines toxic substances and their effects on human cellular and organ systems. The course focuses on human physiological concepts, the chemistry of toxins, the human enzymatic detoxification processes, and the analytical techniques required for detecting the presence of toxins and their metabolites in human tissue or serum. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** Advanced level undergraduate course in molecular or cellular biology, biochemistry or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 530: Law and Forensic Science.** 3 credits.
A detailed examination and analysis of the law affecting forensic science across the discipline range. Special emphasis is given to the laws affecting evidence, courtroom procedure, and the forensic expert. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** Minimum of 10 credit hours of graduate Forensic Science coursework.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 540: Forensic Chemistry.** 3 credits.
The principles of forensic chemistry will be addressed in this course, including analytical chemistry, instrumentation, sample handling, drug chemistry and pharmacology, and analysis of physical evidence such as papers, inks, paints, and coatings. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate degree in chemistry or biology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FRSC 541: Forensic Chemistry Laboratory.** 1 credit.
This course will familiarize students with chemical knowledge gained from experimental observations and studies in the laboratory. Students will examine, test and establish for themselves the forensic chemistry discussed in the lecture courses. Note: The successful passing of a Virginia Department of Forensic Science background check is required prior to gaining access to this laboratory course. Offered by College of Science (p. 593). May not be repeated for credit.

**Recommended Corequisite:** FRSC 540.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

FRSC 550: Issues in Forensic Anthropology. 3 credits. Examine issues related to skeletal analyses and interpretation of forensic case reports in determining personal identification and cause of death. Discussions include skeletal variation, age criteria, sexing criteria, pathology, trauma, and postmortem damage. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

FRSC 560: Forensic DNA Sciences. 3 credits. Intensive introduction to parameters affecting data QC and analysis, including factors arising from biochemistry, chemistry, genetics, statistics, instrumentation, and software. Offered by College of Science (p. 593). May not be repeated for credit. Equivalent to BINF 637.

Recommended Prerequisite: Undergraduate coursework in molecular and/or cell biology, as well as genetics, prior to taking this course or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

FRSC 561: Forensic DNA Laboratory. 1 credit. This laboratory course will provide comprehensive coverage of the various types of DNA testing currently used in forensic biology laboratories. Students will have hands-on experience with the analytical equipment employed and the techniques used for human identification in forensic casework, such as, DNA extraction, quantitation, PCR amplification, genotyping, and interpretation. Note: The successful passing of a Virginia Department of Forensic Science background check is required prior to gaining access to this laboratory course. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Corequisite: FRSC 560.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
600 Level Courses

FRSC 600: Forensics Seminar. 1 credit.
Selected topics in forensic science research, generally consisting of research presentations by forensic professionals and faculty members. Students must write an article of their choosing, not to exceed four pages, from a set of peer-reviewed journals to be established by the instructor. Recent articles are preferred, generally those having been published during the previous two years. Notes: Students enrolled in the forensic science MS program must attend at least 80% of the seminars. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Admission to the Forensic Science MS program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

FRSC 610: Forensics Research Project. 1-4 credits.
Research project in a current area of forensic science performed under the direction of a faculty member or affiliated forensic science professional. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 4 credits.

Recommended Prerequisite: Admission to the Forensic Science MS program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

FRSC 620: Face and Biometric Pattern Analysis. 3 credits.
This course will familiarize students with the basic principles and uses of biometrics for automated searches and comparisons by forensic examiners. This course will review the basics of face, fingerprints, iris, and speaker recognition. Students should gain an understanding of how automated systems and forensic examiners perform recognition. Students will also learn the capabilities and limitations of biometric recognition. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRSC 630: Fingerprint Identification. 3 credits.
This course will cover the exploration of the techniques and methods of identification, capture and analysis of fingerprint evidence, including consideration of the fundamentals of fingerprint patterns, classification formulas and extensions, techniques for taking good fingerprints, problems in fingerprinting, preparation of fingerprint charts for court testimony, and practical exercises for capturing fingerprints. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRSC 640: Legal, Privacy and Ethical Issues in Identity Analysis. 3 credits.
This course will review basic policies and doctrinal guidance related to the applications of biological, physical, chemical, and medical sciences to questions of evidence and law. In doing so, students should gain a basic understanding of the high level policies, protocols, standards, privacy, civil liberties, and doctrine related to the forensic sciences as they are practiced relating to identity analysis. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FRSC 650: Identity Analysis Applications. 1 credit.
This course will review the basics of biometrics and how the various biometric modalities can be used to aid in identification and identity verification. The course will also focus on how biometrics and forensics are used, or can be used, in various applications from military uses, intelligence/counter-terrorism, border and immigrations control and in support of state development. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar
FRSC 690: *Forensics Capstone Course*. 3 credits.
Integrates all the various techniques used in the study of forensic science and medicine, and applies them to the interpretation of facts and the reconstruction of the sequence of events at a variety of typical death scenes. Integrates medical, scientific, sociological, and legal methodology as they apply to medicolegal death investigations, using a variety of forensic literature and text resources. Presents an integrative approach to crime scene analysis based on actual case studies, in which students apply theoretical concepts discussed in class to real-world situations. Includes weekly group projects, with students organized in rotating groups and assigned a research topic in forensic medicine. Students discuss, examine, and analyze forensic, medical, and physical elements present at the death scenes, and develop their own hypotheses, which are then evaluated and discussed as the case is reconstructed. Offered by College of Science (p. 593). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

### 700 Level Courses

**FRSC 790: Internship in Forensic Science.** 1-3 credits.
On the job experience for Forensic Science majors in industry or government laboratories or investigative units, or approved study programs with specific employers. Students work in observational, experimental, or theoretical research, and prepare weekly journals, as well as a written report at the end of the internship. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admitted to Forensic Science Program, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**FRSC 799: Master’s Thesis.** 1-6 credits.
Project chosen and completed under guidance of graduate faculty member. Comprehensive report (thesis) acceptable to student’s advisory committee is required. Offered by College of Science (p. 593). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

### French (FREN)

#### 100 Level Courses

**FREN 101: Elementary French I.** 3 credits.
For students with no knowledge of French. Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading.

Notes: Students may not receive credit for FREN 101 and FREN 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to FREN 110.

**Schedule Type:** Lecture

**FREN 102: Elementary French II.** 3 credits.
Continuation of FREN 101. Notes: Students may not receive credit for FREN 102 and FREN 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to FREN 110, FREN 115.

**Recommended Prerequisite:** FREN 101, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**FREN 110: Elementary French.** 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading.

Notes: Students may not receive credit for FREN 110 and FREN 101, 102. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to FREN 101, FREN 102, FREN 110, FREN 115.

**Schedule Type:** Lecture

**FREN 115: Review of Elementary French.** 3 credits.
Reviews elements of French for students who have studied French previously. Notes: Students may not receive credit for FREN 115 and FREN 102, or 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to FREN 102, FREN 109, FREN 110.

**Recommended Prerequisite:** Appropriate placement score, or permission of department.

**Schedule Type:** Lecture

#### 200 Level Courses

**FREN 201: Intermediate French I.** 3 credits.
Further development of skills in listening, speaking, reading, and writing.

Notes: FREN 201 and 202 must be taken in sequence. Students may not receive credit for FREN 201 and FREN 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to FREN 210.

**Recommended Prerequisite:** FREN 102, appropriate placement score, or permission of department.

**Schedule Type:** Lecture

**FREN 202: Intermediate French II.** 3 credits.
Applies language skills to reading, composition, and class discussion.

Notes: Students may not receive credit for FREN 202 and FREN 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to FREN 210.

**Schedule Type:** Lecture
FREN 210: Intermediate French. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of French-speaking regions.
Notes: Students may not receive credit for FREN 210 and FREN 201, 202. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to FREN 201, FREN 202, FREN 209.

Recommended Prerequisite: FREN 110 or appropriate placement score.

Schedule Type: Lecture

FREN 250: Gateway to Advanced French. 3 credits.
Integration of advanced intermediate-level French reading, writing, listening, and speaking skills, and the development of critical thinking about authentic texts from around the globe. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in French

Recommended Prerequisite: FREN 210.

Schedule Type: Lecture

300 Level Courses

FREN 300: Study Tour in France. 1-6 credits.
Directed study tour of cultural and literary points of interest in France. Briefing sessions and reading selection given before the trip. Notes: All papers and exams required for credit are due by end of summer session. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: FREN 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

FREN 309: Reading and Writing Skills Development. 6 credits.
Development of ability to write about topics of current interest. Readings provide examples of each topic and necessary vocabulary for compositions. Introduces reading strategies and provides practice in reading of different kinds of texts. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in French, Writing Intensive in the Major

Recommended Prerequisite: FREN 202, 250 or equivalent; appropriate placement score; or permission of instructor.

Schedule Type: Lecture

FREN 310: Oral Proficiency in French. 3 credits.
Develops conversational proficiency in French with attention to various specific communicative strategies and functions. Practice in pronunciation and dictation based on systematic study of sound system of French. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in French

Recommended Prerequisite: FREN 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

FREN 320: Contemporary Tour de France. 3 credits.
Examines contemporary social, political, economic, cultural trends in France. Covers domestic and international topics such as debates around French identity, migration and civil rights, political parties, the media, family life, work-related issues, participation in international organizations and involvement with former colonies and overseas regions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in French

Recommended Prerequisite: FREN 309 or permission of the instructor.

Schedule Type: Lecture

FREN 325: Major French Writers (Topic Varies). 3 credits.
Studies works of major French writers. Writers to be studied vary. Notes: May be repeated for credit with permission of department. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

FREN 329: Problems of Western Civilization in French Literature. 3 credits.
Basic philosophical, moral, social, and political dilemmas reflected in literature of major French writers. Notes: May be repeated for credit with permission of department. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English

Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.

Schedule Type: Lecture

FREN 340: Francophone Identities. 3 credits.
Provides opportunity to learn about richness, variety, and complexity of francophone world through study of literature, culture, social life, and identities of various francophone regions including Caribbean, Africa, Quebec, and Indochina. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in French

Recommended Prerequisite: FREN 309, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

FREN 357: Introduction to Translation. 3 credits.
French to English, English to French translations, of texts from current periodicals and newspapers in various fields. Notes: Recommended for students who wish to improve language skills. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: FREN 250, appropriate placement score, or permission of instructor.
FREN 370: French Civilization, Culture, and Literature: Ancient Gaul to 1789. 3 credits.
Examines history, civilization (daily life, politics, science, philosophy, religion), culture (architecture, art, music, dance), and literature of France from Ancient Gaul to the eve of the French Revolution. Studies development of French nation and its people through written texts, visual arts, and music. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: FREN 309 or permission of the instructor.

Schedule Type: Lecture

FREN 371: French Civilization, Culture, and Literature: 1789 to the Present. 3 credits.
Examines history, civilization (daily life, politics, science, philosophy, religion), culture (architecture, art, music, dance), and literature of France from French Revolution of 1789 to present. Studies development of French nation and its people through written texts, visual arts, and music. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: FREN 309 or permission of the instructor.

Schedule Type: Lecture

FREN 381: Introduction to Literary Analysis. 3 credits.
Structured approach to reading and analysis of French literary texts. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture

FREN 385: Introduction to French Linguistics. 3 credits.
Introduction to the linguistic analysis of the French language, including its sound system (phonetics, phonology), its rules of word formation (morphology) and sentence structure (syntax), its system of word meaning (semantics), its history and origin (historical linguistics), and its variation as a function of social and regional factors (sociolinguistics). Includes discussion of theoretical issues and cross-linguistic comparisons involving French. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in French

Schedule Type: Lecture

Introduces the terminology and the culture of business, hospitality, and fashion in the French-speaking world. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in French

Recommended Prerequisite: Grade of C or better in FREN 309.

Schedule Type: Lecture

FREN 391: French for the Business World. 3 credits.
Studies written and oral styles of communication in commercial, governmental and non-governmental settings. Satisfies needs of students preparing for work in multinational business and foreign service.

Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: 15 hours of FREN or permission of instructor.

Schedule Type: Lecture

400 Level Courses

FREN 400: Study Abroad in France or Francophone Region. 1-6 credits.
2 to 4 week programs in France or the Francophone world with language, culture and literature courses, local visits and excursions. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Independent Study

FREN 415: Topics in Medieval French Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (chanson, novel, poetry, short story) and authors in their historical and cultural contexts: geste, feudalism, socio-political and religious (in)stability. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 416: Topics in Renaissance French Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and theater) and authors in their historical and cultural contexts: humanism, reformation, codification of language and birth of nation-state. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 417: Topics in Seventeenth-Century French Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (chanson, novel, poetry, and theater) and authors in their historical and cultural contexts: baroque, classicism, social and philosophical essays, satirical plays. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 418: Topics in Eighteenth-Century French Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and theater) and authors in their historical and cultural contexts: enlightenment, social, political and philosophical trends and issues, pre-
FREN 419: Topics in Nineteenth-Century French Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: pre-Romanticism; Romanticism; Realism; Symbolism; Naturalism. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 420: Topics in Twentieth and Twenty-First-Century French Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and theater) and authors in their historical and cultural contexts: surrealists, existentialists, new novelists, feminists, etc. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 440: Topics in Quebec and French-Canadian Literature and Culture. 3 credits.
Analyzes representative literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts. Emphasizes contemporary works. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 445: Special Topics related to Francophone Literature and Culture. 3 credits.
Analyzes a selection of literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: Negritude, political strife, religious conflicts throughout the francophone world. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 450: Special Topics Related to French Literature and Culture. 3 credits.
Analyzes selected texts, authors, movements, and issues within a comparative historical and cultural context over two or more centuries or with an interdisciplinary approach. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 451: Topics in Sub-Saharan Francophone Literature and Culture. 3 credits.
Analyzes a selection of literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: Negritude, (post)colonialism, new African voices within and beyond the continent. Notes: May be repeated when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Non-Western Culture

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 453: Topics in North African Francophone Literature and Culture. 3 credits.
Analyzes a selection of literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts with a focus on the construction of identity: Maghreb in pre and (post)colonial era, recent ideological trends in writing. Notes: May be repeated for credit with permission of instructor. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 454: Topics in Caribbean Francophone Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: the construction of identity through and beyond Negritude, Antillanité, Creolité, and migration. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Non-Western Culture

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 455: Special Topics related to Francophone Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: gender studies, migration and identity-building, ethno-social tensions, political strife, religious conflicts throughout the francophone world. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 456: Topics in North African Francophone Literature and Culture. 3 credits.
Analyzes a selection of literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts with a focus on the construction of identity: Maghreb in pre and (post)colonial era, recent ideological trends in writing. Notes: May be repeated for credit with permission of instructor. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 457: Topics in Quebec and French-Canadian Literature and Culture. 3 credits.
Analyzes representative literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts. Emphasizes contemporary works. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Schedule Type: Lecture

FREN 460: Advanced Oral and Written Expression. 3 credits.
Intensive course designed to help students obtain fluency in oral and written French. Develops conversational skills and mastery of vocabulary through class discussions, oral and written reports, debates and presentations on current topics and events linked to the French and Francophone world. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: 15 credits of French, or permission of instructor.

Schedule Type: Lecture
FREN 462: **Stylistics.** 3 credits.
Describes and analyzes the variability of forms and styles and the more complex aspects of the French language. Develops writing skills through readings, discussions, and compositions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** 15 credits of French at the 300 level or permission of instructor.

**Schedule Type:** Lecture

FREN 463: **History of the French Language.** 3 credits.
Diachronic study of the French language from the 9th to the 20th century, with a focus on morphology, syntax and lexicon changes. Close study of various texts (prose, poetry, political writing, theater and short stories) in the light of their socio-historical contexts. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** 15 credits of French at the 300 level or permission of instructor.

**Schedule Type:** Lecture

FREN 464: **Advanced Translation.** 3 credits.
Analyzes theories and methods of translation, with a focus on translation practice (French to English and English to French) of a varied selection of texts (periodicals, short stories, novel excerpts, newspaper articles, etc.). Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 15 credits of French at the 300 level or permission of the instructor.

**Schedule Type:** Lecture

FREN 465: **Special Topics related to the French language.** 3 credits.
Content varies: diachronic or synchronic study of the French language or one of its aspects; sociolinguistics; language teaching methodology; etc. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 15 credits of French at the 300 level or permission of instructor.

**Schedule Type:** Lecture

FREN 467: **Special Topics related to French and Francophone Literature and Culture.** 3 credits.
Analyzes selected texts, authors, movements, and issues within comparative historical and cultural contexts as related to France and to various francophone regions of the world or with an interdisciplinary approach. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 15 credits of French at the 300 level or permission of instructor.

**Schedule Type:** Lecture

FREN 470: **French and Francophone Cinema.** 3 credits.
Analyzes topics such as the early days of French cinema, la nouvelle vague, women film directors, Quebecois, African and Caribbean films, selected by type, period or director. Notes: May be repeated with permission of department or film studies advisor. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 15 credits of French at the 300 level or permission of instructor.

**Schedule Type:** Lecture

FREN 475: **Grammatical Analysis.** 3 credits.
Study of characteristic features of contemporary French. Examines spoken and written French, including syntactic analysis, distributional analysis, and generative-transformational grammar. Emphasis on problem areas for American learner. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** 15 credits of French at the 300 level or permission of instructor.

**Schedule Type:** Lecture

FREN 490: **Independent Study.** 1-3 credits.
Research and analysis of selected problem in literature or linguistics in consultation with department member. Notes: Only 6 credits of independent study may be applied to fulfilling requirements in concentration. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Schedule Type:** Independent Study

FREN 491: **Independent Study.** 1-3 credits.
Research and analysis of selected problem in literature or linguistics in consultation with department member. Notes: Only 6 credits of independent study may be applied to fulfilling requirements in concentration. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Schedule Type:** Independent Study

FREN 497: **Senior Honors Tutorial.** 3 credits.
Students who meet these requirements admitted to candidacy after submitting letter of application to departmental Honors Committee in second half of junior year. Also requires faculty recommendation and interview by Honors Committee. First semester involves weekly meetings with faculty member to discuss readings from comprehensive list prepared by French faculty. Second semester requires independent research and completion of honors essay under supervision of French faculty member. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Schedule Type:** Independent Study

FREN 498: **Senior Honors Tutorial.** 3 credits.
Students who meet these requirements admitted to candidacy after submitting letter of application to departmental Honors Committee in second half of junior year. Also requires faculty recommendation and interview by Honors Committee. First semester involves weekly meetings with faculty member to discuss readings from comprehensive list prepared by French faculty. Second semester requires independent research and completion of honors essay under supervision of French faculty member. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Schedule Type:** Independent Study
500 Level Courses

FREN 500: Study Abroad in France or Francophone Region. 1-6 credits. 2 to 4-week programs in France or the Francophone world with language, culture and literature courses, local visits and excursions. Advanced critical research and writing required. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

FREN 515: Topics in Medieval French Literature and Culture. 3 credits. Analyzes a selection of important literary texts (chanson, novel, poetry, short story) and authors in their historical and cultural contexts: geste, feudalism, socio-political and religious (in)stability. Advanced critical research and writing required. Notes: Coursework in French. May be repeated when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in French

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 516: Topics in Renaissance French Literature and Culture. 3 credits. Analyzes a selection of important literary texts (novel, short story, poetry, and/theater) and authors in their historical and cultural contexts: humanism, reformation, and codification of language and birth of nation-state. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 517: Topics in Seventeenth-Century French Literature and Culture. 3 credits. Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: enlightenment, social, political and philosophical trends and issues, pre-romanticism. Advanced critical research and writing required. Notes: Content varies. May be repeated for credit. Coursework in French. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in French

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 518: Topics in Eighteenth-Century French Literature and Culture. 3 credits. Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: enlightenment, social, political and philosophical trends and issues, pre-romanticism. Advanced critical research and writing required. Notes: Content varies. Coursework in French. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in French

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 519: Topics in Nineteenth-Century French Literature and Culture. 3 credits. Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: Romanticism; Realism; Symbolism; Naturalism. Advanced critical research and writing required. Notes: Content varies. Coursework in French. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in French

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 520: Topics in Twentieth and Twenty-First-Century French Literature and Culture. 3 credits. Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts:
surrealists, existentialists, new novelists, feminists, etc. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 550: Special Topics. 3 credits.
Specialized topics relating to French culture and literature. Notes: Content varies. May be repeated for credit. Coursework in French. Offered by Modern & Classical Languages (p. 414). May be repeated within the term.

Specialized Designation: Taught in French

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 551: Topics in Francophone Sub-Saharan Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: Negritude, (post)colonialism, new African voices within and beyond the continent. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 553: Topics in North African Francophone Literature and Culture. 3 credits.
Analyzes a selection of literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts with a focus on the construction of identity: Maghreb in pre and (post)colonial era, recent ideological trends in writing. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 554: Topics in Quebec and French-Canadian Literature and Culture. 3 credits.
Topics in Francophone Caribbean Literature and Culture. 3 credits.

Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: the construction of identity through and beyond Negritude, Antillanite, Creolite, and migration. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 555: Special Topics related to Francophone Literature and Culture. 3 credits.
Analyzes a selection of important literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts: gender studies, migration and identity-building, ethno-social tensions, political strife, religious conflicts throughout the francophone world. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 557: Topics in Quebec and French-Canadian Literature and Culture. 3 credits.
Analyzes representative literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts. Emphasizes contemporary works. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 561: Linguistic Structure of Modern French. 3 credits. Analyzes phonology, morphology, and syntax of modern standard French, through a close study of selected texts (newspaper articles, short stories, novel excerpts, informal correspondence). Advanced critical research and writing required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 562: Stylistics. 3 credits. Describes and analyzes the variability of forms and styles and the more complex aspects of the French language. Develops writing skills through readings, discussions, and compositions. Advanced critical research and writing required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 563: History of the French Language. 3 credits. Analyzes a selection of literary texts (novel, short story, poetry, and/or theater) and authors in their historical and cultural contexts with a focus on the construction of identity: Maghreb in pre and (post)colonial era, recent ideological trends in writing. Advanced critical research and writing required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 564: Advanced Translation. 3 credits. Analyzes theories and methods of translation, with a focus on translation practice (French to English and English to French) of a varied selection of texts (periodicals, short stories, novel excerpts, newspaper articles, etc.) Advanced critical research and writing required. Notes: Translations from French to English and English to French. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 565: Special Topics Related to the French Language. 3 credits. Content varies: diachronic or synchronic study of the French language or one of its aspects; sociolinguistics; language teaching methodology, etc. Advanced critical research and writing required. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 567: Special Topics related to French and Francophone Literature and Culture. 3 credits. Explores issues related to the francophone world. Emphasis on comparative issues, not geographical areas. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 15 credits of French at the 300 level or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

FREN 570: French and Francophone Cinema. 3 credits. Topics such as early days of French cinema, a nouvelle vague, women film directors, Quebecois, African and Caribbean films, selected by type, period or director. Advanced critical research and writing required. Viewing of films outside of class time. Notes: May be repeated for
credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**FREN 575: Grammatical Analysis.** 3 credits.
Analyzes selected texts, authors, movements, and issues within comparative historical and cultural contexts as related to France and to various francophone regions of the world or with an interdisciplinary approach. Advanced critical research and writing required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**FREN 798: Directed Reading and Thesis Research.** 3 credits.
Reading and research for thesis under direction of a faculty member. Notes: Open to degree students who desire to work on independent study with a faculty mentor or who have completed at least 24 credits and have been approved by the French Graduate Faculty to conduct research for a M.A. thesis. See Modern Classical Languages Graduate Student Handbook for complete explanation of the thesis option. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** Degree students who desire to work on independent study with a faculty mentor or who have completed at least 24 credits and have been approved by the French Graduate Faculty to conduct research for a M.A. thesis.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**Geography and Geoinformation Science (GGS)**

**100 Level Courses**

**GGS 101: Major World Regions.** 3 credits.
Patterns, problems, and prospects of the world's principal human-geographic regions. Emphasizes areal differentiation and role of geographic differences in interpreting current world scene. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Lecture

**GGS 102: Physical Geography.** 3 credits.
Interrelated processes affecting global distribution and character of climate, soils, vegetation, hydrology, and landforms. Includes elements of mapping. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Mason Core:** Natural Science Overview, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Lecture

**GGS 103: Human Geography.** 3 credits.
Overview of major ideas and approaches to studying spatial aspects of human social and behavioral systems. Surveys distribution and movement of human populations, characteristics and distribution of cultural mosaics, patterns of economic interdependence, and study of forces of cooperation and conflict among people from global perspective. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Lecture

**GGS 110: Introduction to Geoinformation Technologies.** 3 credits.
This course introduces students to basic geoinformation technology concepts and applications. Students learn about and apply spatial data collection analytic tools and methods, including geographic information systems, and web-based map developments. Lectures examine social trends, ethical issues including privacy state of the art technological research and developments of geoinformation technologies in industry, government, education, and everyday life. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Discovery of Scholarship

**Schedule Type:** Lecture

**GGS 121: Dynamic Atmosphere and Hydrosphere.** 4 credits.
Systematic study of weather, climate, energy, and hydrologic systems viewed from a geospatial and global perspective. Studies the spatial distribution and relationships of the Earth’s climate and hydrologic
systems to other Earth systems, as well as the processes driving and changing them, including energy, climate, weather, and water resources. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Mason Core:** Natural Science with Lab, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Laboratory, Lecture

**GGS 122: Dynamic Geosphere and Ecosphere.** 4 credits. Systematic study of biogeography and soils, viewed from a geographic, or spatial, perspective. We will study the spatial distribution and relationships of Earth’s biomes and soils systems to other Earth systems, and the processes driving them, including energy, climate, nutrients, chemistry, and moisture. Cannot be combined for credit with EVPP 110 or EVPP 111. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Laboratory, Lecture

### 300 Level Courses

**GGS 300: Quantitative Methods for Geographical Analysis.** 3 credits. Comprehensive introduction to quantitative methods in spatial analysis, with emphasis on solving geographical research problems. Topics include nature of spatial data; collection of spatial data; preparation of spatial data for mapping, geographic information systems, and statistical analysis; descriptive spatial statistics; areal sampling theory and methods; probability theory and distributions; hypothesis testing; correlation and regression; and areal and point pattern spatial statistics. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** 30 credits, including GGS 102 and 103 or permission of instructor.

**Schedule Type:** Lecture

**GGS 301: Political Geography.** 3 credits. Distribution and effects of power on landscape, particularly on national and global scales. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 30 credits

**Schedule Type:** Lecture

**GGS 302: Global Environmental Hazards.** 3 credits. Introduces applications of observational and modeling techniques to natural hazards and the threat they pose to the world, as well as a general introduction to global climate change and its effect on regional and local scales. Examples include topics of interest to different countries and regions of the world, such as earthquakes, sand and dust storms, slope failures, volcanoes, land slides, droughts and desertification, floods, hurricanes and typhoons, severe weather, wild fires (U.S., Indonesia, Africa, S. America), sea-level rise, and tsunamis. Covers Earth system science topics related to the above hazards and their coupling with anthropogenic hazards as well as how societies respond to natural disasters and mitigation. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 30 hours and undergraduate status

**Schedule Type:** Lecture

**GGS 303: Geography of Resource Conservation.** 3 credits. Provides analysis of world resources distribution, conservation, and preservation; and problems resulting from their natural occurrence and utilization. Uses knowledge from physical and social sciences to develop complex and sophisticated understanding of issues surrounding natural resource exploitation and management, conservation, and preservation. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Mason Core:** Encore:Sustainability, Synthesis (p. 135)

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 30 credits, and completion or concurrent enrollment in all other required Mason Core courses.

**Schedule Type:** Lecture

**GGS 304: Population Geography.** 3 credits. Spatial distribution of population, its causes and effects, and changing patterns resulting from population mobility. Emphasizes spatial characteristics of variables such as age, sex, race, education, and income. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Mason Core:** Encore:Sustainability, Synthesis (p. 135)

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 30 credits and completion of or concurrent enrollment in all Mason Core requirements.

**Schedule Type:** Lecture

**GGS 305: Economic Geography.** 3 credits. Analyzes pattern of distribution of world economic activity, spatial economics behind this pattern, and influence of distribution on other spatial systems. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 30 credits

**Schedule Type:** Lecture


**Schedule Type:** Lecture

**GGS 307: Sustainable Development.** 3 credits. Explores the concepts, applications, and tools for analysis and decision making in support of environmentally sustainable development. Case studies and problem-solving exercises will be used to stimulate learning and provide practical experience in addressing sustainable development
issues. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 60 hours; GGS 122 and GGS 302, or permission of instructor.

**Schedule Type:** Lecture

**GGS 308: Field Mapping Techniques.** 3 credits.

Basic techniques for collecting and recording spatial field data, including topographic maps, compass, transit, alidade, and geographic positioning systems. Includes field work. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** MATH 105, GGS 102 or GEOL 101, and 30 credits.

**Schedule Type:** Laboratory

**GGS 309: Meteorology and Climate.** 3 credits.

Elements of meteorology; analysis of world distribution of meteorological controls as bases of regional climatic variations. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 102, 121, or equivalent, or permission of instructor.

**Schedule Type:** Lecture

**GGS 310: Introduction to Digital Cartography.** 4 credits.

Origins, principles, and methods of thematic map design and production. Principles of graphic design, data compilation, analysis, and display. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Schedule Type:** Laboratory, Lecture

**GGS 311: Introduction to Geographic Information Systems.** 3 credits.

Fundamental concepts and theories for appropriate use of geographic information systems (GIS). Discusses basic GIS functionality and applications in various fields. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Schedule Type:** Lecture

**GGS 312: Physical Climatology.** 3 credits.

Quantitative description of nature and theory of the climate system, dynamics of atmosphere-ocean-land surface, internal interactions and response to external forcing, description of the climate record and simple climate models. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to CLIM 312.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** 30 hours; and GGS 121, MATH 113, PHYS 243-244, or permission of instructor.

**Schedule Type:** Lecture

**GGS 314: Severe and Extreme Weather.** 3 credits.

Behavior of weather events ranging from small scale (e.g., thunderstorms and tornadoes) to mesoscale (e.g., fronts and hurricanes). Introduces the dynamical and physical processes, atmospheric boundary layer processes, and coupling between different spatial scales that create and shape severe and localized weather events. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to CLIM 314.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** MATH 113 or equivalent; CLIM/PHYS 111/112 or EOS 121 or GGS 121.

**Schedule Type:** Lecture

**GGS 315: Geography of the United States.** 3 credits.

Diversity of US physical and cultural landscapes. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 6 credits of geography or American Studies, or permission of instructor.

**Schedule Type:** Lecture

**GGS 316: Geography of Latin America.** 3 credits.

Regional survey of physical resources, populations, cultural characteristics, and economic activities in Latin America. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** 6 credits of Geography or Latin American Studies, or permission of instructor.

**Schedule Type:** Lecture

**GGS 319: Air Pollution.** 3 credits.

Description of major types of air pollution and introduction to how their characteristics are influenced by interaction with the atmosphere. Topics include sources and distribution of pollution from local to global scales, effects of radiation and wind on pollution, and dispersion and pollution effects on climate. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** CLIM 111 or GGS 121.

**Schedule Type:** Lecture

**GGS 320: Geography of Europe.** 3 credits.

Environmental, economic, social, and political factors influencing regional structure of Europe. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 6 credits of Geography or European Studies, or permission of instructor.

**Schedule Type:** Lecture

**GGS 321: Biogeography.** 3 credits.

A survey of the relationship between distribution of plants and animals on the earth surface and the physical geography and environmental characteristics. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to BIOL 374.

**Recommended Prerequisite:** GGS 122 or permission of instructor.

**Schedule Type:** Lecture
**GGS 322: Issues in Global Change.** 3 credits.
Provides the basis for evaluating existing and emerging issues in the environmental sciences at the regional and global scale, using interdisciplinary scientific principles. Combines activities designed to provide an understanding of the following: first principles underlying regional/global issues in the environmental sciences, with attention to links among the disciplines of atmospheric sciences, biology, ecology, hydrology, oceanography, geology, human health, toxicology, and mathematical modeling; concepts of systems control, feedbacks, modeling, and hierarchical scales (spatial and temporal); role of retrospective analyses in developing a scientifically sound basis for evaluation and analysis; and studies of specific issues of interest on a regional to global scale. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** GGS 121, GGS 122, or permission of instructor.

**Schedule Type:** Lecture

**GGS 325: Geography of North Africa and the Middle East.** 3 credits.
Environmental, economic, and social factors of differentiation of regional structure and distribution of resources in North African and Middle Eastern countries. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** 6 credits of Geography or courses related to Middle East, or permission of instructor.

**Schedule Type:** Lecture

**GGS 330: Geography of the Soviet Succession States.** 3 credits.
Analyzes geographic factors involved in history, economic development, and geopolitical situation of the former Soviet Union. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** 6 credits of geography or Russian studies, or permission of instructor.

**Schedule Type:** Lecture

**GGS 333: Issues in Regional Geography.** 3 credits.
Geographical study of particular region or relevant regional issue. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 30 credits.

**Schedule Type:** Lecture

**GGS 340: Health Geography.** 3 credits.
Spatial approaches to the study of health and disease. Topics include disease ecology and diffusion, and geographic perspectives on improving health care delivery. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** Course in statistics.

**Schedule Type:** Lecture

**GGS 354: Data Analysis and Global Change Detection Techniques.** 3 credits.
Introduces basic time series methods, especially those used in detecting trends and randomness in time series data. Various data related to global changes on different temporal and spatial scales will be identified, and the relevant analysis methods will be used to those data so that students can detect or confirm changing trends or lack of them in data. Other topics such as data formats, data visualization, and data mining may also be included based on the background of the student body. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** IT 103, STAT 250, or permission of instructor

**Schedule Type:** Lecture

**GGS 357: Structures in Urban Governance and Planning.** 3 credits.
Reviews spatial, policy, and administration principles that guide planning activity in United States. Outlines differences between theory and practice; and provides tools, methods, and perspectives commonly incorporated into practice of urban and regional policy analysis. Provides orientation to public-sector economy in general; and urban administration, planning, and policy in particular. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 30 credits

**Schedule Type:** Lecture

**GGS 380: Geography of Virginia.** 3 credits.
Natural and cultural forces of Virginia. Studies regional makeup and analysis of human and environmental characteristics. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 30 credits

**Schedule Type:** Lecture

**GGS 384: Special Topics in Geospatial Intelligence.** 3 credits.
Selected topics concerning human activity on earth derived from the exploitation and analysis of imagery and geospatial information that describes, assesses, and visually depicts physical features and geographically referenced activities on the Earth. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term.

**Schedule Type:** Lecture

**GGS 398: Selected Topics in Global Change.** 3 credits.
Covers selected topics in global change not covered in fixed-content global change courses. Notes: Content varies and is determined by instructor. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term.

**Recommended Prerequisite:** 30 credits or permission of instructor.

**Schedule Type:** Lecture

**GGS 399: Select Topics in GGS.** 3 credits.
Content varies; determined by instructor. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term for a maximum 12 credits.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** 30 credits.

**Schedule Type:** Lecture
400 Level Courses

GGS 410: Introduction to Hyperspectral Imaging. 3 credits.
Introduction to quantitative measurements by remote-sensing methods covering quantitative spectroscopy, spectral and thermal signatures, atmospheric physics, and the electromagnetic spectrum. Emphasis on the scientific principles involved and the transition of the technology to real-world applications. The requisite materials to begin to understand hyperspectral imaging (HSI) technology and its many civil and military applications are presented. Covers necessary mathematics used in the analysis of n-dimensional data. Topics include hyperspectral concepts, data collection systems, data processing techniques, case studies, and U.S. national policy issues. Data processing techniques include N-dimensional space, scatterplots, spectral angle mapping, spectral mixture analysis, spectral matching, and other techniques. Applications and case studies include environmental, medical, agricultural, and military. Includes ground, airborne, and spaceborne hyperspectral systems. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: PHYS 243-244, 245-246, MATH 113 and 114, GGS 353, GGS 416 or permission of instructor.

Schedule Type: Lecture

GGS 411: Advanced Digital Cartography. 3 credits.
This advanced course in cartography focuses on thematic map design. The objective is to produce a cartographic portfolio of well-designed, professional grade maps. Theoretical concepts and principles will be introduced using practical examples and written assignments. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 311.

Registration Restrictions:
Required Prerequisite: GGS 310C.
C Requires minimum grade of C.

Schedule Type: Lecture

GGS 412: Air Photography Interpretation. 3 credits.
Methods and techniques of interpreting and using information contained in aerial photography, including applications to various aspects of physical and cultural landscape. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: 60 credits and GGS 102 or 103, or permission of instructor.

Schedule Type: Lecture

GGS 415: Seminar in Geography. 3 credits.
Students produce, present original research papers. Notes: Capstone seminar for geography majors integrating previous course work into disciplinary framework. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: GGS 300 and 310

Schedule Type: Lecture

GGS 416: Satellite Image Analysis. 3 credits.
Examines methods and techniques of interpreting and using information obtained by non-photographic remote sensing systems, with particular emphasis on space-borne platforms. Includes analysis of imagery for both physical and cultural environments. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: 60 credits and GGS 412, or permission of instructor.

Schedule Type: Lecture

GGS 455: Environmental Impact Assessment. 3 credits.
Evaluates current methods and practices for conducting and planning environmental assessments to include techniques and requirements for assessing impacts on air, water, natural resources, transportation, water facilities, and industrial and community development. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: GGS 122, GGG 302, or EVPP 377 or 6 hours of courses in ecology and environmental sciences, or permission of instructor.

Schedule Type: Lecture

GGS 456: Introduction to Atmospheric Radiation. 3 credits.
Helps students learn about the fundamental aspects of atmospheric radiation. The goal is to understand their essential roles in advanced remote sensing, atmospheric sciences and global and environmental change. It will provide a foundation for and will be beneficial to students in taking advanced courses in those areas. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to CLIM 456.

Recommended Prerequisite: GGS 353/GGS 309 and a course in physics, or permission of instructor.

Schedule Type: Lecture

GGS 462: Web Mapping. 3 credits.
Managing geospatial data is at the core of an emerging Billion-Dollar industry. This course will provide the students with the knowledge to manage and query geospatial data using relational database management systems and how to build Javascript-based Web mapping applications on top of a database to communicate and interact with the data. Students who take GGS 462 cannot receive credit for GGS 692. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 311.

Schedule Type: Lecture

GGS 463: Applied Geographic Information Systems. 3 credits.
Selected applications in geographic information systems (GIS). Topics include automated data capturing and processing, spatial data models and structure including object-oriented approach, advanced spatial analytical techniques including raster modeling and network analysis, programming, and algorithm development in GIS. Major purpose of course is to extend fundamental theories and concepts in GIS so students are able to conduct research with and on GIS. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (GGS 300C, L300 or 300T) and (GGS 311C, 311T or L311).
Registration Restrictions:

May not be repeated for credit.

Schedule Type: Lecture

GGS 470: Special Topics in Geographic Techniques. 3 credits.
Content varies in the subject of Geographic Techniques. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: GGS 110.

Schedule Type: Lecture

GGS 480: GGS Internship. 1-3 credits.
Approved study programs with specific employers. Notes: Credit determined by department. Contact department one semester before enrollment. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Open only to authorized GGS majors with 90 credits and GPA of 2.50 or higher in GGS courses.

Schedule Type: Independent Study

GGS 490: Practicum in Geographical Applications. 1-3 credits.
Application of geographical research tools and techniques in conjunction with faculty instruction and research. Individualized sections taught by arrangement with full-time faculty. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Authorized GGS majors with 90 credits.

Schedule Type: Independent Study

GGS 495: GGS Senior Research Project. 3 credits.
Applications of research tools and techniques on specific GGS topics, in conjunction with faculty instruction and research. Individualized sections taught by arrangement with full-time faculty. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: 90 credit hours, authorized major.

Schedule Type: Research

GGS 499: GGS Independent Study. 1-3 credits.
Individual study of selected area of geography. Notes: Requires directed research paper. May be repeated with permission of the department. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Open only to authorized GGS majors with 90 credits and GPA of 2.50 or higher.

Schedule Type: Independent Study

500 Level Courses

GGS 501: Geography and Geoinformation Science Distance Education Orientation. 1 credit.
Describes study structure and basic expectations (in terms of time commitment, expectations, technical issues and communication) for distance education courses in the Geography and Geoinformation Science department. Notes: The course is self-paced, enabling students to proceed at their own speed. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 505: Transportation Geography. 3 credits.
Structure, principles, location, and development of world transportation. Critical role of transportation in moving people, goods, and ideas at international, national, regional, and urban levels. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: 6 credits of geography

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 507: Sustainable Development. 3 credits.
Sustainability lies at the intersection of the environment, society and economics. This course explores the concepts, applications, and tools for analysis and decision making in support of environmentally sustainable, socially responsible and economically prosperous development. Case studies and problem-solving exercises will stimulate learning and provide practical experience in addressing sustainable development issues. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 470.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 520: Geography for Teachers. 3 credits.
Emphasizes problems and techniques in teaching geography; and current developments in research, methodology, and philosophy in the discipline. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 470 and GGS 495.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
GGS 524: Introduction to Environmental and Resource Economics. 3 credits.

Recommended Prerequisite: Basic algebra skills.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 525: Economics of Human/Environment Interactions. 3 credits.
Advanced topics in environmental, natural resource, and ecological economics for noneconomist. Emphasizes sustainability, intergenerational equity, and economic-ecological feedbacks. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to ECON 895, EVPP 525.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: EVPP 524/GGS 524 or equivalent

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 531: Land-Use Modeling Techniques and Applications. 3 credits.
Survey of literature on spatially explicit empirical models of land-use change. Hands-on experience developing and running simple models. Techniques covered include statistical models, mathematical programming models, cellular automata, agent-based models, and integrated models. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to EVPP 531.

Recommended Prerequisite: GGS 550, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 533: Issues in Regional Geography. 1-6 credits.
Geographical study of particular region or relevant regional issue. Notes: Content varies. May be repeated with permission of the department.

Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 540: Health Geography. 3 credits.
Spatial approaches to study of health and disease. Topics include disease ecology and diffusion, and geographic perspectives on improving health care delivery. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: Course in statistics.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 550: Geospatial Science Fundamentals. 3 credits.
Introduces geospatial sciences, emphasizing concepts and theories of cartography, remote sensing, air photo interpretation, Global Positioning Systems, spatial data structures, and geographic information systems. Lectures accompanied by hands-on exercises. Notes: Only available for students without previous course work in cartography. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: Course in statistics.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 551: Thematic Cartography. 3 credits.
Analyzes nature of perceptual organization and visual systems in thematic map communication portrayal, graphic handling, and data analysis. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 310 or 550

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 553: Geographic Information Systems.** 3 credits.
Sources of digital geospatial data; and methods of input, storage, display, and processing of spatial data for geographic analysis using GIS. Lectures, hands-on exercises familiarize students with current technology. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 550 or equivalent, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 554: History of Cartography.** 3 credits.
History of cartographic portrayal of Earth from ancient times through 19th century, emphasizing interrelation of human culture, technological development, and geographical knowledge as reflected in maps. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 560: Quantitative Methods.** 3 credits.
Survey of quantitative methods commonly used in geographic research. Emphasizes spatial analysis techniques. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** Previous course work in statistics, or GGS 310 or 550.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 562: Photogrammetry.** 3 credits.
Treatment of photogrammetric problems, including least squares adjustments, image coordination refinements, collinearity equation, resection, relative orientation, and analytic aerotriangulation. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 412, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 563: Advanced Geographic Information Systems.** 3 credits.
Discusses advanced GIS concepts including spatial data structure, spatial analysis, programming data fusion, Internet components, and spatial database management. Hands-on activities demonstrate concepts and specific applications in both cultural and physical geography. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 553 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 579: Remote Sensing.** 3 credits.
Examines use of various types and combinations of electromagnetic energy to obtain spatial information. Concentrates on nonphotographic and spaceborne remote sensing platforms and sensors. Examines essential operational parameters for existing and future systems and strategies for visual extraction of features. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 412, or GGS 550, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 581: World Food and Population.** 3 credits.
Topics include maldistribution of population, regional disparities in growth rates and income distribution, food production, and world hunger. Discusses population policies, with emphasis on Third World countries. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 590: Selected Topics in Geography. 1-3 credits.
Analyzes topics of immediate interest. Notes: Content varies. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

GGS 605: Systematic Applications of GIS. 3 credits.
Provides those working with spatially referenced data the technical skills to use GIS to conduct spatial analyses on socioeconomic phenomena related to labor, retail, and real estate markets. Introduces and emphasizes the development of technical and methodological skills to understand the potential and the pitfalls of using GIS for spatial analyses of socioeconomic phenomena. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term.

Recommended Prerequisite: GGS 553

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 631: Spatial Agent-Based Models of Human-Environment Interactions. 3 credits.
Discusses key challenges in spatial modeling of human-environment interactions. Reviews agent-based modeling applications in urban and rural interactions, agriculture, forestry, and other areas. Hands-on development of simple ABM models and investigation of linkages between GIS and ABM. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to EVPP 631.

Recommended Prerequisite: GGS 531 or CSS 600, or permission or instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 644: Fundamentals and Interpretation of Imaging Radar. 3 credits.
Provides understanding of components, functionality, and use of radar remote sensing for acquiring spatial information. Concentrates on operational systems. Includes hands-on assignments. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 579, or other basic course in remote sensing.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 650: Introduction to GIS Algorithms and Programming. 3 credits.
Introduction to programming methods and their application to Geographic Information Systems, including the fundamentals of object-oriented programming and GIS-specific data structures and algorithms. Employs an object-oriented language such as Visual Basic.Net, and existing freeware and commercial GIS libraries. Topics covered include variables, arrays, control structures, objects and classes, raster and vector data structures, spatial algorithms, and spatial indexing methods. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 553 or equivalent introductory GIS course, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 653: Geographic Information Analysis. 3 credits.
Explores existing and potential capabilities of geographic information systems in conducting spatial analysis and modeling. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 553 and 560

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 655: Map Design.** 3 credits.
Advanced examination of principles of map design, including discussions of map design research. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 310 or 550.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 656: The Hydrosphere.** 3 credits.
Covers components and transfer processes in hydrosphere, which consists of aqueous envelope of Earth including oceans, lakes, rivers, snow, ice, glaciers, soil moisture, ground water, and atmospheric water vapor. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to EVPP 652.

**Recommended Prerequisite:** Two semesters of calculus, partial differential equation recommended; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 657: The Lithosphere.** 3 credits.
Global-scale overview of lithosphere; the solid nonliving Earth, its materials, cycles, plate tectonic and geomorphic processes; and history, including interactions with and history of hydrosphere, atmosphere and biosphere, and methods of analysis. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to GEOL 601.

**Recommended Prerequisite:**

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 658: Terrain Mapping.** 3 credits.
Covers fundamental methods of digitally representing terrain data, major technologies, and programs for generating terrain data; methods for quantifying terrain error and assessing terrain data quality; and a variety of applications. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:**

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 660: Automated Cartography.** 3 credits.
Survey of algorithms and techniques to generalize information on maps and in geographic information systems. Covers simplified representation of geographic objects, surfaces, and thematic information. Includes GIS programming component. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 650 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 661: Map Projections and Coordinate Systems.** 3 credits.
Covers development of various map projections and coordinate systems, property analysis, distortions, and applications. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:**

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 664: Spatial Data Structures.** 3 credits.
Studies spatial data structures and their application in digital cartography, geographic information systems, and image-processing systems. Examines raster and vector data structures, and attribution schemes and topological models. Includes data transformation, information loss, data quality, and the role of metadata. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** B or better in GGS 560.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 670: Introduction to Atmosphere and Weather. 3 credits.
Applies climatic concepts to natural and human-modified environments, and analyzes climatic change. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 671: Algorithms and Modeling in GIS. 3 credits.
Examines several fundamental GIS algorithms based upon computational geometry and computer graphics. Also discusses issues in modeling features of different dimensions and surfaces in GIS. Significant programming expected. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: B or better of GGS 560.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 674: Environmental Impact Analysis. 3 credits.
Scientific and administrative processes involved in environmental impact analysis and environmental impact statements. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 675: Location Science. 3 credits.
This course presents the theory and practice of Location Science - the study of the optimal or near optimal spatial location or allocation of facilities, routes, personnel, or other assets. A variety of algorithms and heuristics for location problems is presented. Lectures and both in-class and take-home exercises reinforce students' mastery of the techniques and understanding of advanced theoretical issues. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 680: Social Media Analysis. 3 credits.
The course covers theory, principles, and analytical techniques in geospatial analysis of social media, including data collection, location-based and cyberspace social network analysis, content analysis, and geovisualization of such data. Examples of applications in various domains are used to demonstrate and explore the use of social media analysis. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: GGS 550 or GGS 553 or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 684: Selected Topics in Geospatial Intelligence. 3 credits.
Covers topics relevant to geospatial intelligence, especially addressing emerging trends, focused intelligence applications, and relevant technological advances, not covered by existing courses. Sample topics addressed in this course include geosensor networks, landmine detection using remote sensing techniques, the use of unmanned aerial vehicles in geospatial intelligence, and the use of virtual reality techniques
for geospatial information modeling and analyst training. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** Students must be admitted to the Geospatial Intelligence Certificate program or have permission from the program’s academic director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 685:** Capstone Course in Geoinformatics. 3 credits.
This course is intended to provide a capstone experience for graduate students by synthesizing knowledge and experience that they acquired in earlier coursework to address a complex geospatial intelligence problem. The course requires analytical, collaborative, and communication skills. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** 12 credits in the geospatial intelligence certificate program or permission of program coordinator.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 689:** Seminar in Geographic Thought and Methodology. 3 credits.
Includes historical development of geographic thought and current philosophy of geography; rationale for various subfields; and geographic research techniques and methods of analysis. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 560

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GGS 692:** Web-based Geographic Information Systems. 3 credits.
Management of geospatial data by means of a database system. Communication of geospatial data over the Internet using browser-based interfaces. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 550 or equivalent, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GGS 695:** Geography and Geoinformation Science Graduate Internship. 1-6 credits.
Approved study programs with specific employers. Students and employer supervisors must demonstrate relevancy of study program to degree requirements. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**GGS 698:** Directed Readings and Research. 1-3 credits.
Reading and research on specific topic under direction of faculty member. Notes: Written report required; oral exam and report may be required. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**GGS 700:** Comprehensive Exam. 1 credit.
Preparation and completion for the comprehensive exam within the GGS department. Instructor should be the chair of the examination committee. The exam committee will specify exam content. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**GGS 704:** Spatial Demography. 3 credits.
Intermediate-level, population geography course discussing demographic concepts and spatial dimensions of population. Features various indices,
measures, and models commonly used in human geography. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** Prior courses in quantitative methods and GIS recommended.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**GGS 721: Biogeography.** 3 credits.
Provides broad understanding of how physical geography and environment influence spatial and temporal distribution of plants and animals on Earth’s surface. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** Courses in ecology, chemistry, and geology.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**GGS 740: Hyperspectral Imaging Systems.** 3 credits.
Provides requisite materials to understand hyperspectral imaging technology and its many civilian and military applications. Emphasizes scientific principles involved and technology application to real-world imaging systems. Topics include hyperspectral concepts and system tradeoffs; data collection systems; calibration techniques; data processing techniques and software; classification methods; and case studies. Data processing techniques include N-dimensional space, scatterplots, spectral angle mapping, spectral mixture analysis, spectral matching, and mixture tuned matched filtering. Discusses ground, airborne, and spaceborne hyperspectral remote sensing systems. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** CSI 660 or equivalent, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**GGS 754: Earth Science Data and Advanced Data Analysis.** 3 credits.
Covers accessing and applying Earth observations and remote-sensing data for Earth system science research and applications. Major topics are data formats, analysis and visualization tools, advanced data analysis methods, and data applications. Also covers combining innovative information technology techniques and Earth science data to set up online data centers for accessing data through the web. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to CSI 754.

**Recommended Prerequisite:** GGS 579 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**GGS 756: Physical Principles of Remote Sensing.** 3 credits.
Emphasizes fundamental physical and mathematical principles of remote sensing. Also provides overview of the current Earth Observation System as well as the National Polar-Orbiting Operational Environmental Satellite Systems (NPOESS), and NPOESS Preparatory Project missions. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** GGS 753 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**GGS 759: Topics in Earth Systems Science.** 1-6 credits.
Covers selected topics in Earth systems and global changes not covered in fixed-content Earth systems and global changes courses. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**GGS 760: Advanced Topics in Remote Sensing.** 3 credits.
Content varies in the area of remote sensing. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** GGS 579 or GGS 680.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**GGS 772: Cloud Geographic Information Systems.** 3 credits.
Examines different aspects of science and technology in the context of distributed GIS. Includes general concepts, architecture, component design and development, and system integration as well as other advanced topics, including interoperability and agent-based GIS. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

**Recommended Prerequisite:** Introductory course in GIS and some programming experience, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture
GGS 787: Scientific Data Mining for Geoinformatics. 3 credits.
Covers specialized data mining algorithms, geoscience data models, and data information systems. Emphasis on domain-specific data mining algorithms suitable for spatial data and spatio-temporal data with geoscience and geoinformatics applications. Introduces real geoscience data mining applications in detailed applications. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: Competency in programming at the level of CSI 601-607 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GGS 792: Seminar in Earth Systems Science. 2 credits.
Capstone experience. Seminars presented by faculty and students. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to EVPP 792.

Recommended Prerequisite: 15 Graduate Credits including CSI 655, GGS 656, and GGS 657, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GGS 795: Seminar in Regional Analysis. 3 credits.
Analyzes and synthesizes physical and cultural elements of geography in selected region. Should be taken near end of master's degree program. Provides opportunity to apply selective knowledge gained in previous systematic courses to specific region. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit.

Recommended Prerequisite: Admission to Earth Systems Science MS program, 12 graduate credits, and permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GGS 798: Research Project in Earth Systems Science. 1-6 credits.
Reading project chosen and completed under guidance of graduate faculty member resulting in acceptable technical report. Notes: For students enrolled in Earth Systems Science master's program. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to Earth Systems Science MS program, 12 graduate credits, and permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GGS 799: Thesis. 1-6 credits.
Degree candidacy and departmental approval of thesis proposal. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Degree candidacy and departmental approval of thesis proposal.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

800 Level Courses

GGS 840: Hyperspectral Imaging Applications. 3 credits.
Introduces advanced hyperspectral imaging and multisensor concepts with emphasis on real-world civilian and military applications. Topics include advanced hyperspectral concepts, multisystem tradeoffs, data collection and processing systems, imaging radar systems, laser
systems, calibration techniques, data fusion, quantitative remote sensing techniques, data compression techniques, case studies, and U.S. national policy. Applications and case studies include environmental, homeland security, medical, military, disaster mitigation, agricultural, and transportation. Offered by Geography/Geoinformation Sci (p. 687). May not be repeated for credit. Equivalent to CSI 854.

Recommended Prerequisite: CSI 660 or equivalent, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Lecture

900 Level Courses

GGS 900: Geography and Geoinformation Science Colloquium. 1 credit. Presentations in specific research areas of Geography and Geoinformation sciences by faculty and staff, Mason faculty in related programs, and professional visitors. Notes: Maximum 3 credits may be applied to Earth systems and geoinformation sciences PhD. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Doctoral student or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Seminar

GGS 998: Dissertation Proposal. 1-12 credits. Covers development of research proposal that forms basis for doctoral dissertation, under guidance of dissertation director and doctoral committee. Notes: May be repeated, but no more than 12 credits of GGS 998 may satisfy doctoral degree requirements. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Doctoral student or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

GGS 999: Dissertation. 1-12 credits. Doctoral dissertation research under direction of dissertation advisor. Notes: May be repeated, but no more than total 24 credits in GGS 998 and 999 may be applied to doctoral degree. Offered by Geography/Geoinformation Sci (p. 687). May be repeated within the degree for a maximum 24 credits.

Recommended Prerequisite: Doctoral student or permission of instructor.

Registration Restrictions: Enrollment is limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Geology (GEOL)

100 Level Courses

GEOL 101: Introductory Geology I. 4 credits. Covers Earth, processes that operate within Earth and on surface, and human interaction with Earth. Topics include minerals, earthquakes and seismology, isostasy, igneous processes and rocks, paleomagnetism and plate tectonics, weathering, mass movements, rivers and streams, groundwater, glaciers, and marine processes. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Mason Core: Natural Science with Lab, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

GEOL 102: Introductory Geology II. 4 credits. Earth processes in historical context. Topics include sedimentary rocks and principles, deformation and metamorphism, mountain building and plate tectonics, geologic time, fossils, and historical development of continents. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Mason Core: Natural Science with Lab, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Recommended Prerequisite: GEOL 101.

Schedule Type: Laboratory, Lecture

GEOL 134: Evolution and Extinction. 3 credits. Evolution and Extinction is a science class for non-science majors that explores how diversity of animals and plants has changed through geologic time, when mass extinctions occurred, when major diversifications of life occurred, and how the position of continents on the surface of the earth influenced the evolution, extinction, and distribution of life, landforms and the atmosphere. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Mason Core: Natural Science Overview, Encore:Sustainability (p. 135)

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

200 Level Courses

GEOL 206: Topics in Geology I. 1-3 credits. Discusses particular topic in geology. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the term for a maximum 6 credits.

Schedule Type: Lecture

300 Level Courses

GEOL 302: Mineralogy. 4 credits. Crystallographic, optical, chemical, and physical properties of minerals. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Specialized Designation: Discovery of Scholarship

Recommended Prerequisite: GEOL 101 and 102 with a grade of 2.0 or better and CHEM 211.

Schedule Type: Laboratory, Lecture

GEOL 303: Field Mapping Techniques. 3 credits. Basic techniques for collecting, recording, and plotting spatial field data including use of topographic maps, compasses, transit, alidade, and
global positioning systems (GPS). Designated a Green Leaf Course. Notes: Includes field work. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Specialized Designation: Green Leaf Course, Scholarly Inquiry

Recommended Prerequisite: Two of the following lab sciences courses are required for a total of 8 credits: [GEOL 101 or 102], [EVPP 110 or 111 or 210], CHEM 211, [BIOL 103 or 213], [PHYS 160 and 161 or 243 and 244].

Schedule Type: Lecture

GEOL 312: Invertebrate Paleontology. 4 credits. Classification, evolutionary trends, and distribution of common invertebrate fossils. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to BIOL 336.

Recommended Prerequisite: GEOL 101 and GEOL 102, or BIOL 103, 104, or BIOL 213, 303, 304.

Schedule Type: Laboratory, Lecture


Specialized Designation: Green Leaf Course

Recommended Prerequisite: GEOL 101 or GGS 102, MATH 113 and CHEM 211.

Schedule Type: Lecture

GEOL 315: Topics in Geology II. 1-3 credits. Discusses particular topic in geology. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: GEOL 101 or GEOL 102 or permission of instructor.

Schedule Type: Lecture

GEOL 316: Computers in Geology. 3 credits. Uses of mainframe and microcomputers, with emphasis on geologic applications. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: GEOL 101, 102, 302, one semester of mathematics, or permission of instructor.

Schedule Type: Lecture

GEOL 317: Geomorphology. 4 credits. Analyzes processes that occur at Earth's surface and resulting landforms. Labs stress recognition and evaluation of landforms using maps and aerial photographs, and methods of data collection used in study of surficial geology. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: GEOL 101, 102, or 6 credits of GGS, including GGS 102; GGS 412 is strongly recommended.
GEOL 320: Geology of Earth Resources. 3 credits.
A survey of earth resources, including metallic and non-metallic ore deposits, mineral resources, precious gems, sand and gravel, water, and air. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** GEOL 101, GEOL 102, GEOL 302. GEOL 305 strongly suggested.

**Schedule Type:** Lecture

GEOL 321: Geology of Energy Resources. 3 credits.
A survey of energy resources, including fossil fuels, renewable, nuclear and unconventional sources. Emphasis on origin, use and implications of development. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** GEOL 101 or GEOL 102, and completion of all Mason Core science requirements.

**Schedule Type:** Lecture

GEOL 332: Paleoclimate. 3 credits.
Explores the natural evolution of Earth's climate with the goal of providing a baseline for understanding present climate variability and future trends through increased knowledge of the physical, chemical, and biological processes that influence climate over the long-term. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** GEOL 101 or GEOL 102, and GEOL 302. GEOL 305 strongly suggested.

**Schedule Type:** Seminar

GEOL 334: Vertebrate Paleontology. 4 credits.
Vertebrate Paleontology explores the evolution of vertebrates from the early Paleozoic to Recent. The course will cover the systematics, anatomy, paleogeography, and ecology of extinct vertebrates. Discussions will include fishes, early tetrapods & amniotes, dinosaurs, birds and mammals. Lab portion includes paleontology techniques, analysis, and study of fossil specimens and casts. A weekend field trip is included. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to BIOL 334.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** GEOL 102 or BIOL 103 or EVPP 110.

**Schedule Type:** Lecture

GEOL 363: Coastal Morphology and Processes. 4 credits.
Studies global coastal geomorphology and processes with emphasis on U.S. Atlantic and Gulf coasts. Topics include plate tectonics, sea level changes, sediment supply, waves, tides, storm impacts, and human activities. Lecture and extended weekend field trips to mid-Atlantic coast. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to EVPP 363.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** GEOL 309 or BIOL 309 or GEOL 317 or 9 credit hours in Geography including GGS 309.

**Schedule Type:** Laboratory, Lecture

GEOL 364: Marine Geology. 3 credits.
This course will present a global overview of the geologic origin and composition of the ocean seafloor, and an introduction to the basic principles of the geologic processes occurring in the marine environment. Primary topics include geologic, tectonic and sedimentary characteristics of the deep ocean basins and continental margins; transport and deposition of marine sediments; micropaleontology and paleoceanography; geochemistry and hydrothermal systems; and marine mineral resources. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** GEOL 101, GEOL 102, GEOL 302, and CHEM 211.

**Schedule Type:** Laboratory, Lecture

GEOL 392: Geology and Earth Science Seminar. 1 credit.
Undergraduate experience that includes discussion of scientific articles and attending seminars presented by outside experts, faculty, or students. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** 30 credit hours.

**Schedule Type:** Seminar

### 400 Level Courses

GEOL 401: Structural Geology. 4 credits.
Igneous, sedimentary, and metamorphic rocks in folded, faulted, and metamorphosed terrains. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** GEOL 302, GEOL 317 (grade of C or better in both), and GEOL 304, or GEOL 308 (grade of C or better); MATH 110, MATH 111, or MATH 113. PHYS 160 or PHYS 243 is highly recommended.

**Schedule Type:** Laboratory, Lecture

GEOL 402: Geological Development of North America. 3 credits.

**Recommended Prerequisite:** GEOL 101, 102, 302, 304, 308 and 401.

**Schedule Type:** Lecture

GEOL 403: Geochemistry. 3 credits.
Includes stable isotope, crystal, water, and organic geochemistry; geochronology; and geochemistry of rocks. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** GEOL 101 and 102, and CHEM 211.

**Schedule Type:** Lecture
GEOL 404: Geological Field Techniques. 1-6 credits.
Mapping techniques involved in collecting geological field data. Notes: Includes field work. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: GEOL 101, 102, 302, 304, 308, and 401.

Schedule Type: Laboratory

GEOL 405: Advanced Seminar in Earth Resources. 3 credits.
Analyzes current issues involving renewable and non-renewable earth resources with consideration of the economic, political, social and aesthetic significance of these resources and their utilization. Taught seminar style examining case-studies, with emphasis on discussion, reading, writing and student oral presentations. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: GEOL 101 and 102 and GEOL 302, 304 and 308 OR GEOL 305, 320 and 321 and completion of Mason Core requirements.

Schedule Type: Lecture

GEOL 406: Seminar in Earth and Environmental Science. 3 credits.
Students read, discuss research literature; produce, present original papers. Notes: Capstone seminar for Earth and environmental science majors. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: 90 credits.

Schedule Type: Seminar

GEOL 408: Practicum for Geology Laboratories. 1 credit.
Studies techniques to make geology lab effective component in geological education. Discusses developing testing materials, supplemented by experience operating geology course lab section. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Corequisite: Open only to GEOL/ESS majors with 80 credit hours and permission of Chair.

Schedule Type: Internship

GEOL 409: Practicum for Geology Laboratories. 1 credit.
Studies techniques to make geology lab effective component in geological education. Discusses developing testing materials, supplemented by experience operating geology course lab section. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: Open only to GEOL/ESS majors with 80 credit hours and permission of Chair.

Schedule Type: Internship

GEOL 410: Research Proposal Preparation. 1 credit.
Subcontract with research in GEOL 411. Includes literature research, initial data collection, and preparing research proposal. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: Geology or Earth Science major with 90 credits, cumulative GPA of 2.80 or higher, and permission of the Geology undergraduate coordinator.

Schedule Type: Research

GEOL 411: Geological Research. 3 credits.

Recommended Prerequisite: GEOL 410.

Schedule Type: Research

GEOL 412: Physical Oceanography. 3 credits.
Course describes the global patterns of temperature, salinity, currents and waves in the world's oceans, and how these patterns influence marine biota, climate, and human activity. Course introduces key concepts which explain physical features of the ocean ranging from microscopic turbulence to global circulation. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to CLIM 412.

Recommended Prerequisite: MATH 113 or MATH 115, and PHYS 160 or PHYS 243, or permission of instructor.

Schedule Type: Lecture

GEOL 417: Geophysics. 3 credits.
Basic principles of geophysics including gravity, magnetism, and seismic reflection and refraction. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to PHYS 417.

Recommended Prerequisite: GEOL 101, MATH 113, one year of PHYS or permission of instructor.

Schedule Type: Lecture

GEOL 420: Earth Science and Policy. 3 credits.
Discusses Earth science issues that have policy implications. Course uses a broad definition of Earth science, from atmosphere to geosphere. Taught seminar-style, with emphasis on discussion, reading, writing, critical analysis, and student oral presentations. Notes: Course may include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Mason Core: Encore:Sustainability, Synthesis (p. 135)

Specialized Designation: Green Leaf Course

Recommended Prerequisite: 18 credit hours in major or minor (geology, Earth science, ocean and estuarine science, or global and environmental change), and one of the following social science based courses: EVPP 361; ECON 103; ANTH 114; GGS 103; GLOA 101; GOVT 132 or 133; HIST 125 or 130; or SOCI 101, 102, or 120.

Recommended Corequisite: All other required Mason Core courses.

Schedule Type: Seminar

GEOL 458: Chemical Oceanography. 3 credits.
The world's oceans, including a variety of closed basins and estuaries, comprise a complex and dynamic system of chemical processes that interact with biological, geological, physical, and atmospheric processes to play a significant role in defining the earth's fragile environment. This
course will present an overview of the origin, occurrence, and distribution of the chemical components in sea water and an introduction to the basic principals of the chemical processes taking place in the marine environment. Designated a Green Leaf Course. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to CHEM 458.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** CHEM 211 and CHEM 212, and CHEM 321 or GEOL 302.

**Schedule Type:** Lecture

**GEOL 480:** Internship. 1-3 credits.
Approved study programs with specific employers. Notes: Contact department one semester before enrollment. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Corequisite:** Open only to authorized majors with 90 credit.

**Schedule Type:** Internship

**500 Level Courses**

**GEOL 500:** Selected Topics in Modern Geology. 1-3 credits.
Topic designated in class schedule. Notes: Lecture, lab, field trip. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree.

**Recommended Prerequisite:** Baccalaureate degree in geology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GEOL 501:** Selected Topics in Modern Geology. 1-3 credits.
Topic designated in class schedule. Lecture, lab, field trip. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree.

**Recommended Prerequisite:** Baccalaureate degree in geology or Permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GEOL 503:** Special Topics in Earth Science. 1-6 credits.
In-service course to strengthen and update knowledge of Earth science. Notes: May include field trips. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree.

**Recommended Prerequisite:** Employment or anticipated employment as an Earth Science teacher.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GEOL 506:** Soil Science. 3 credits.
Explores the composition, classification, physical properties, and origin of soils. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to EVPP 503.

**Recommended Prerequisite:** Previous lab-science courses in each of the following: geology and chemistry (8 credit hours); or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

**Schedule Type:** Lecture

**GEOL 513:** Hydrogeology. 3 credits.

**Recommended Prerequisite:** Previous lab-science courses in each of the following: geology, calculus, and chemistry (12 credit hours); or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GEOL 521:** Geology of Energy Resources. 3 credits.
Survey of global non-renewable and renewable energy resources. Topics include petroleum, natural gas, coal, nuclear, geothermal, solar, wind, and hydro power, and biofuels. Course discusses global production, usage, impacts and future prospects of these resources, and data capture, analysis and modeling of finite resources. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.
**Recommended Prerequisite:** GEOL 101 or GEOL 102, and completion of all Mason Core Natural Science requirements or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GEOL 525: Modeling Earth Signals and Systems.** 3 credits.
Provides instruction on time series analysis customized for Earth signals and systems such as climate, Earth-space orientation, earthquakes, geomagnetism, river flow, tides and many other timedependent phenomena. Concepts including linear systems, filtering, spectrum estimation, harmonic analysis and hypothesis testing are applied to time series data sampled from natural processes to address a variety of scientific problems. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** MATH 114 and STAT 250 or equivalent or permission of instructor.

**Schedule Type:** Lecture

**GEOL 532: Paleoclimatology.** 3 credits.
Explores the natural evolution of Earth’s climate with the goal of providing a baseline for understanding present climate variability and future trends through increase knowledge of the physical, chemical, and biological processes that influence climate over the long-term. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** Previous lab-science courses in geology and/or atmospheric science and/or oceanography (12 credit hours); or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GEOL 534: Vertebrate Paleontology.** 4 credits.
Explores the evolution of vertebrates from the early Paleozoic to Recent. Covers systematics, anatomy, paleogeography, and ecology of extinct vertebrates. Discussions include fishes, early tetrapods and amniotes, dinosaurs, birds, and mammals. Lab portion includes paleontology techniques, analysis, and study of fossil specimens and casts. Notes: A weekend field trip is included. Students who have taken GEOL 334 as an undergraduate may not take 534 as a graduate student. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate degree in biology or geology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**GEOL 535: Quantitative Stratigraphy.** 3 credits.
Quantitative stratigraphy is a branch of geology that applies statistics to reconstruct the time sequence of geological events recorded in sedimentary strata. Methods of interpolation and error analysis used for defining stratigraphic boundaries and events, time scale estimation using integrated chronostratigraphy, and intercalibration are examined. Students receive advanced training in graphic correlation, constrained optimization, ranking and scaling, and dynamic programming. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

**Recommended Prerequisite:** MATH 114 and STAT 250 or equivalent or permission of instructor.

**Schedule Type:** Lecture

**GEOL 536: Paleontology Seminar.** 1-2 credits.
Paleontology Seminar presents topical research in paleontology and paleobiology in a structured discussion among graduate students and paleontology faculty. A theme for the seminar is chosen each semester the course is offered, tailored to the interests of the students. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GEOL 553: Field Mapping Techniques.** 3 credits.
Explores basic techniques for collecting, recording, and plotting spatial field data, including topographic maps, compass, transit, alidade, and global positioning systems. Field work and field based research project. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to EVPP 503.

**Recommended Prerequisite:** Previous courses in geometry or trigonometry or equivalent; and environmental science, geography, or geology or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory
GEOL 563: Coastal Morphology and Processes. 4 credits.
Investigates global coastal geomorphology and processes, with emphasis on U.S. Atlantic and Gulf coasts. Topics include plate tectonics; sea-level changes; sediment supply; impacts of waves, tides, storms; and human activities. Lecture and extended weekend field trips to U.S. mid-Atlantic coast. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to EVPP 563.

Recommended Prerequisite: Previous courses in geology, oceanography marine science, earth science, or physical geography; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GEOL 565: Paleoceanography. 3 credits.
Investigates ocean evolution through geologic time. Earth’s sediment archive provides proxy data on paleo-ocean chemistry, biology, geology, and physical properties. Class examines proxy reconstructions of oceanic conditions such as circulation, salinity, stratification, anoxia, and biogeochemistry. Discusses the history of ocean basins, with case studies from Precambrian to Holocene. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit.

Recommended Prerequisite: Previous course in oceanography or marine science and 16 credits of geology or earth science courses, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

GEOL 601: The Lithosphere. 3 credits.
Global-scale overview of lithosphere, solid non-living Earth, materials, cycles, plate tectonic and geomorphic processes; and history, including interactions with and history of hydrosphere, atmosphere and biosphere, and methods of analysis. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May not be repeated for credit. Equivalent to GGS 657.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

GEOL 700: Comprehensive Exam. 1 credit.
Preparation for and completion of written comprehensive exam within AOES department. The comprehensive exam is given as part of the degree requirements in lieu of writing a master's thesis. Instructor should be the chair of the examination committee. The exam committee will specify exam content. Notes: No more than 1 credit of GEOL 700 may be applied toward the master's degree. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 2 credits.

Recommended Prerequisite: At least 15 graduate credits, approved project proposal, and permission of major advisor or chair of the examination committee.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

GEOL 792: Seminar in Earth Systems Science, Geology, & Earth Science. 1 credit.
Capstone experience that includes discussion of scientific articles and attending seminars. Seminars presented by outside experts, faculty, and students. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: 15 Graduate Credits including GEOL 601 or equivalent, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GEOL 798: Master's Research Project in Earth Systems Science. 1-6 credits.
Experimental, observational, literature-based, or theoretical research project chosen and completed under guidance of faculty member. Proposal required before enrollment. Comprehensive technical report acceptable to student’s committee required for completion. Notes: No more than 6 credits of GEOL 798 may be applied to master’s degree. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: 15 graduate credits, approved project or thesis proposal, and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Experimental, observational, or theoretical research under major advisor's supervision that culminates in production of thesis. Thesis work should be potentially publishable. Offered by Atmospheric/Oceanic/Earth Sci (p. 599). May be repeated within the degree for a maximum 18 credits.

Schedule Type: Thesis
German (GERM)

100 Level Courses

GERM 101: Elementary German I. 3 credits.
Designed for students with no knowledge of German. Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Notes: Students may not receive credit for GERM 101 and GERM 105 or 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to GERM 110.

Recommended Prerequisite: GERM 101.

Schedule Type: Lecture

GERM 102: Elementary German II. 3 credits.
Continuation of GERM 101. Notes: Students may not receive credit for GERM 102 and GERM 105 or 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to GERM 110.

Recommended Prerequisite: GERM 101.

Schedule Type: Lecture

GERM 110: Elementary German. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Notes: Lab work required. Students may not receive credit for GERM 110 and GERM 101, 102, or 105. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to GERM 101, GERM 102.

Schedule Type: Lecture

200 Level Courses

GERM 201: Intermediate German I. 3 credits.
Further development of skills in listening, speaking, reading, and writing. Notes: GERM 201 and 202 must be taken in sequence. Students may not receive credit for GERM 201 and GERM 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to GERM 210.

Recommended Prerequisite: GERM 102, 105, 109, appropriate placement score or permission of department.

Schedule Type: Lecture

GERM 202: Intermediate German II. 3 credits.
Applies skills to reading, composition, and discussion. Notes: Students may not receive credit for GERM 202 and GERM 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to GERM 210.

Recommended Prerequisite: GERM 201.

Schedule Type: Lecture

GERM 210: Intermediate German. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of German speaking regions. Notes: Students may not receive credit for GERM 210 and GERM 201 or 202. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to GERM 201, GERM 202.

Recommended Prerequisite: GERM 110 or appropriate placement score.

Schedule Type: Lecture

300 Level Courses

GERM 301: Culture and Civilization. 3 credits.
Covers development of German civilization from 18th century to present. Includes German cultural contributions to world civilization. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in German

Recommended Prerequisite: GERM 210.

Schedule Type: Lecture

GERM 310: Conversation and Composition. 3 credits.
Develops fluency in speaking and proficiency in writing German through discussion, reports, and compositions based on texts dealing with contemporary events and issues. Notes: Not for native speakers of German. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in German

Recommended Prerequisite: GERM 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

GERM 316: German for the Business World. 3 credits.
Introduces terminology and structural features of business German. Emphasizes acquiring vocabulary and developing facility in reading German business articles and correspondence. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in German

Recommended Prerequisite: GERM 250, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

GERM 318: Translation of Texts. 3 credits.
Introduces principles and techniques of translation. Translation of texts from the natural and social sciences, current events, and contemporary
culture. Notes: Translations mainly from German into English. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** GERM 250 or equivalent; appropriate placement score; or permission of instructor

**Schedule Type:** Lecture

**GERM 325: Major Writers.** 3 credits.
Works of major German, Austrian, and Swiss writers in translation. Notes: Writers studied vary. May be repeated when topic is different with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Literature (p. 135)

**Specialized Designation:** Taught in English

**Recommended Prerequisite:** ENGL 101/ENGH 101 or equivalent or permission of instructor.

**Schedule Type:** Lecture

**GERM 329: Representations of the Holocaust.** 3 credits.
Examines the Holocaust through film, literature, autobiography and museum culture. Students critically discuss causes of the Holocaust in Nazi Germany and explore its impact on German, Austrian and American culture. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in English

**Schedule Type:** Lecture

**GERM 340: Survey of German Literature.** 3 credits.
Overview of history of German literature to 1880. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** GERM 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**GERM 355: Readings in Poetry (Topic Varies).** 3 credits.
Intensive reading of German poetry in its historical context. Study of genre characteristics and development, including performance aspects. Genre varies; may be historical drama, radio play, or epic theater. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Taught in German

**Schedule Type:** Lecture

**GERM 365: Readings in Narrative Prose.** 3 credits.
Intensive reading of German narrative prose, such as autobiographical fiction, fairy tales, and film. Studies genre characteristics and development. Topics to be studied vary. Notes: May be repeated for credit when subject is different, with permission of department. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** GERM 250 or equivalent; appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**GERM 370: German Through the Arts.** 3 credits.
Focuses on advanced-level language development through the investigation of German arts (film, music, theater, paintings, etc.) in their historical and cultural contexts. Oral and written competence achieved by means of integrated vocabulary and grammar study in content-based instruction. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** GERM 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**GERM 375: Readings in Drama.** 3 credits.
Intensive reading of German dramas in their historical context. Study of genre characteristics and development, including performance aspects. Genre varies; may be historical drama, radio play, or epic theater. Notes: May be repeated for credit with permission of department when subtitle differs. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Schedule Type:** Lecture

**Recommended Prerequisite:** GERM 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**400 Level Courses**

**GERM 415: Advanced Grammar and Style.** 3 credits.
Studies syntax, idiomatic features, and levels of style. Extensive practice in different types of written expression. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** 15 hours of GERM or permission of instructor.

**Schedule Type:** Lecture

**GERM 418: Advanced Composition.** 3 credits.
Develops proficiency in writing German through intensive practice in preparing guided and original compositions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** Completion of 15 hours of GERM or permission of instructor.

**Schedule Type:** Lecture

**GERM 442: The Age of Goethe.** 3 credits.
Major works of Enlightenment, Sturm und Drang, Classicism, and early Romanticism. Emphasizes drama and poetry by Goethe and Schiller, with
additional works by Lessing, Kleist, and other important writers of the era. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** 15 hours of GERM or Permission of Instructor. Must have satisfactorily completed GERM 440 or 441.

**Schedule Type:** Lecture

**GERM 444:** *The Literature of Romanticism.* 3 credits. German Romantic poetry and prose. Background and some theory included. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** 15 hours of GERM or Permission of Instructor.

**Schedule Type:** Lecture

**GERM 450:** *Modern Literature: 1880-1925.* 3 credits. Literature of Naturalism, Impressionism, and Expressionism in Germany, Austria, and Switzerland. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Schedule Type:** Lecture

**GERM 451:** *Modern Literature: 1925 to the Present.* 3 credits. Literary trends since 1925 in Germany, Austria, and Switzerland. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** Taught in German

**Schedule Type:** Lecture

**GERM 450:** *Modern Literature: 1880-1925.* 3 credits. Literature of Naturalism, Impressionism, and Expressionism in Germany, Austria, and Switzerland. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** Taught in German

**Schedule Type:** Lecture

**GERM 480:** *Special Topics.* 3 credits. Special topics on language, literature, or culture by theme, approach, or era. Notes: May be repeated for credit with permission of department. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** 15 hours of GERM or permission of instructor

**Schedule Type:** Lecture

**Global Affairs (GLOA)**

**100 Level Courses**

**GLOA 101:** *Introduction to Global Affairs.* 3 credits. Surveys wide range of global topics: previous periods of globalization, international organizations and law, transnational corporations and global economy, immigration and refugees, world environmental concerns, world culture, war and peace, paradoxical presence of nationalism and fundamentalism in global world, and antiglobalization movement. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Taught in German

**Recommended Prerequisite:** 15 hours of GERM or Permission of Instructor. Must have satisfactorily completed GERM 440 or 441.

**Schedule Type:** Lecture

**GLOA 305:** *Global Affairs College-to-Career.* 1 credit. Focuses on career choices and effective self-presentation for soon-to-be graduating students with majors in Global Affairs. Explores how skills typically learned in humanities majors can be leveraged for a successful transition to post-graduation employment. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Schedule Type:** Lecture

**400 Level Courses**

**GLOA 400:** *Global Affairs Capstone.* 3 credits. Students draw from interdisciplinary core and concentration coursework in order to synthesize, compare and consolidate the various approaches and theories explored throughout the major through a focus on a pressing global issue. Additionally, course is designed to further develop research, writing, presentation, and organizational skills. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Recommended Prerequisite:** Completion of GLOA 101 or SOCI 120 and 18 credits in major.

**Schedule Type:** Lecture

**GLOA 450:** *Topics in Global Affairs.* 1-3 credits. Selected topics in global affairs. Content varies. Notes: May be repeated for credit when topic is different. Offered by Humanities & Social Sciences (p. 295). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** GLOA 101 or SOCI 120.

**Schedule Type:** Lecture

**GLOA 480:** *Study Abroad.* 1-6 credits. Study abroad under supervision of Mason faculty. Course topics, content, and locations vary. Notes: May be repeated with permission of department. Offered by Humanities & Social Sciences (p. 295). May be repeated within the term for a maximum 12 credits.

**Schedule Type:** Lecture

**GLOA 490:** *Independent Study in Global Affairs.* 1-6 credits. Reading or research on specific topic related to globalization, under direction of faculty member. Notes: At least one written paper required. Course may involve combination of reading assignments, tutorials, presentations, or off-campus activities. Offered by Humanities & Social Sciences (p. 295). May be repeated within the term for a maximum 6 credits.

**Schedule Type:** Lecture

**GLOA 491:** *Honors Seminar in Global Affairs.* 3 credits. Emphasizes an interdisciplinary approach to the study of global affairs. Covers a variety of topics, including consideration of economic, political, and cultural forces at work in the complex interactions among global
processes. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Global Affairs honors in the major.

**Schedule Type:** Seminar

**GLOA 492: Honors Research Project in Global Affairs.** 3 credits. Honors-level research on specialized topic in Global Affairs culminating in substantial paper and oral presentation. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Recommended Prerequisite:** Completion of GLOA 491 with minimum grade of B.

**Schedule Type:** Seminar

**GLOA 495: Global Experiential Learning.** 1-18 credits. On-the-job training in transnational or international fields through approved internship programs. Notes: Enrollment and credits controlled by Global Affairs Program. Contact Global Affairs Program one semester before planned enrollment. Offered by Humanities & Social Sciences (p. 295). May be repeated within the term.

**Recommended Prerequisite:** Acceptance into Global Policy Fellows Program.

**Registration Restrictions:**
- Enrollment is limited to students with a major in Global Affairs.

**Schedule Type:** Lecture

**500 Level Courses**

**GLOA 599: Issues in Global Affairs.** 3 credits. Studies current issues and debates in global affairs. Notes: May be repeated for credit when topic is different. Offered by Humanities & Social Sciences (p. 295). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Seminar

**GLOA 600: Global Competencies.** 3 credits. Explores the nature of globalization. Students will understand the characteristics of the current global system; be familiar with key global issues and debates; have an advanced understanding of and appreciation for organizations, languages, cultures in many global contexts; and be better habituated to thinking across disciplinary lines. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Global Affairs honors in the major.

**Schedule Type:** Seminar

**GLOA 605: Interdisciplinary Research Methods.** 3 credits. Designed to provide students with an overview of basic techniques in quantitative and qualitative methods with special attention to epistemological and ethical concerns in global studies research. Course includes a discussion of the theoretical assumptions that shape research questions and design, practical exercises in research techniques, and analysis of methodology in practice. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Lecture

**GLOA 610: Economic Globalization and Development.** 3 credits. Focuses on the intersection of countries and firms in the arenas of international trade, investment and finance, as the lenses into understanding better today's "global" economy: countries of differing levels of economic development and economic system structure, factors of monetary union and currency disequilibria, trade liberalization or protectionism, market entry, cross-border variables, risk and relations. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Recommended Prerequisite:** Acceptance into Global Policy Fellows Program.

**Registration Restrictions:**
- Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Seminar

**GLOA 620: Human Systems.** 3 credits. Examines the human dimensions relative to international educational systems and their relationship to basic education and higher education policy, research policy, science and technology, culture, language, social justice, equity, conflict and peace, human resources and national development. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Recommended Prerequisite:** Acceptance into Global Policy Fellows Program.

**Registration Restrictions:**
- Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**Schedule Type:** Seminar
Global and Community Health (GCH)

200 Level Courses

GCH 205: Global Health. 3 credits.
This course examines the biological and social aspects of major international health issues, especially in the areas of infectious disease, nutrition, and environmental health. Other topics include population groups with special risks, policies and programs designed to reduce health inequalities, and basic methods used to study global health. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

300 Level Courses

GCH 300: Introduction to Public Health. 3 credits.
Explores the principles and foundations of public health and its practice in the United States. Emphasizes the public health system’s contributions to improving individual, community, and population health. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 310: Health Behavior Theories. 3 credits.
Examines theory for understanding health and health behaviors and their role in the development, implementation, and evaluation of public health programs. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 320: Community Health and Literature. 3 credits.
This on-line course explores key historical worldwide public health events and humankind’s responses to them, through in-depth study of selected literary works. The course includes investigation of scientific, social, cultural, geographical, and political factors that affect health and policy development on local, community and global levels. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 325: Stress and Well-Being. 3 credits.
Explores the influences of stress on population-based health issues. The causes and pathways of the stress experience are explored from an ecological public health perspective. Theoretical aspects of stress and coping are considered, along with methods for relieving and preventing the stress response in both individuals and communities. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

GCH 332: Health and Disease. 3 credits.
Introduces the etiology, control, and prevention of human disorders from a public health perspective. Focuses on health problems and potential prevention throughout the life span. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to NURS 332.

Schedule Type: Lecture
GCH 335: Applied Health Statistics. 3 credits.
Emphasizes the statistical concepts and procedures used in applied public health practice and research. Students will learn to use SPSS to analyze, interpret, and present statistical findings. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to GCH 435.

Recommended Prerequisite: Any Mason Core quantitative reasoning course.

Schedule Type: Lecture

GCH 350: Health Promotion and Education. 3 credits.
Introduces the principles of health promotion and education, including history; philosophical and theoretical foundations; professional preparation, ethics, and responsibilities; and work settings. Assessment of health information/sources and the development of effective health promotion and education strategies for diverse populations are emphasized. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 360: Health and Environment. 3 credits.
Examines principles and methods, risk factors, prevention and control, and policies related to the aspects of human health determined by biological, physical, and chemical factors in the environment at the local, regional, and global levels. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 370: Sexuality and Human Behavior. 3 credits.
Introduction to human sexual behavior with an emphasis on the interaction between psychological, social, and biological factors. Topics include sexual differentiation and development, sexually transmitted infections and HIV, sexual orientation, patterns of sexual behavior, and the sexual health of individuals, communities, and global populations. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 376: Health Ethics, Leadership, and Advocacy. 3 credits.
Examines legal and ethical issues in public health practice and the skills necessary for effective leadership. Includes personal and organizational ethics, management and leadership styles, and public health advocacy. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Prerequisite: GCH 350.

Schedule Type: Lecture

GCH 380: Public Health Research Methods. 3 credits.
Emphasizes the formation of public health research questions and selection of appropriate study designs to address them. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to GCH 460.

Specialized Designation: Scholarly Inquiry

Schedule Type: Lecture

GCH 390: Introduction to Epidemiology. 3 credits.
Examines statistical and research methods used in the study of public health and communicable diseases. Emphasizes the statistical concepts and procedures used in applied public health practice and research. Students will learn to use SPSS to analyze, interpret, and present statistical findings. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to GCH 435.

Recommended Prerequisite: Any Mason Core quantitative reasoning course.

Schedule Type: Lecture

GCH 405: Global Health Interventions: History and Systems. 3 credits.
Examines the history, development, and implementation of international health policies and programs, with an emphasis on maternal and child health, undernutrition, and infectious diseases. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Prerequisite: GCH 205

Schedule Type: Lecture

GCH 406: Global Health Interventions: Emerging Issues. 3 credits.
Examines strategies for addressing emerging global health issues, with an emphasis on noncommunicable diseases, aging, mental health, and injuries. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Prerequisite: GCH 205.

Schedule Type: Lecture

GCH 411: Health Program Planning and Evaluation. 3 credits.
Addresses planning, implementation and evaluation of highly effective health programs. Emphasis is placed on using evidence-based approaches to program design and evaluation and working productively with communities. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisites: GCH 310\textsuperscript{C} and 380\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

GCH 412: Fundamentals of Epidemiology. 3 credits.
Explores health research methods for measuring population health, designing and implementing observational and experimental studies, reading health science publications, and applying research findings to global and community health. Notes: Open only to students in the Community Health major (HH-BS-COMH) or Public Health minor (PUBH). Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Prerequisite: One of the following: GCH 335, STAT 250, BIOL 214, OM 210, PSYC 300, or SOCI 313.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Community Health or Public Health.

Schedule Type: Lecture

GCH 430: Community Health Systems and Agencies. 3 credits.
Introduces students to local, state, and national community health systems and agencies. Topics include the historical impact of community health systems and agencies; the influence of health advocacy groups; the relationship between human rights and health; and the need for collaboration between groups advocating for optimum human health. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture
Recommended Corequisite: GCH 411.

Schedule Type: Lecture

GCH 445: Social Determinants of Health. 3 credits.
Examine the social determinants of health and the application of this framework to social work and public health policy and practice interventions. Explore the many social justice factors that affect health and consider which community systems and social change approaches may decrease or eliminate health inequities. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to SOCW 445.

Recommended Prerequisite: 45 credits or permission of the instructor.

Schedule Type: Lecture

GCH 450: Culture, Sexuality and the Global AIDS Epidemic. 3 credits.
Examines how the cultural values and mores regarding sexuality shape HIV/AIDS social policy and how these values and mores facilitate and hinder prevention and care efforts. Also examines several sexuality-related topics that interface with culture (e.g., gender, the sex industry, homosexuality) and the effectiveness of prevention and care initiatives around such issues as condom use, blood donation restrictions, immigration laws, sex education, and HIV testing. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 462: Health Promotion across the Lifespan. 3 credits.
Addresses health maintenance issues in humans from birth to death, emphasizing prevention. Compares and contrasts prevention of acute and chronic illnesses. Analyzes health communication approaches for effective translation of evidence-based. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Prerequisite: GCH 332 GCH 350

Schedule Type: Lecture

GCH 465: Community Health Capstone. 3 credits.
Assists students in synthesizing their roles as community health professionals in a global society. Provides students with opportunities to examine issues in community health. Course content builds on knowledge and skills acquired through coursework and field experience. Student writings and presentations receive written self-evaluation as well as formal review by peers and multiple faculty members. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisite: GCH 380C.
C Requires minimum grade of C.

Schedule Type: Lecture

GCH 480: Health Maintenance and Health Aspects of Aging. 3 credits.
Studies physiological and psychological factors that influence health and have implications for preventive measures in disease and health disorders. Examines nutrition, nature of health problems, and methods of assessing physical and psychological needs. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Schedule Type: Lecture

GCH 491: Study Abroad in Public Health. 3 credits.
Study abroad under supervision of George Mason University faculty. Course topics, content and locations vary. Offered by Global and Community Health (p. 237). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

GCH 494: Special Topics in Global and Community Health. 3 credits.
Selected topics analyzing specialized areas in global and community health. Notes: Content varies. Lecture, seminar, laboratory, workshops. Offered by Global and Community Health (p. 237). May be repeated within the term for a maximum 12 credits.

Schedule Type: Lecture

GCH 496: Violence in Today’s Society. 3 credits.
Examines magnitude of problem of violence globally and more specifically within the United States. Discussion and reflective activities engage students in the learning process. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to NURS 496.

Schedule Type: Lecture

GCH 497: Pre-Internship Seminar. 1 credit.
Prepares students for future professional roles including the GCH 498 internship. The coursework will include resume and cover letter writing, interviewing skills, networking, communications, professionalism, job search strategies, and relationship dynamics in the workplace. Students will select and prepare for a possible GCH internship. Notes: This course must be completed with a grade of B or better in order to be considered for enrollment in GCH 498 Community Health Internship. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Prerequisite: GCH 300 and completion of 60 credit hours, or instructor’s permission.

Schedule Type: Lecture

GCH 498: Global and Community Health Internship. 3,6 credits.
Provides advanced students with the opportunity to apply community health knowledge while working under the supervision of a community preceptor in a local health organization. Students submit an application to the GCH internship coordinator the semester prior to enrollment for review. Students who have demonstrated academic excellence will receive priority internship placement. Notes: A criminal background check and proof of vaccination status may be required of students prior to beginning an internship. This course provides experiential learning in a community health organization under the direction of a faculty advisor and a preceptor in the community health organization. Students are expected to understand the roles and functions of the community health organization and complete a project approved by the faculty advisor and the preceptor. Offered by Global and Community Health (p. 237). May be repeated within the degree for a maximum 6 credits.

Recommended Corequisite: GCH 497 with B or better.

Schedule Type: Internship

GCH 499: Independent Study in Global and Community Health. 1-6 credits.
Provides individual study of a particular problem area in global and community health research, theory development, or education under the
direction of faculty. Offered by Global and Community Health (p. 237). May be repeated within the term for a maximum 6 credits.

**Schedule Type:** Independent Study

### 500 Level Courses

**GCH 515: Lesbian, Gay, Bisexual, Transgender, and Queer Health.** 3 credits.
Examines health status and health disparities among lesbian, gay, bisexual, transgender, and queer (LGBTQ) communities across the lifespan. Measurement and methodological considerations in LGBTQ health research, as well as health-related interventions targeting LGBTQ populations will be emphasized. Notes: Offered every other year. Upper level undergraduates interested in taking this course are encouraged to contact the instructor. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GCH 543: Global Health.** 3 credits.
Examines the major infectious, nutritional, noncommunicable, neuropsychiatric, and other causes of morbidity, mortality, and disability in each world region. Explores sociocultural, economic, political, biological, and environmental factors that contribute to global and community health. Notes: Lecture, discussion. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GCH 565: Public Health Toxicology.** 3 credits.
Focuses on the general mechanisms of toxicity and direct and indirect effects of major environmental and occupational agents. Considers the genetic, physiologic, and psychosocial factors that affect susceptibility to adverse health outcomes associated with environmental or occupational hazard exposure. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

Overview of HIV disease, including retrospective and current concepts and analyses, global and societal effect, and cutting-edge research. Examines development of therapeutic tools and skills to educate, reduce risks, control infection, and affect care and healing of client, family, and community, and issues of increasing dilemma for health care professionals. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to NURS 571.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GCH 591: Study Abroad in Public Health.** 3 credits.
Study abroad under supervision of George Mason University faculty. Course topics, content and locations vary. Offered by Global and Community Health (p. 237). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GCH 594: Special Topics in Global and Community Health.** 3 credits.
Selected topics analyzing specialized areas in health care. Notes: Content varies. Lecture, seminar, laboratory, and workshops. Offered by Global and Community Health (p. 237). May be repeated within the degree for a maximum 6 credits. Equivalent to HAP 594, NURS 594.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

### 600 Level Courses

**GCH 600: Health Promotion Methods.** 3 credits.
Fundamental principles and practices of public health promotion and education, including historical origins; professional responsibilities; ethics; health behavior and learning theories; models for planning, implementing and evaluating programs; health literacy; public health advocacy; and the development, selection and implementation of effective instructional materials, methods, and interventions. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GCH 601: Introduction to Biostatistics.** 3 credits.
Applies selected biostatistics techniques to public health and health system management issues. Includes univariate and bivariate statistics, and regression analysis. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GCH 602: Global Health Issues Related to Violence.** 3 credits.
Explores worldwide view of violence and its impact on health. Examines biological, psychological, and social determinants of violence. The epidemiology of violence is examined with special attention to collective violence, youth violence, abuse and neglect of children and the elderly, intimate partners, sexual violence, self-directed violence, and transgenerational violence. Preventive approaches attempted to help reduce the prevalence of violence will be addressed. Notes: GCH 602 will be offered in the spring of odd years. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Recommended Prerequisite:** Admission to a graduate program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

**Schedule Type:** Lecture

**GCH 607: Evidence-Based Public Health Practice.** 3 credits.
Examines strategies for implementing evidence-based approaches in public health practice by applying principles of scientific reasoning and the systematic use of data. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GCH 609: Community Assessment and Partnerships.** 3 credits.
Examines strategies for conducting community assessments using community-based participatory approaches to identify factors affecting the health and well-being of population and community health. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GCH 610: Health Behavior Theory.** 3 credits.
Introduces students to the fundamentals of social and behavioral sciences, emphasizing current health behavior theories and models. Students develop an understanding of the theoretical and scientific basis of health promotion/health education interventions and develop community need and asset assessment skills. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GCH 611: Health Program Planning and Evaluation.** 3 credits.
Addresses the process of program planning, development, and fundamental evaluation principles, emphasizing health promotion programs. The focus is on development of clear and concise objectives leading to the design of effective primary, secondary, and tertiary prevention strategies. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisite:** GCH 600B.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GCH 612: Interventions in Public Health. 3 credits.
Application of intervention mapping to the design of theory-based interventions for target populations; collaboration with communities to design and implement interventions; selection of evidence-based interventions (EBIs); adaptation of EBIs for new populations; dissemination of EBIs; and cultural and ethical issues related to intervention development, implementation, evaluation, and sustainability. Notes: There are no prerequisites for the course. Students may find completion of GCH 600 or GCH 610 to be beneficial preparation for the course. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GCH 618: Environmental and Occupational Risk Assessment. 3 credits.
Focuses on how environmental and occupational health risks are identified and quantitatively characterized. Introduces risk communication strategies for technical and non-technical audiences. Introduces students to the development of testable models of chemical exposure. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Corequisite: GCH 560.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GCH 622: Mental Health: A Global Perspective. 3 credits.
An introduction to mental health and mental disorders; a critical view of national and international classification of disorders; an introduction to public health perspectives on mental health and mental disorders; and a review of cultural factors related to public health dilemmas and services, locally, regionally and in the global community, from a bio-psycho-social perspective. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Registration Restrictions:
Compares international health systems and policies. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

GCH 650: Global Non-Communicable Diseases. 3 credits.
Examines principles and methods for the prevention and control of NCDs of global importance, including cardiovascular diseases, cancer, COPD, diabetes, dementias, and others. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

GCH 651: Behavioral Research Methods. 3 credits.
Explores quantitative and qualitative research methods, principles and techniques necessary for implementation of health science research. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to RHBS 651.

**Recommended Corequisite:** GCH 601 or graduate course in applied statistics.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

GCH 712: Introduction to Epidemiology. 3 credits.
Explores epidemiological methods for measuring population health, designing and implementing observational and experimental studies, critically reading the public health literature, and applying research findings to global and community health. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

GCH 722: Infectious Disease Epidemiology. 3 credits.
Focuses on the epidemiology of infectious and parasitic diseases. Emphasizes study design and data analysis to support the prevention and control of communicable diseases. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to GCH 640.

**Registration Restrictions:**
**Required Prerequisite:** GCH 712 **B-**.
**B-** Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

GCH 726: Advanced Methods in Epidemiology. 3 credits.
Develops epidemiological skills through the study and exploration of special topics in epidemiology. Focuses on epidemiological methods and analysis, critical review of the literature, and scientific writing. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** (GCH 712 **B-** and 601 **B-**).
**B-** Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar
GCH 732: *Chronic Disease Epidemiology.* 3 credits.
Focuses on the epidemiology of chronic diseases, including cancers, cardiovascular and lung diseases, and mental health disorders. Emphasizes study design, critical reading, and public health approaches to disease control, such as surveillance and screening. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: GCH 712\(^B\).
\(^B\) Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GCH 742: *Behavioral Epidemiology.* 3 credits.
Focuses on applying epidemiological principles to the study of behavior and human health, emphasizing the role of behavior in public health, determinants of behavior, and research methods for studying health and disease in relation to behavior. Notes: Offered every other year. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: GCH 712\(^B\).
\(^B\) Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GCH 752: *Nutritional Epidemiology.* 3 credits.
Focuses on the examination of the methodologies of dietary assessment and their application to design, conduct, analysis, and interpretation of epidemiologic studies related to nutrition. Introduces the practical application of nutritional epidemiology to health programs and policy. Notes: Offered every other year. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: GCH 712\(^B\).
\(^B\) Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GCH 762: *Environmental Epidemiology.* 3 credits.
Focuses on applying epidemiological principles to the study of the environment exposures and human health, emphasizing research methods and data analysis, critical review of research, communication of research results, and applications to public health. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: GCH 712\(^B\).
\(^B\) Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GCH 772: *Social Epidemiology.* 3 credits.
Focuses on applying epidemiological principles to the study of social factors and human health. Prepares students to measure population-level social determinants of health and quantitatively evaluate their relationship with health and disease. Requires students to translate information and analyses into summaries suitable for technical and non-technical audiences. Notes: Offered every other year. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to GCH 605.

Registration Restrictions:
Required Prerequisite: GCH 712\(^B\).
\(^B\) Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GCH 770: *Practicum Seminar.* 0 credits.
Provides students with guidance and preparation for engaging in the public health practicum. Notes: This course should be taken one semester prior to enrollment in the practicum course. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GCH 782: *International Research Ethics and Methods.* 3 credits.
Prepares students to conduct global and community health research. Discusses ethical issues in international health research. Develops plans for identifying a research project, collecting and analyzing data, and reporting results of international health research. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to GCH 680.

Registration Restrictions:
Required Prerequisites: (GCH 712\(^B\) and 601\(^B\)).
\(^B\) Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GCH 790: *Practicum in Public Health.* 3 credits.
The practicum provides students with an in-depth supervised experience in an approved public health organization. The practicum will require students to complete a project related to an actual public health issue that is a focus within the organization. Offered by Global and Community Health (p. 237). May not be repeated for credit.

Recommended Prerequisite: Students must be enrolled in the MPH program in good standing. Must have completed GCH 780 and 21 credit hours in the MPH program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**GCH 792:** Culminating Experience. 0 credits.
Provides an integrative learning experience to demonstrate synthesis of the Master of Public Health foundational and concentration competencies. Students produce a written product appropriate to educational and professional objectives. Notes: This course should be taken during the final semester of the program. It is highly recommended that students complete all other MPH Core Courses and at least two Concentration Courses prior to enrollment in this course. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Recommended Prerequisite:** Must be enrolled in the MPH program in good standing and have completed at least 21 credit hours in the MPH program.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GCH 794:** Global Health Research Capstone. 3 credits.
Provides a supervised, collaborative research experience on a global health topic that allows students to synthesize, integrate, and apply the knowledge and skills acquired in coursework. Offered by Global and Community Health (p. 237). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: GCH 651 B-
B- Requires minimum grade of B-

Enrollment limited to students in the MS Global Health program.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GCH 795:** Advanced Special Topics in Global and Community Health. 1-3 credits.
Advanced special topics course to address in-depth study of contemporary areas of global and community health insufficiently covered in other courses. Notes: Fulfills elective requirement for MS in global health degree and global health certificate program. Topics vary. May take up to 6 credits within their degree program. Offered by Global and Community Health (p. 237). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Must be enrolled in a graduate program and have permission of the instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

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### 800 Level Courses

**GCH 804:** Advanced Quantitative Data Analysis for Health Care Research I. 3 credits.
Examines regression modeling including ANOVA techniques, linear regression and logistic regression. Using public health and health care research data, students will apply statistical methods and interpret output from a statistical computing package. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to NURS 804.

**Recommended Prerequisite:** A graduate-level statistics course.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**GCH 805:** Advanced Quantitative Data Analysis for Health Care Research II. 3 credits.
Examines data analysis techniques for data management, data cleaning, exploratory data analysis, and statistical modeling, and applies these approaches to public health data using a statistical computing package. Introduces advanced statistical analysis techniques including Poisson regression, longitudinal data analysis, survival analysis, and analysis of survey data. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to NURS 805.

**Recommended Prerequisite:** GCH 804 or NURS 804, or an equivalent multivariate statistics course.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**GCH 806:** Advanced Quantitative Data Analysis for Health Care Research III. 3 credits.
Examines regression modeling including ANOVA techniques, linear regression and logistic regression. Using public health and health care research data, students will apply statistical methods and interpret output from a statistical computing package. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to NURS 806.

**Recommended Prerequisite:** GCH 805 or NURS 805, or equivalent multivariate statistics course.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**GCH 807:** Measurement Theories and Applications in Health Care Research. 3 credits.
Theories, principles, and techniques presented as foundation for the development and evaluation of instruments for use in health care research. Includes review of statistical techniques required for understanding measurement theory, reliability, validity, item analysis, and instrument construction. Students required to design, construct, administer, analyze, and evaluate an original instrument or evaluate an existing instrument in health care research. Notes: Completion of GCH 805/NURS 805 or GCH 806/NURS 806 is highly recommended. Offered by Global and Community Health (p. 237). May not be repeated for credit. Equivalent to NURS 807.
**Government (GOVT)**

**100 Level Courses**

**GOVT 101: Democratic Theory and Practice.** 3 credits.
Comparative exploration; topics include contemporary analysis of the meanings of liberty, equality, representation, property rights, voting rights, and civil responsibilities. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences (p. 135)

**Schedule Type:** Lecture

**GOVT 103: Introduction to American Government.** 3 credits.
An overview of key organizing principles of American government, including its institutions, history, and various aspects of political participation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Schedule Type:** Lecture

**GOVT 132: Introduction to International Politics.** 3 credits.
Nature of international politics, approaches to study of international politics, state and nonstate actors in international system, patterns of action and interaction between nation-states, international institutions, and major global issues. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Schedule Type:** Lecture

**GOVT 133: Introduction to Comparative Politics.** 3 credits.
Discusses methods and subject matter of comparative political analysis. Includes political systems, politics, participation in politics, government structures, policy-making process, and evaluation of political performance. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Schedule Type:** Lecture

**300 Level Courses**

**GOVT 300: Research Methods and Analysis.** 4 credits.
Emphasizes asking clear, researchable questions and using appropriate evidence to answer them. Introduces broad range of evidence including quantitative and qualitative information. Studies design and analysis of surveys, government archives, case studies, and interpretations of events in journals. Examines ethical implications of information technologies. Notes: Required for all majors in government and international politics, and public administration. Strongly recommended before or during first semester of enrolling in 300-level courses. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Mason Core:** Information Technology: With Ethics (p. 135)

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Lecture

**GOVT 301: Public Law and the Judicial Process.** 3 credits.
American judicial organization and operation, role of the Supreme Court in policy formation, and selected constitutional principles. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 301.

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Lecture

**GOVT 302: American Political Development.** 3 credits.
Examines American political development, both in itself and compared to other nations. Addresses the extent to which the United States has or has not been exceptional in its development as a nation state. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Seminar

**GOVT 304: American State and Local Government.** 3 credits.
Nature, organization, functions, and problems of American state and local governments. Notes: Students may not receive credit for GOVT 204 and 304. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Lecture

**GOVT 305: Contemporary American Federalism.** 3 credits.
Legal, administrative, fiscal, and political dimensions of evolving American federalism. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Lecture

**GOVT 307: Legislative Behavior.** 3 credits.
Organization, processes, functions, and roles of legislature and U.S. Congress members. Topics include state legislatures and cross-national comparisons as time and resources permit. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Lecture

**GOVT 308: The American Presidency.** 3 credits.
Survey of modern presidency, including constitutional origins of office, growth and influence of White House staff, Cabinet, presidential appointees and control of executive branch, relations with Congress, and domestic and national security policy making. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Lecture
GOVT 309: Government and Politics of Metropolitan Areas. 3 credits. Government, politics, and problems of metropolitan centers and surrounding areas. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

Schedule Type: Lecture

GOVT 311: Public Opinion and Electoral Behavior. 3 credits. Studies actions of voters, candidates, and political parties in relation to the expression of relevant public opinion in a democratic system. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103 and 300.

Schedule Type: Lecture

GOVT 312: Political Parties and Campaigns. 3 credits. Characteristics and functions of political parties, influence of parties and other political forces on electoral decisions, and emphasis on parties' inability or ability to hold government accountable to citizens. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

Schedule Type: Lecture

GOVT 313: Political Psychology. 3 credits. Examines political topics through a psychological lens. Review of theoretical approaches, methods and themes. Political psychology has been used to explore the motivation of presidents, why some groups will seek to kill off other groups through acts of genocide, how the authoritarian state can emerge, and what goes through your mind as you go to cast your ballot on Election Day. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Schedule Type: Seminar

GOVT 318: Interest Groups, Lobbying, and the Political Process. 3 credits. Role, internal operations, strategies, and activities of interest groups. Evaluates ability of these groups to enable citizens to influence or control government and enhance democratic process. Considers conditions under which social movements become, or fail to become, effective interest groups. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

Schedule Type: Lecture

GOVT 319: Issues in Government and Politics. 1-3 credits. Studies special issues relevant to government and politics. Topics announced in advance. Examples include politics and the arts, ethnic conflict and the political system, gender politics, and changing dynamics in political institutions. Notes: May be repeated when topic is different with permission of department. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: GOVT 103.

Schedule Type: Lecture

GOVT 322: International Relations Theory. 3 credits. Advanced inquiry into international relations. Studies theories, concepts of international relations, and major forces and issues in international politics. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132 or 133.

Schedule Type: Lecture

GOVT 323: Classical Western Political Theory. 3 credits. Lectures, discussions of developments in Western tradition of political thought from time of Greek city-state to late medieval Christendom. Topics include nature and purpose of politics, relationship between individual and state, political significance of religion and tradition, and concept of natural law. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PHIL 323.

Recommended Prerequisite: GOVT 101, or three credits of Philosophy.

Schedule Type: Lecture

GOVT 324: Modern Western Political Theory. 3 credits. Lectures, discussions of developments in Western tradition of political thought from Renaissance to mid-19th century. Topics include rise of individualism in political theory, early developments in social contact theory, theories of radical popular sovereignty, and early criticisms of liberal theory. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PHIL 324.

Recommended Prerequisite: GOVT 101, or three credits of Philosophy.

Schedule Type: Lecture

GOVT 327: Contemporary Western Political Theory. 3 credits. Lectures, discussions of developments in Western tradition of political thought from mid-19th century to today. Different sections focus on various political theories that have been influential during this period, such as liberal, libertarian, conservative, communitarian, Marxist, feminist, and postmodern thought. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 12 credits. Equivalent to PHIL 327.

Recommended Prerequisite: GOVT 101 or three credits of Philosophy.

Schedule Type: Lecture

GOVT 328: Non-Western Political Theory. 3 credits. Theory and history of political community, governance, and development as understood by various non-Western societies, including China, Japan, India, Africa, and Islamic World; relations to Western tradition; methodology of studying other cultures; postcolonial theories; and cultural politics on contemporary globalization. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Recommended Prerequisite: GOVT 101 or 133.

Schedule Type: Lecture

GOVT 329: Issues in Political Theories and Values. 1-3 credits. Studies special issues relevant to theoretical and value aspects of government and politics. Topics announced in advance. Examples include ethics and politics, ethics and environmental policy, changing perspectives on civil rights and liberties, religion and politics, and changing views of public space. Notes: May be repeated when topic is different with permission of department. Offered by Schar School of
Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** GOVT 103.

**Schedule Type:** Lecture

**GOVT 331:** Government and Politics of Latin America. 3 credits. Contemporary political systems of Latin America, with emphasis on institutions, political processes, and political behavior. Presents case studies of several key Latin American politics; discusses problems of political development. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 332:** Government and Politics of the Middle East and North Africa. 3 credits. Societies of Middle East and North Africa and their response to impact of internal sociocultural-political determinants and external forces. Focuses on contemporary politics, ideologies, popular manifestations, institutions, and operations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 333:** Government and Politics of Asia. 3 credits. Government structures and political processes of Asian countries. Examines patterns of conflict and cooperation, and issues of economic development and political reform in rapidly changing world. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 334:** Government and Politics of Europe. 3 credits. Examines governance and political systems in Europe at the national and supranational levels, with emphasis on actors, institutions, processes, and behavior. Explores key policies in a variety of fields, such as social policy, migration, and economic and monetary union. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 336:** Political Development and Change. 3 credits. Process of political development and change in context of modernization and industrialization. Examines patterns of political development, with emphasis on developing world. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 337:** Ethnic Politics in Western Europe and North America. 3 credits. Studies resurgence of ethnic nationalism in industrial democracies of Western Europe and North America, and the comparative analysis of policy issues related to ethnonationalism. Case studies drawn from the industrial democracies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 338:** Government and Politics of Russia. 3 credits. Examines continuity and change in Russia's Soviet era and post-Soviet era politics and international relations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 339:** Issues in the Politics of Advanced Industrial Societies. 1-3 credits. Studies selected current political issues in industrial democracies of Western Europe and North America. Specific topics chosen each semester to reflect contemporary political concerns in these countries, but political process in advanced industrial countries is organizing principle throughout the course. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** GOVT 103 or 133 or permission of instructor.

**Schedule Type:** Lecture

**GOVT 340:** Central Asian Politics. 3 credits. Comparative examination of political change in Central Asia with attention to national identity formation, political economy, political conflict, political Islam, and democratization. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 341:** Chinese Foreign Policy. 3 credits. Discusses theories and practices of Chinese foreign policy decision making, which are then used to understand China's relations with United States, Japan, Russia, Europe, and its Asian neighbors, and China's policy in issues such as human rights, environmental protection, and nuclear nonproliferation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** GOVT 132, 133.

**Schedule Type:** Lecture

**GOVT 342:** Diplomacy. 3 credits. Origins of organized diplomacy: tasks, procedures, instruments, and problems of diplomacy. Emphasizes current, future roles of diplomacy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 132, 133.
GOVT 344: American Foreign Policy. 3 credits.
Central issues surrounding the conduct of America’s foreign relations, with special emphasis on structural and constitutional questions, national policy objectives abroad, and conduct of foreign policy in a democracy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132, 133.

Schedule Type: Lecture

GOVT 345: Islam and Politics. 3 credits.
Covers politics of religion in Muslim societies; history, ideology, and practices of key individuals, movements, and institutions; case studies of political Islam in the Middle East, Asia, Africa, and the West; plurality and diversity of political expression in Muslim world; nature of democracy in Islam; and Islamic state. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

GOVT 346: American Security Policy. 3 credits.
Approaches U.S. National security policy from perspective of organization and implementation of specific policies. Applies theoretical concerns to historic cases to illuminate problems that continue to challenge country. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132, 133.

Schedule Type: Lecture

GOVT 347: International Security. 3 credits.
Explores enduring security problems and new developments. Examines effects of international system on defense policies of states, particularly tensions of world caught between emerging interdependence and national demands. Encourages development of critical-thinking and group and oral presentation skills. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132.

Schedule Type: Lecture

GOVT 351: Administration in the Political System. 3 credits.
Administrative structures and processes in political setting of public management. Presents organization and administrative theory, critiques, and current practices; and examines impact of changes in social, political, and economic environment on concepts, models. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132.

Schedule Type: Lecture

GOVT 353: Social Entrepreneurship. 3 credits.
Introduces students to the different steps that social entrepreneurs work through to drive social change: identifying problem to address, developing a strategy to address the social need, fundraising, growing the organization, tracking results, and maximizing impact. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Schedule Type: Seminar

GOVT 354: Third-Party Government and the Nonprofit Sector. 3 credits.
Introduces students to the concept of third-party government and the new realities of governments employing networks of public and private actors to orchestrate the production of public goods and services. Also explores the role of nonprofit organizations as the most prominent "third parties" that governments heavily depend on in social welfare provision. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Schedule Type: Seminar

GOVT 355: Public Personnel Administration. 3 credits.
Analyzes techniques and tools in human resource management including merit system, classification, compensation, evaluation, recruitment, and labor relations. Emphasizes current legal and policy issues in personnel administration, such as diversity and privatization. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 351.

Schedule Type: Lecture

GOVT 356: Public Budgeting and Finance. 3 credits.
Covers tools and techniques in budgeting and financial management in U.S. governments, including management of public financial institutions, budgetary process and reform, and relationship of public budgeting to national economic policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 351.

Schedule Type: Lecture

GOVT 357: Urban Governance and Planning. 3 credits.
Framework, subject matter, uses, methods, administration, and future of public planning. Emphasizes setting goals, defining objectives, and choosing between program alternatives. Discusses political and bureaucratic constraints, and problems of implementation. Planning illustrations may be drawn from various levels of government. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 351.

Schedule Type: Lecture

GOVT 358: Nonprofit Financial Planning. 4 credits.
Provides understanding of social mission and entrepreneurial cross pressures underlying financial planning and accounting in nonprofit sector. Topics include revenue sources and projections, entrepreneurial techniques, and cost analysis for nonprofit and nongovernmental entities. Lectures, student case studies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.
Recommended Prerequisite: 60 credits or permission of instructor.

Schedule Type: Lecture

GOVT 359: Computers in Public Management. 3 credits.
Applies computer-based techniques to management information in public sector. Focuses on the logic and implementation of computer applications, internet technology, web development, security, and mobile apps. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 300.

Schedule Type: Lecture

GOVT 361: Introduction to Environmental Policy. 3 credits.
Environmental politics and policy making since the 1970s. Primarily U.S. focus, with some discussion of global issues. Examines policy strategies and outcomes, ethical and economic debates, political controversies, lawmaking and enforcement, and role of key players. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to EVPP 361.

Specialized Designation: Green Leaf Course

Recommended Prerequisite: 30 credits.

Schedule Type: Lecture

GOVT 362: Intermediate Environmental Policy. 3 credits.
Examines environmental issues building on learning objectives from GOVT 361. Focuses on environmental and policy issues in the US and internationally, exploring the politics of nature and the interaction of environmental science and politics and resulting controversy. Risk and uncertainty loom large in most environmental issues. Covers “natural” disasters as well as direct “man-made” problems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: EVPP 361 or GOVT 361 or permission of instructor.

Schedule Type: Lecture

GOVT 364: Public Policy Making. 3 credits.
Processes, agencies, and policies involved in the proposal making, implementation, evaluation, and revision of U.S. public policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

Schedule Type: Lecture

GOVT 365: State and Regional Public Policy. 3 credits.
Examines public policy decisions that affect local and state jurisdictions in context of federal system of government. Examines context, substance, and impact of such policies as housing, transportation, land use, crime prevention, service delivery, and health care. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

Schedule Type: Lecture

GOVT 366: Public Policy Analysis. 3 credits.
Methods of public policy analysis, evaluation, and research. Studies design and development of alternative courses of government action and evaluation of results, and problems in applying systematic analysis to political issues. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 300.

Schedule Type: Lecture

GOVT 367: Money, Markets and Economic Policy. 3 credits.
Applies basic economic concepts and principles to issues facing the U.S. and global economies. Topics include productivity and economic growth, taxes, health care, globalization, income distribution and financial crises, with an emphasis on market structure, social institutions and the not-always rational behavior of investors and consumers. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to ECON 367.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Seminar

GOVT 368: Tools for Economic Policy Analysis. 3 credits.
This course outlines the economic framework for studying public policy, taking a more quantitative approach than GOVT 367. Topics include consumer and producer behavior under different market structures, how and why markets can fail to produce socially desirable outcomes, income distribution, and macroeconomic growth. Emphasizes using economic models to evaluate both market outcomes and policy interventions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 367.

Schedule Type: Seminar

GOVT 398: Study Abroad. 3 credits.
Study abroad. Course topics, content, and locations vary. Notes: GOVT 398 may only be applied to a major or minor with prior written approval from the department. A maximum of 6 credits may be applied to the BA in government and international politics, the BS in public administration, or any minor offered by the School of Policy, Government, and International Affairs. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 12 credits.

Schedule Type: Lecture

GOVT 399: Research Practicum. 1-3 credits.
Applies research methods in context of assisting with faculty research. Individualized sections taught by arrangement with full-time faculty. Methods adopted vary, but generally include library research, data collection, data analysis, and report construction. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: GOVT 300 and Permission of Instructor.

Schedule Type: Independent Study

400 Level Courses

GOVT 407: Law and Society. 3 credits.
Explores relationship between law and society, including concept of law; origin, development, and role of law in society; and relationship between law and social change. Assesses different approaches and methodologies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.
Recommended Prerequisite: CRIM 100 or GOVT 301.

Schedule Type: Lecture

GOVT 409: *Virginia Government and Politics*. 3 credits.
Examines history of politics in Virginia and current political issues. Particular attention to changing dynamics of political parties, key legislative issues, and policies of recent administrations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

GOVT 412: *Politics and the Mass Media*. 3 credits.
Responsibilities and freedoms of mass media in democracy. Explores influence of media on citizens' opinions, elections, and decisions of public officials. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to COMM 412.

Recommended Prerequisite: GOVT 103.

GOVT 414: *Politics of Race and Gender*. 3 credits.
Examines political, economic, and social impact of public policies and implications for race, gender, and age. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

GOVT 420: *American Political Thought*. 3 credits.
Major political values and theories in America from formation of American republic to present. Covers changes in American political values in crisis periods and contemporary American political theory including pluralism, elite theories of democracy, and empirical political theory. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

GOVT 421: *Contemporary Political Ideologies*. 3 credits.
Studies political ideologies that shape values, beliefs, and actions of contemporary regimes and political movements. Topics include liberalism, conservatism, socialism, communism, and fascism in theory and contemporary practice; and totalitarianism and nationalism in postindustrial and developing societies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

GOVT 422: *Constitutional Interpretation*. 3 credits.
Examines Supreme Court's interpretation of constitutional powers of Congress, presidency, and judiciary. Includes examination of major decisions concerning state regulation, taxation, and interstate relations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 103.

Studies First Amendment freedoms of speech, press, assembly, association, and religion; right to privacy; and Fourteenth Amendment equal protection. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 423.

Recommended Prerequisite: GOVT 103.

GOVT 427: *Feminist Political Thought*. 3 credits.
Explores feminist political thought in historical context. Topics include feminist political movements, feminist critiques of political philosophy, and feminist contributions to political theory. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PHIL 427, WMST 427.

Recommended Prerequisite: GOVT 101, WMST 200, 3 credits of PHIL, or permission of instructor.

GOVT 428: *Advanced Democratic Theory*. 3 credits.
Explores various theoretical approaches to nature and justification of democracy. Topics may include liberal, communitarian, pluralist, and deliberative theories and their critics; constitutionalism; role of markets; and transnational democracy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PHIL 428.

Recommended Prerequisite: GOVT 101; or one course in PHIL.

GOVT 430: *Comparative Political Leadership*. 3 credits.
Comparative political leadership, relationships between political cultures and types of leadership, patterns of leadership recruitment, and linkages between political elites and citizenry. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132, 133.

GOVT 432: *Political Change and Social Development in Sub-Saharan Africa*. 3 credits.
Examines relationship of culture, history, ethnicity, and religion, and contemporary political and socioeconomic developments in Africa. Special attention to implications of ethnic conflict for nation-building in the post-Cold War period, and strategies for resolving conflicts. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Recommended Prerequisite: GOVT 132, 133.

GOVT 433: *Political Economy of East Asia*. 3 credits.
Discusses different theoretical perspectives of East Asian political economy; transformation of East Asia; and issues such as money, finance, trade, investment, environment, and energy. Focuses on issues of contemporary significance, but attention also given to history. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Specialized Designation: Non-Western Culture
Recommended Prerequisite: GOVT 133 and 60 credits, or permission of instructor.

Schedule Type: Lecture

GOVT 434: Democracy in Global Perspective. 3 credits.
Comparative study of structures and performance of democracies around the world since 1975. Examines growing influence of global forces such as economy, media, and culture in process of democratization. Examines select current elections. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 133.

Schedule Type: Lecture

GOVT 443: Law and Ethics of War. 3 credits.
Explores sources of morality in armed conflict, and implications of such ideas for international relations. Examines content and philosophy of modern law of war. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132.

Schedule Type: Lecture

GOVT 444: Issues in International Studies. 1-3 credits.
Major issues in international systems, including international political economy and security. Notes: May be repeated when topic is different with permission of department. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: GOVT 132, 133.

Schedule Type: Lecture

GOVT 445: Human Rights. 3 credits.
Explores philosophical, legal, and political issues at heart of modern international human rights movement. Examines historical background legal architecture of modern human rights movement. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132.

Schedule Type: Lecture

GOVT 446: International Law and Organization. 3 credits.
Nature, sources, and subject of law of nations; law and individual; territorial questions; nature, sources, and functions of international organizations; international transactions and organizations; war and present; and future status of international law. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 132, 133.

Schedule Type: Lecture

GOVT 447: Revolution and International Politics. 3 credits.
Historical overview of modern revolutions as well as different theories about causes and consequences of revolutions. Special attention to Marxist-Leninist, Arab nationalist, and Islamic revolutions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 133.

Schedule Type: Lecture

GOVT 448: Ethics and International Politics. 3 credits.
Ethics and international politics ask students to wrestle with dilemmas raised by a desire to behave morally in an international system in which consensus about ethical matters is absent. Distributive justice and use of force are two overarching themes. Students also develop, apply, and justify their own perspectives on ethical problem using philosophical theory, history, and social science research. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: 60 hours and GOVT 132 or PHIL 151.

Schedule Type: Lecture

GOVT 452: Administrative Law and Procedures. 3 credits.
Law of public office. Studies procedures followed by and the legal limits on administrative agencies and their officers and employees. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 351.

Schedule Type: Lecture

GOVT 460: Surveillance and Privacy in Contemporary Society. 3 credits.
Philosophical perspectives, historical context, technological developments, and institutional changes that surround controversies about privacy and surveillance in contemporary society. Explores public and private institutions doing surveillance, how they calculate and manage risk, and legal constraints on surveillance activities. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: CRIM 100.

Schedule Type: Lecture

GOVT 464: Issues in Public Policy and Administration. 1-3 credits.
Analyzes selected policy issues in administering public policies. Topics announced in advance. Examples include environmental policy, government regulation, federal mandates, state policy, and regional policy. Notes: May be repeated when topic is different with permission of department. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: GOVT 103 plus 60 credits.

Schedule Type: Lecture

GOVT 467: Current Issues in Economic Policy. 3 credits.
Applies basic concepts of economics, political science and ethics to some of the most pressing issues facing the U.S. and global economies. Topics include productivity and economic growth, taxes, soaring costs for health care and higher education, globalization, income inequality, financial crises, the size of government and the proper role of regulation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: Open to PPE concentrators or permission of instructor.

Schedule Type: Seminar

GOVT 469: Philosophy, Politics, and Economics. 3 credits.
Covers issues in the philosophy, economics, and political science of institutions, information, and collective action. Through case studies of existing legal and political institutions, applies the insights to problems in politics, policy making, social theory, and social, moral, and political philosophy. (Specific content varies). Offered by Schar School of Policy


**Mason Core:**

GoVT (p. 906). May not be repeated for credit. Equivalent to Econ 460, Phil 460.

**Recommended Prerequisite:** Phil 358, Econ 412, and GoVT 467, or permission of instructor.

**Schedule Type:** Seminar

**GoVT 470: Faith and Reason in the Making of the Modern Mind.** 3 credits.
Investigates the interlocking claims of religious faith and human reason in Western culture, from Biblical times to the present. First covers tightly focused reading assignments in theology and philosophy, and second covers particular case studies, from Galileo to the Intelligent Design debate. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Schedule Type:** Seminar

**GoVT 471: Millennialism and Philosophies of History in Western Culture.** 3 credits.
Is there purpose in human history? Are we really going anywhere as humanity moves through time? This seminar studies major patterns by which thinkers in the West have discerned meaning in humanity's temporal existence. Extends from the Jewish roots of historical understanding, through Christian millennialism, to contemporary naturalism. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Schedule Type:** Seminar

**GoVT 472: Christianity, Secularism, and Democracy.** 3 credits.
Examines the evolving relationship between religion and the American political order, from the Reformation to George W. Bush. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Schedule Type:** Seminar

**GoVT 480: Internship.** 3 credits.
Approved internships with specific employer. Programs relate in some capacity to government, politics, public policy, or the law. Students develop individual contracts defining learning and competencies they plan to gain from the experience. For 3 credits, a minimum of 135 hours is required. Notes: Contact the department one semester before enrolling. A maximum of 6 credits of GoVT 480 may be applied to a degree in government and international politics or in public administration. 3 of those credits may be applied to requirements for the major (to the advanced government field requirement for the BA in government and international politics) with prior approval of the internship coordinator. A maximum of 3 additional credits may be used for general elective credit toward the 120 credits required for the bachelor's degree. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 15 credits.

**Recommended Prerequisite:** GoVT 101, GoVT 103, GoVT 132, and GoVT 133.

**Schedule Type:** Internship

**GoVT 490: Synthesis Seminar.** 3 credits.
Readings, individual or group projects, and discussion of papers reflecting on connections between liberal arts and sciences and political world. Notes: Course topic varies by semester. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** GoVT 300 and 18 credits in major.

**Schedule Type:** Seminar

**GoVT 491: Honors Seminar.** 3 credits.
Readings, individual or group projects, and discussions of seminar papers. Notes: Subject varies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** GoVT 300 and 18 credits in major.

**Schedule Type:** Seminar

**GoVT 496: Directed Readings and Research.** 1-3 credits.
Reading and research on specific topic under direction of faculty member. Notes: Written report required; oral report of research may be required. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Major in government and international politics with 90 credits and permission of instructor and department.

**Schedule Type:** Independent Study

**500 Level Courses**

**GoVT 500: The Scientific Method and Research Design.** 3 credits.
Grounds students in the principles of the scientific method as the framework for investigating all research questions in political science, whether qualitative or quantitative in character (or both). Focus is on sound and rigorous research design. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

**GoVT 510: American Government and Politics.** 3 credits.
Examines institutions and processes of American government, including separate institutions of power in national government, theory and practice of federal system, role of interest groups and political parties, and effects of media and public opinion on electoral behavior and policy making. Seminar examining normative and empirical research. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Graduate, Non Degree or Senior Plus.

Enrollment limited to students with a class of Advanced to Candidacy, Registration Restrictions:

Schar School of Policy & Govt (p. 906). May not be repeated for credit.

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important theories and debates that characterize the subfield. Helps

this context, students will look at concepts and approaches, as well as

its scientific objectives, and its epistemological assumptions. Within

think theoretically and critically about the study of comparative politics,

covers the central themes under study. Designed to help students

analyzes selected major works of ancient, modern, or contemporary

political theory that illuminate basic problems and questions for people

engaged in political or civic life. Examines justice, liberty, equality,

autonomy, rights, obligation, participation, and nature of politics. Offered

by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: Admission to the MA in political science or permission of department.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GOVT 520: Political Theory. 3 credits.

Examines selected major works of ancient, modern, or contemporary political theory that illuminate basic problems and questions for people engaged in political or civic life. Examines justice, liberty, equality, autonomy, rights, obligation, participation, and nature of politics. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: Admission to the MA in political science or permission of department.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GOVT 530: Comparative Politics. 3 credits.

Examines fundamental issues in comparative politics and provides broad coverage of the central themes under study. Designed to help students think theoretically and critically about the study of comparative politics, its scientific objectives, and its epistemological assumptions. Within this context, students will look at concepts and approaches, as well as important theories and debates that characterize the subfield. Helps prepare students for qualifying exams in comparative politics. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GOVT 540: International Relations. 3 credits.

Focuses on changing structure of international politics, post-Cold War security issues, effect of globalized economy and information technology revolution, enhanced role of global corporations and nongovernmental organizations, and rise of nonsecurity issues in emerging international agenda. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GOVT 541: Introduction to Critical Analysis and Strategic Response to Terrorism. 3 credits.

Introduces terrorism as a complex threat to human security. Focuses on tools for analyzing terrorism and the underlying sources and conditions that contribute to it. Considers similarities and differences between terrorism and other threats to human security. Explores the lessons learned in the history of responding to terrorism. Focuses not only on different tactics of response, but also includes how different types of societies (dictatorship, democracies, etc.) have responded to terrorism and what the results of those responses have been. Includes case studies of responses to terrorism. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 510.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

GOVT 550: Seminar in Theories of Public Administration. 3 credits.

Reviews the theoretical traditions in American public administration, from the earliest days of the founding to the present. Concludes with consideration of contemporary theoretical debates over the proper role of public administrators and controversies about conflicting demands made on the public service and the public sector. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 510.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 560: Topics in Government and International Affairs.** 3 credits. Examines topics of contemporary and emerging concern in government and international affairs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**GOVT 603: Seminar in the Courts and Constitutional Law.** 3 credits. Explores topics of contemporary and emerging concern in government and international affairs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 510.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 604: Seminar on Congress and Legislative Behavior.** 3 credits. Examines theories and empirical research on the U.S. Congress and legislative behavior, including elections, representation, structures, and processes. Also examines Congress’ impact on the design and implementation of public policy, interactions with other branches of government, and comparisons with parliamentary systems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 510.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 605: Seminar on the Presidency.** 3 credits. Examines the American presidency from a number of substantive and methodological perspectives. Readings and discussions in the course appraise the presidency within the system and focus on the role the presidency plays in formulating and implementing public policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 510.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 631: Seminar in Comparative Politics and Institutions.** 3 credits. Examines theories and practices of governance and development in comparative national settings. Course explores key subsets of the comparative politics literature in depth, including institutional change, regime types and transitions, democracy and authoritarianism, states and state-society relations, revolution, social movements, political cultures, and methods. Course is explicitly conceptual and cross-regional. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 632: Politics and Societies of the Middle East.** 3 credits. Examines theories and empirical research on the U.S. Congress and legislative behavior, including elections, representation, structures, and processes. Also examines Congress’ impact on the design and implementation of public policy, interactions with other branches of government, and comparisons with parliamentary systems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 510.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 640: Strategic Responses to Terrorism: Coordinated Decision Making.** 3 credits. Revisits, expands, and examines the critical themes developed in the terrorism certificate program. Provides students with the opportunity to apply the theoretical concepts developed in practice. Integrates the ideas, theories, and practices considered in this track within the larger field of terrorism analysis and strategic responses to this threat. Notes: This is
the capstone course for the terrorism certificate program and must be completed in the final semester of the certificate program. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Corequisite:** GOVT 541.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 641:** Global Governance. 3 credits.
Applies systems approach to understanding global politics. Emphasizes properties and functions of global systems such as population, food, disease, energy, and trade, and how world’s political systems interact with them. Discusses how governance at municipal, national, and international levels affected by global systems. Examines role of nongovernmental organizations in global affairs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 540.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

### 700 Level Courses

**GOVT 706:** Federalism and Intergovernmental Relations. 3 credits.
Examines broad trends in governance, including theory and practice of federal, state, and local governments. May include privatization, devolution, mandating, regulatory reform, and comprehensive federalism reform. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 510.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 712:** Problem Solving and Data Analysis II. 3 credits.
Advanced techniques and skills for solving policy-related problems or analyzing political data. Focuses on data gathering and analysis, use of statistical software, and multivariate analysis. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 612.

**Recommended Prerequisite:** GOVT 511.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 713:** The Constitution, Criminal Procedure, and Security. 3 credits.
Explains legal doctrines that form basis of U.S. constitutional procedural rights, how these doctrines develop, and why courts rule as they do. Evaluates strengths, weaknesses of these rights. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 721.

**Recommended Prerequisite:** CRIM 720, GOVT 728, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 717:** Qualitative Methods. 3 credits.
Focuses on scientific design of qualitative research questions and use of specific qualitative methods in scientific analysis. Covers when and how to use qualitative research methods to answer empirical questions in political science; primary data collection methods (interviews, observations, document review); the appropriateness of different research approaches; procedural and ethical concerns that may arise in use of qualitative methods. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 511 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 719:** Issues in American Politics. 3 credits.
Examines significant issue in American politics and political behavior. Analyzes topic of contemporary and emerging concern. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** GOVT 510.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 725:** Democratic Theory. 3 credits.
Examines democracy in terms of versions of liberalism, theories of social capital and civic participation, and discourses about civil, political, and human rights. How is democracy conceptualized normatively and empirically? What underlying economic, social, and cultural conditions promote democracy? What role do institutions play in creating and sustaining a stable democratic society? Takes a broadly comparative perspective, focusing on variety of established and emerging democracies around the world. Elective for students specializing in American government or international politics and
comparative governments. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 726:** *Theories of Justice*. 3 credits.
Overview of ancient and modern theories of justice with application to contemporary issues involving justice system and other social and political institutions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 700.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Recommended Prerequisite:** CRIM 700, GOVT 726, or permission of instructor.

**GOVT 727:** *Restorative Justice*. 3 credits.
Origins of restorative justice, its principles, implications for different justice organizations and processes, and application to problems such as family violence, human rights, and reconciliation following mass victimizations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 703.

**Recommended Prerequisite:** CRIM 700, GOVT 726, or permission of instructor.

**GOVT 728:** *Behavior of Law*. 3 credits.
Examines development of law, and law’s effect on human behavior. Reviews theories of law’s meaning and aims. Examines construction of law, and investigates consequences of law and legal decisions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 720.

**GOVT 731:** *Advanced Seminar in Comparative Politics*. 3 credits.
 Assumes basic proficiency in comparative analysis. Regionally based examination of key debates in the comparative politics field. Key theoretical and methodological debates are addressed through in depth examination of regional political processes. Regions include Latin America, Asia, Middle East, European Union, Africa, and Russia. Notes: May be repeated when topic is different with permission of department. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** GOVT 530.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**GOVT 732:** *Comparative Justice*. 3 credits.
Survey of justice systems and their environments in different lands and cultures. Identifies commonalities and differences among justice systems, evaluates them, and considers policy implications. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 702.

**Recommended Prerequisite:** CRIM 700, GOVT 726, or permission of instructor.

**GOVT 733:** *Islam and Politics*. 3 credits.
Provides an overview and understanding of the multifaceted nature of political Islam in the contemporary world. Covers brief history of Islam, formation of modern states in the post-colonial Muslim world, nature of contemporary Islamic radicalism and militancy and the future of Islamism. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**GOVT 734:** *Democratization*. 3 credits.
Examines concepts and concrete cases of democratization and cases where democratization is absent or incomplete. Investigates methods for measuring democracy and authoritarianism; the role state and society play in political change; the effects religion, the military, ethnic division, and technology have on government reform; and the extent to which international actors can encourage democratization. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**GOVT 735:** *Comparative Public Management*. 3 credits.
Examines the comparative decision environments for public managers and policy elites in the OECD countries generally, focusing on four models: 1) Franco-Japanese model, 2) German concentration model, 3) "Anglo-Saxon" (United States) model, 4) Chinese model. Notes: May apply to elective credit in the fields of comparative politics and public administration. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 739: Issues in Comparative and International Politics.** 3 credits.
Explores issues of contemporary and emerging concern in comparative and international politics. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** GOVT 540.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 741: Advanced Seminar in International Politics.** 3 credits.
Examines theoretical and methodological issues central to study of international relations by focusing on specific topic: American foreign policy, diplomacy, international law and organization, international relations theory, international ethics, human rights and humanitarian intervention, the environment, and others. Notes: May be repeated when topic is different with permission of department. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** GOVT 540.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 742: International Negotiation.** 3 credits.
Examines frameworks and perspectives that have guided scholarly work on negotiation. Students will analyze complex cases of negotiations in the areas of security, trade, and the environment, and practice negotiating key security and environmental issues on the agendas of nations and international organizations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 743: International Political Economy.** 3 credits.
Examines interplay of international politics and economics. Discusses theoretical perspectives and analytical tools in academic field of international political economy, and applies theories and tools to trade, investment, exchange rates, development, regionalization, and globalization. Explores how international economic and political forces increasingly shape domestic interests, and how domestic politics affect international political economy. Lecture, discussion. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 343 or equivalent.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 744: Foundations of Security Studies.** 3 credits.
Introduces students to a selection of the original sources of the most important ideas that form the basis of security studies as a subfield of political science. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 745: International Security.** 3 credits.
Examines interplay of international politics and international security. Discusses theoretical perspectives and analytical tools in academic field of international security, and applies theories and tools to nuclear, biological, and chemical weapons, strategy and defense, and arms control. How domestic issues affect defense policies, terrorism, changing nature of international conflict, and human security will be examined. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 540.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GOVT 746: Media and International Affairs.** 3 credits.
Examines government/media interaction and media coverage of war and foreign policy since Vietnam and considers a range of critical policy questions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**GOVT 753: Third-Party Governance.** 3 credits.
Examines design and management of government programs that rely on other levels of government and the private sector for delivery, with focus on such governmental tools as contracts, grants, loans, regulation, and tax credits. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
GOVT 755: Seminar in Politics and Bureaucracy. 3 credits.
Explores research and theory on political causes and effects of actions
government bureaucratic agencies. Readings examine origins of
agencies, influences on decisions and programs, sources of internal
and external accountability, pathologies of bureaucracies, and contributions
bureaucracies make on effective and just governance. Offered by Schar
School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 510.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GOVT 758: Homeland/Transportation Security Administration. 3 credits.
Examines the terrorist attacks of 9/11, vulnerabilities of the aviation
security at that time, failure of elected officials and administrators to
act more decisively to improve security before 9/11, and the policy
and administrative responses to the 9/11 attacks, including the creation
of the Transportation Security Administration and the Department of
Homeland Security. Includes the development of radical Islam and the
rise of Osama bin Laden and Al Qaeda. Offered by Schar School of Policy
& Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GOVT 759: Issues in Public Administration and Management. 1-3 credits.
Current issues in administration and management of public organizations
in contemporary American government. Includes practical applications of
theories and analysis to managerial problems. Emphasizes competence
in improving management in selected government settings. Notes: May
be repeated when topic is different. Offered by Schar School of Policy
& Govt (p. 906). May be repeated within the degree for a maximum 6
credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

GOVT 796: Directed Readings and Research. 1-6 credits.
Reading and research on specific topic under direction of faculty
member. Notes: Written paper required. Offered by Schar School of
Policy & Govt (p. 906). May be repeated within the term for a maximum 6
credits.

Recommended Prerequisite: 15 credits of GOVT courses at 500 level and
above, and permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

GOVT 798: Political Science Research Project. 3 credits.
Research project related to student’s concentration under supervision of
a faculty advisor. Student produces substantial and original contribution
to political science knowledge on model of article in scholarly journal.
Offered by Schar School of Policy & Govt (p. 906). May not be repeated
for credit.

Recommended Prerequisite: 24 credits and approval of thesis proposal.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

GOVT 799: Political Science Thesis. 1-6 credits.
Substantial and original research paper with guidance of faculty advisor.
Thesis proposal must be approved in advance by advisor and two faculty
members who comprise thesis committee. Completed research must
be approved by committee and defended publicly in oral presentation.
Offered by Schar School of Policy & Govt (p. 906). May be repeated within
the degree.

Recommended Prerequisite: 24 credits and approval of thesis proposal.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

800 Level Courses

GOVT 800: PhD Research Seminar. 3 credits.
Provides an opportunity for PhD students in political science to present
and refine independent research, and to further improve understanding
of social scientific method as they prepare for conference presentations,
qualifying exams, and subsequent dissertations. Offered by Schar School
of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students in the PHD Political Science program.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar
GOVT 810: American Political Development. 3 credits.
Advanced graduate-level seminar on historical roots of American politics. Examines political culture and historical development of U.S. institutions, and how laws and programs have been affected by historical and cultural development. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 510.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

GOVT 811: Advanced Seminar in American Institutions. 3 credits.
Advanced graduate-level seminar on specific topics of contemporary research and theory in American governmental institutions. Topics vary to include presidential politics, Congress, and politics of the judiciary. Readings include classic and contemporary literature. Seminar format with discussion, student presentations. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: GOVT 510.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

GOVT 815: Advanced Seminar in Political Behavior. 3 credits.
Advanced graduate-level seminar on specific topics of contemporary research and theory in American political behavior. Topic varies to include political parties, electoral politics, public opinion and voting behavior, interest groups, and lobbying. Readings include classic and contemporary literature. Seminar format with discussion, student presentations. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: GOVT 510.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

GOVT 820: Advanced Topics in Political Thought. 3 credits.
Advanced graduate-level seminar on topics of contemporary research and theory in political thought. Topics vary to include political ideologies, feminist theory, and political theory. Seminar format with discussion, student presentations. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: GOVT 520.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

GOVT 821: Ethics and Human Rights in International Affairs. 3 credits.
Advanced graduate seminar on theory and practice of diplomacy; alliance construction and destruction; coercive and cooperative diplomacy; diplomacy of certain great powers such as America, Russia, China, France, and Japan, and small and revolutionary powers. Also examines diplomacy and the media, and day-to-day diplomacy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 540.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

GOVT 823: Advanced Seminar in Public Administration Research and Theory. 3 credits.
Focuses on a topic of central concern in contemporary public administration research and theory. Content of the seminar varies but includes such topics as organizing for homeland security, managerial and political effects of e-government, or the application of principal-agency models in public management. Notes: May be repeated when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: GOVT 510, GOVT 650.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

GOVT 831: Research Seminar in Regional Political Culture and Development. 3 credits.
Advanced graduate-level seminar on theories of political culture and economic development applied to Middle East, Latin America, Asia, and Africa. Debates economic growth and development from broad and rigorous analytical base. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: GOVT 540.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

GOVT 832: Doctoral Seminar in Theories of Organization and Bureaucracy. 3 credits.
Examines key issues in organization theory and behavior. Issues include organization design; interorganizational coordination, intelligence and decision making systems; leadership and motivation theories; and theories or organizations as agents of political and social change. Uses
case studies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**GOVT 852: Seminar in Political Leadership.** 3 credits.
Graduate seminar on theories and practices of political and governmental leadership in American and comparative settings. Domestic and comparative cases of leadership in state-building, presidency, and public administration. Primary or secondary research on leaders encouraged. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** GOVT 510.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**GOVT 853: Advanced Seminar in Global Innovations in Public Finance.** 3 credits.
Explores how financial decisions by government jurisdictions are affected by global competition and global markets. The impact of cross-national movements of capital and information on tax, tariff, and interest rate policies will be examined, as will the numerous organizations, such as the World Bank, that have been created to reduce the impact on developing nations. Government and supernational efforts to deal with the unintended consequences and global capital flows will also be examined. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**900 Level Courses**

**GOVT 998: Doctoral Dissertation Proposal.** 3,6 credits.
Work on research proposal that forms basis for doctoral dissertation. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree.

**Recommended Prerequisite:** Advancement to candidacy.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**GOVT 999: Doctoral Dissertation Research.** 1-12 credits.
Research on approved dissertation topic under direction of dissertation committee. Notes: May be repeated for up to 9 credits in a semester. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

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**Graduate School of Business (GBUS)**

**500 Level Courses**

Provides overview of key ideas & methods used in financial accounting and marketing in the context of applications in engineering. Designed to enable engineering professionals to appreciate business perspectives by developing familiarity with concepts and analytical approaches from accounting (financial statements, difference between cash and accrual approaches, and cost accounting) and marketing (market research, pricing, and branding). Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to any George Mason graduate engineering program or senior plus standing in a George Mason undergraduate engineering program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 540: Analysis of Financial Decisions.** 3 credits.
Provides a survey of financial decision-making. Assists students with developing a framework within which they can understand the linkages between financial decisions and organizational performance. Examines methods for using information based on financial statements in making decisions and assessing performance, evaluating investment opportunities, and choosing among alternative sources of funds. Focuses on public firms in the corporate sector as well as applications for privately-held companies and organizations in the government and non-for-profit sectors. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to GSOM 540.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 550: Strategic Thinking.** 3 credits.
Focuses on strategic thinking and implementation. Introduces the critical business skills of planning and managing strategic activities and focuses on role of strategic managers in generating competitive advantages. This course aspires to impart the participants with the skills necessary and appropriate for strategy analysis, formulation, implementation and control. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 551:** Leadership. 3 credits.
Distinguishes between leadership and management, and focuses on the critical roles and functions of leadership, including communication ability, use of power and influence, providing direction, aligning an organization’s systems, motivating a workforce, and creating a culture for effectiveness. Focuses on strategies for developing oneself as an effective leader. Integrates theory, research, and applications. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 696:** Directed Studies in Graduate School of Business. 1-3 credits.
Approval by faculty member and program director required prior to registration. Studies specialized topics in business not otherwise available in the curriculum. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 6 credits. Equivalent to GSOM 696.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**GBUS 697:** Special Topics in Graduate School of Business. 1-3 credits.
Sections established as necessary to focus on various topical issues that emerge in practice of business. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 6 credits. Equivalent to GSOM 697.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**GBUS 720:** Marketing Analytics. 3 credits.
Marketing analytics is a systemic approach to harnessing data/information to drive effective marketing decision making. The objective of this course is to equip you with the tools required to address fundamental marketing decision problems using a data-driven approach. It will train students to view the marketing processes and relationships systemically and analytically. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 720.

**Recommended Prerequisite:** Grade of B or higher in (STAT 515 or STAT 554); AND GBUS 738 or equivalent.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Business Data Analytics.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 721:** Marketing Research. 3 credits.
Develops skills to plan and implement effective marketing research studies. Topics include research design, data collection, statistical analysis, and use of database systems. Offers perspective on how managers can use market data to develop successful product or service strategies. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 721.

**Recommended Prerequisite:** Grade of B or higher in (STAT 515 or STAT 554).

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Business Data Analytics.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 738:** Data Mining for Business Analytics. 3 credits.
Examines how data warehouses and data mining are used to help businesses successfully gather, structure, analyze, understand and act on relevant data, both operational and contextual. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 738.

**Recommended Prerequisite:** B or higher in (STAT 515 or STAT 554).

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Business Data Analytics.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 739:** Advanced Data Mining for Business Analytics. 3 credits.
This course covers business analytics using advanced data mining methods for the purposes of developing predictive models and forecasting. The course will develop the concept of feature selection to
identify what dimensions to best use for constructing decision making models. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 739.

**Recommended Prerequisite:** Grade of B or higher in (STAT 515 or STAT 554); AND a B or higher in GBUS 738 or equivalent.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Business Data Analytics.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 744: Fraud Examination.** 3 credits.
Introduces strategies and techniques for fraud prevention and detection. Focuses on financial fraud such as bribery, contract rigging and kickbacks, embezzlement, fraudulent financial reporting, payroll fraud, and misappropriation of inventory and other assets. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MBA 744.

**Recommended Prerequisite:** B or higher in (STAT 515 or STAT 554).

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Business Analytics.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 746: Real Estate Analysis and Valuation.** 3 credits.
Overview of real estate assets, markets, and decisions. Emphasizes development of analytical techniques and information required for implementation. Includes legal, economic, and public policy perspectives. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to GSOM 746, MBA 746.

**Recommended Prerequisite:** Graduate admission or permission of director.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**GBUS 748: Real Estate Investment.** 3 credits.
Develops frameworks for analyzing decisions about investing in real estate assets. Focuses on acquisition and analysis of information required to evaluate potential performance of assets. Applications of theories and techniques through case studies. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to GSOM 748, MBA 748.

**Recommended Prerequisite:** Graduate admission or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Greek (GREE) 100 Level Courses**

**GREE 150: Classical Greek I.** 3 credits.
Addresses linguistic, semantic, and cultural aspects. Covers basic structure and vocabulary, its place among other world languages and its unique role in development of modern thought. Notes: Lectures, discussions supplemented by web-posted material. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** GREE 150 or permission of instructor.

**Schedule Type:** Lecture

**GREE 160: Classical Greek II.** 3 credits.
Expands proficiency, refines grasp of morphology and syntax, and fosters greater command of vocabulary. Introduces selected original passages from Greek classical authors. Notes: Lectures, discussions supplemented by web-posted material. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Schedule Type:** Lecture

**Health (HEAL) 100 Level Courses**

**HEAL 110: Personal Health.** 3 credits.
Focuses on individual health improvement by studying mental/emotional well-being, fitness, nutrition, drug abuse prevention, consumerism, safety and other topics. Notes: One section of HEAL 110 will be dedicated as Distance Education while remaining sections will be traditional classroom, 100% face-to-face. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

**HEAL 200: School and Community Safety.** 1 credit.
Focuses on safety in home, school, road, work, and community settings. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
Schedule Type: Lecture

HEAL 220: Dimensions of Mental Health. 3 credits.
Focuses on integrating behavioral and sociocultural factors in studying mental health. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 230: Introduction to Health Behavior. 3 credits.
Introduces health behavior in context of health psychology. Explores various theoretical models to understand health, illness and sick-role behaviors. Studies health and disease from a biopsychosocial perspective. Examines means of preventing and treating health problems. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences, Encore:Well-Being (p. 135)

Schedule Type: Lecture

300 Level Courses

HEAL 310: Drugs and Health. 3 credits.
Analyzes drug use, with emphasis on positive aspects, and presents alternatives to drug misuse and abuse. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 312: Health and Wellness Choices. 3 credits.
Actively involves students in becoming managers of their personal health and well-being throughout life span. Consistent with Healthy People 2000 goals for nation. Emphasizes lifestyle activity and fitness, behavioral change, and maintenance. Notes: May be taken by nonmajors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 325: Health Aspects of Human Sexuality. 3 credits.
Covers biological, behavioral, and sociocultural factors in human sexual behavior. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 327: Women's Health. 3 credits.
Examines health issues unique to women, including health care, food and exercise, reproductive and gynecological issues, chronic diseases, and issues of violence. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 331: Men's Health. 3 credits.
Examines socio-cultural influences on men's development and expression of health beliefs and practices. Explores health issues specific to men. Analyzes research literature on interventions to improve men's health. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 350: Interventions for Populations and Communities at Risk. 3 credits.
Identifies culturally, physically, emotionally, mentally, and demographically diverse populations and communities at risk. Covers implications for developing innovative programs and role of HFRR interventions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 351: Relationship Health. 3 credits.

Schedule Type: Lecture

HEAL 372: Health Communication. 3 credits.
Applies research-based models and theories of health assessment and promotion at individual, organizational, agency, and community levels. Uses communication approaches and skills in context of behavior change strategies, including policy and program development. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

400 Level Courses

HEAL 402: Introduction to Driver Education Instruction. 3 credits.
Introduces vehicle operator's tasks in highway transportation system. Provides essential knowledge and skills to instruct driver education. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 403: Driver Education Practice and Administration. 3 credits.
Applies driver education to simulated and actual driving environments. Provides essential knowledge and skills to administrate driver education. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

HEAL 405: Teaching Methods in Health Education (K-12). 3 credits.
Covers content, methodology, and resource materials in teaching health education for physical education teaching majors. Notes: Field experience required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: BSED/PHED status.

Registration Restrictions:
Enrollment is limited to students with a major in Physical Education.

Schedule Type: Lecture

HEAL 480: Special Topics. 1-3 credits.
Presents selected health issues or problems. Focuses on applying information to education programs. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 3 credits.

Schedule Type: Lecture

HEAL 499: Independent Study in Health Education. 1-3 credits.
Studies problem area in health education research, theory, or practice under faculty direction. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
Recommended Prerequisite: Completion of 90 credits.

Registration Restrictions:
Enrollment is limited to students with a major in Health Education, Health, Fitness Rec Resrcs, Individualized Study, Nursing, Physical Education (Special), Physical Education or Parks, Rec, Leisure Studies.

Schedule Type: Independent Study

500 Level Courses

HEAL 516: Program Development and Resources in Health Education. 3 credits.
Open to licensed and provisionally licensed health and physical education teachers in the commonwealth of Virginia and students in ASTL physical education program. Focuses on program development, health content, methodology, and resources for teaching preK-12 health education.
Notes: Distance learning course. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Licensed and provisionally licensed health and physical education teachers in the Commonwealth of Virginia, and students in the Physical Education masters program.

Schedule Type: Lecture

Health Administration and Policy (HAP)

200 Level Courses

HAP 201: Health Professions Careers. 3 credits.
Acquaints students early in their college education with a variety of health professions careers. Provides overview of the health care system, and identifies the current supply and demand for health care professionals. Presents information about educational and licensing requirements as well as expected salaries. Defines professionalism and outlines the principal rights and responsibilities of being a health care professional. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Schedule Type: Lecture

HAP 202: Medical Terminology. 3 credits.
Prepares students with a basic understanding of medical terminology needed to work in a wide variety of healthcare environments. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Schedule Type: Lecture

HAP 290: Lifestyle Management. 3 credits.
In this introductory course on practical application of Bayesian causal modeling techniques and Statistical Process Control tools, students make resolutions and analyze their progress toward goal achievement. Each student maintains a diary and analyses it using Bayesian causal modeling techniques to understand the constraints and causes leading to their success and failures. Students analyze their pattern of success using Statistical Process Control tools and engage cyclical assessment of their self improvements. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Schedule Type: Lecture

300 Level Courses

HAP 301: Health Care Delivery in the United States. 3 credits.
Introduces history and current structure and function of U.S. health care delivery. Explores components and subsystems of health care, and sociopolitical (public and private) context that shapes system and affects access to health care and delivery of health services. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Schedule Type: Lecture

HAP 308: Public Health Informatics. 3 credits.
Provides students with a basic understanding of public health Informatics and its applications. Students will understand the basic technological tools and building blocks needed to utilize these tools in to improve their personal and professional productivity. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Schedule Type: Lecture

HAP 309: Healthcare Accounting. 3 credits.
Introduces basic concepts, standards, practices and terminology underlying financial and managerial accounting as applied in health-care organizations. Key concepts include accounting principles and conventions; financial reporting; valuations of assets; analysis, interpretation, and communication of financial information; the management of costs and profitability; and the use of spreadsheets and other tools. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301.

Schedule Type: Lecture

HAP 310: Healthcare Ethics. 3 credits.
Introduces current ethical ideas and issues in healthcare and the healthcare system. Case studies require students to apply critical thinking in ethical decision making situations encountered by healthcare professionals. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301.

Schedule Type: Lecture

HAP 312: Healthcare Law. 3 credits.
Introduces students to the legal environment in healthcare with emphasis on laws and regulations of routine importance to healthcare managers in the areas of labor, contracts, real estate, medical malpractice, general business, and intellectual property. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301.

Schedule Type: Lecture

HAP 318: Introduction to IT Methods for Healthcare. 3 credits.
Reviews computer hardware and software with applications in healthcare. Covers basic features of operating systems (Windows and Linux), reviews use of basic office applications and introduces their...
advanced features. Introduces advanced tools to access and analyze healthcare data. Introduces basic programming concepts. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: IT 103 or IT 104 or equivalent.

Schedule Type: Lecture, Laboratory

HAP 360: Introduction to Health Information Systems. 3 credits.
An introduction to basic information management in health care service organizations. Provides an overview of health information systems for selected administrative functions and clinical care services, including electronic data interchange for billing and claims management, institutional approaches to ensuring data security and privacy, and information management and decision support for managers and clinicians. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Schedule Type: Lecture

HAP 361: Health Databases. 3 credits.
Introduces students to the design and use of various health and healthcare databases, and provides hands-on experience with database design and use. Reviews database management systems. Examines the application of databases for both clinical and managerial purposes. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 360

Schedule Type: Lecture

HAP 392: Human Resources Management in Healthcare. 3 credits.
Exposes students to the major issues, laws, administrative processes, procedures, and psychological factors to be considered when developing a human resources management system in healthcare organizations. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301.

Schedule Type: Lecture

HAP 395: Health Care Finance. 3 credits.
Introduces finance in health care organizations. Reviews issues in reimbursement structures, regulatory mechanisms, cost control, and related factors affecting financial management of health service organizations including financial decision support skills. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301.

Schedule Type: Lecture

HAP 396: Strategic Health Management and Planning. 3 credits.
Introduces past and present interventions that affect supply and demand for health care at community, state, regional, and national levels. Presents health planning and regulatory entities, and discusses strategic and program planning in context of current economic and market conditions. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301

Schedule Type: Lecture

400 Level Courses

HAP 403: Assisted Living/Senior Housing Management and Philosophy. 3 credits.
Overview of growth of assisted living industry, its role in health care continuum, current or proposed regulatory environments, and differences between assisted living and other forms of senior health care and senior living services. Specific instruction provided in philosophy and day-to-day management of assisted-living communities, including resident care, operations, finance and budgeting, human resources and staffing, and successful marketing and community relations. Also examines industry future, including cutting-edge programs and technologies, and approaches to creating next generation of assisted-living services. Offered by Health Administration & Policy (p. 247). May not be repeated for credit. Equivalent to HAP 307.

Schedule Type: Lecture

HAP 404: Senior Housing Sales and Marketing. 3 credits.
Introduction and analysis of sales and marketing practices within senior housing environments, including but not limited to Active Adult (55+), assisted living, Alzheimer’s assisted living, and Continuing Care Retirement Communities (CCRC’s). Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301.

Schedule Type: Lecture

HAP 410: Introduction to Health/Medical Practice Management. 3 credits.
An introductory course in the leadership and management of ambulatory health service practices and small provider organizations. Content covers a variety of health/medical practice management functions, including administrative systems, operations and strategies for effective management of quality, efficiency and business performance (contracts and marketing), and human resources. Trends in practice integration and affiliations with multiprovider groups and larger enterprises will be covered. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 301.

Schedule Type: Lecture

HAP 416: Leadership and Management of Health Systems I. 3 credits.
Introduces theoretical concepts and their application to the leadership and management of effective health care organizations. Explores the structure and function of health-related organizations and selected administrative and operational issues in program development and service design, emphasizing strategies for effective performance management, decision making, and communication. Offered by Health Administration & Policy (p. 247). May not be repeated for credit. Equivalent to NURS 436.

Recommended Prerequisite: HAP 301. Completion of HAP 300-level course requirements.

Schedule Type: Lecture

HAP 417: Leadership and Management of Health Systems II. 3 credits.
Explores challenges to providing effective leadership and management of health care organizations and systems of care related to operational issues such as personnel management and labor relations, information management, conflict and goal alignment, financial management, accountability, and quality and safety improvement. Focuses on
identification of management skills, technology, and strategy that influence optimal performance and communication between clinicians, administrative staff, and managers. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** Completion of HAP 416.

**Schedule Type:** Lecture

**HAP 420: Management of Project Resources.** 3 credits.
An introductory course in the management of project resources, including, but not limited to, assessing return on investment for projects and cost- ing out resources needed in project subtasks. Includes hands-on application of project management tools as they are applied in the health-related organization and the health service industry. Also includes a variety of variables that may affect cost control and cost variation, including the impact of finishing projects in shorter time frames than originally planned and activity-based costing. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 360 and HAP 378.

**Schedule Type:** Lecture

**HAP 425: Health Economics and Policy.** 3 credits.
An introduction to the role of economics in health care policy. Concepts used by economists to analyze health outcomes, health behaviors, health care markets, health insurance markets, and the role of government. Concepts are linked to current health policy debates, Relevance and limits of the health economics approach to analyzing health issues are discussed. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** ECON 103

**Schedule Type:** Lecture

**HAP 430: Process Improvement in Healthcare Organizations.** 3 credits.
Introduction to the process of quality management in health care organizations. Principles of quality management and guidelines for implementing total quality in health care are discussed, and differentiation between quality assurance and quality management presented. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 301.

**Schedule Type:** Lecture

**HAP 436: Electronic Health Data in Process Improvement.** 3 credits.
Focuses on using electronic health records (EHRs) to improve health care processes. Compares means and rates of clinical & managerial processes. Uses EHRs in risk-adjusted statistical process control. Uses Excel to analyze data on patient satisfaction, wait time, mortality/morbidity, and cost of care. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Schedule Type:** Laboratory, Lecture

**HAP 440: Mobile Health.** 3 credits.
Introduces emerging technologies used in Mobile Health (mHealth). Students will examine the impact and potential of mobile devices on health. Students will conceptualize and design health apps that incorporate evidence-based guidelines and capitalize on the mobility, portability, and input and output capabilities of smartphones and tablets.

Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Schedule Type:** Lecture

**HAP 442: Introduction to Health Care Politics and Policy.** 3 credits.
Reviews health care system issues and trends, and economic concepts, ways to understand the critical role of public health policy and the policy-making process in the United States. Identifies the major political institutions and policy processes that shape health policy. Examines the past and present health policy and its impact on changes in the ability of patients to access health services, the practice of health sciences professionals and the quality and process of care. Explores the role of politics at both the federal and state government in health policy-making and critical aspects of the U.S. health system are compared to those of other countries. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 301

**Schedule Type:** Lecture

**HAP 445: Introduction to Health Services Research.** 3 credits.
An introductory course for undergraduate students in understanding the basic methods of interdisciplinary health services research and program evaluation in health systems and policy. Emphasis is placed on understanding, assessing and using relevant findings from health services research. The course covers a variety of topics related to policy, management, and program evaluation in health delivery systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Schedule Type:** Lecture

**HAP 459: Health Data Standards and Interoperability.** 3 credits.
Introduction to prevailing and emerging data standards applicable in health information technology. Students will learn about standard-making organizations, such as HL7 and Healthcare Information Technology Standards Panel (HITSP), and their standardization processes. The structure of and relationship between standard terminologies applicable in healthcare, such as International Classification of Diseases (ICD-10-CM), Logical Observation Identifiers Names and Codes (LOINC) and Systematized Nomenclature of Medicine–Clinical Terms (SNOMED-CT), will be explained. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 301 or permission of instructor.

**HAP 361.

**Schedule Type:** Lecture

**HAP 460: Information Technology Project Management.** 3 credits.
Identifies methods and skills for managing health care information technology (IT) projects. Students learn tools such as critical path analysis, resource management, crashing projects, vendor selection, quality assessment, and risk analysis. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 360.

**Schedule Type:** Lecture

**HAP 461: Internet and Web Technology Applications for Healthcare.** 3 credits.
Introduces students to the major applications of Internet and Web technology in healthcare. Two major applications are studied: online
promotion/marketing for consumer-oriented health web sites, and online Personal Health Records (PHR). Students will learn about Search Engine marketing and the practical skill of creating an online health marketing/promotion campaign. They also will learn to create and manage PHR. The technological challenges such as reliability, privacy, security and organizational barriers to adoption are discussed. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 360.

**Schedule Type:** Lecture

**HAP 462:** Privacy and Security in Health Informatics. 3 credits. Health information security and privacy issues in the current healthcare system. Evaluates methods to achieve privacy and security. Discusses the important role of sound security policies and procedures; looks into technical solutions and non-technical solutions for achieving privacy and security. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 360.

**Schedule Type:** Lecture

**HAP 463:** Aging and Health Care Policy. 3 credits. Introduces issues and controversies surrounding need to sustain viability of Medicare, Medicaid and Social Security. Provides insights on the interaction of health policy, health economics, and aging of the population to help students understand and participate in ongoing debates about key U.S. entitlement programs. Provides skills in policy process and analysis as applied to aging and health policy. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 360.

**Schedule Type:** Lecture

**HAP 464:** Electronic Health Record Configuration and Data Analysis. 3 credits. Covers basic features and functionalities of an electronic health record (EHR). Introduces methods to access and analyze patient data from an EHR. Provides students with hands-on experience on EHR systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Schedule Type:** Laboratory, Lecture

**HAP 465:** Integration of Professional Skills and Issues. 3 credits. Assists students in synthesizing the varied dimensions of their roles as health professionals in a global society. Provides opportunities to examine issues in health care through reflection on the natural and behavioral sciences, humanities and other prerequisite coursework. Selected topics examined through writing, presentation, reading and discussion. (Writing intensive course). Offered by Health Administration & Policy (p. 247). May not be repeated for credit. Equivalent to NURS 465.

**Mason Core:** Synthesis (p. 135)

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** Senior standing.

**Schedule Type:** Lecture

**HAP 467:** Advanced Information Technology Project Management. 3 credits. Teaches project management methods and techniques with focus on health IT projects. Covers knowledge, skills, and abilities associated with certification (Certified Associate in Project Management).

Notes: Certification is not provided in this course. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 460 or HAP 417 or equivalent.

**Schedule Type:** Lecture

**HAP 468:** Health System Reform Policy Debates. 3 credits. Introduction to competing views about U.S. health system reform. Financing, insurance, delivery system and federalism issues will be covered, using theme of personal vs. collective responsibility. Topics include: determinants of health; private insurance markets, regulation, and public insurance; sources of and alternative solutions to inequitable access, poor quality and excess cost growth. Emphasizes evidence, beliefs, and self-interest behind competing visions. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Schedule Type:** Lecture

**HAP 480:** Research Internship in Health and Human Services. 3 credits. The student works as a member of a team engaged in health and human services research and attends a bi-weekly research seminar. Under direction of the course seminar leader and the faculty research mentor, the student will acquire selected research skills and develop introductory research writing and presentation skills. Offered by Health Administration & Policy (p. 247). May not be repeated for credit. Equivalent to HHS 480, SOCW 480.

**Recommended Prerequisite:** Open only to CHSS majors or students who have completed CHHS minor or certificate courses.

**Schedule Type:** Internship

**HAP 489:** Pre-Internship Seminar. 3 credits. Provides students with guidance and preparation for engaging in the internship. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Schedule Type:** Lecture

**HAP 494:** Special Topics in Health Administration and Policy. 3 credits. Selected topics analyzing specialized areas in health administration and policy. Notes: Content varies. Lecture, seminar, laboratory, and workshops. Offered by Health Administration & Policy (p. 247). May be repeated within the term for a maximum 12 credits.

**Schedule Type:** Lecture

**HAP 498:** Health Administration Internship. 4 credits. Provides variety of applied management experiences in a health systems or related organization (field agency), under the direction of a HAP faculty member and a preceptor in the field. Students integrate and apply critical-thinking, project-planning, and management and communication skills in the internship experience and toward completion of an approved internship project. Notes: Taken in last semester of studies. Capstone course involves a two-hour weekly seminar and a 12-hour internship in a health-related organization. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Recommended Prerequisite:** Open to HAP majors only.
Schedule Type: Internship

HAP 499: Independent Study in Health Administration and Policy. 1-6 credits.
Provides individual study of a particular problem area in health administration and policy research, theory development, or education under the direction of faculty. Offered by Health Administration & Policy (p. 247). May be repeated within the term for a maximum 6 credits.

Schedule Type: Independent Study

500 Level Courses

HAP 511: Ethics in Public Health. 3 credits.
Explores selected ethical issues in public health practice, research, and policy; specific ethical theories identified as the proper basis of public health; relevant ethical concepts and principles and how they inform existing public health policies, practices, and research; and how ethical reasoning can operate in public health practice, research, and policies. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 594: Independent Study in Health Administration and Policy. 3 credits.
Provides individual study of a particular problem area in health administration and policy research, theory development, or education under the direction of faculty. Offered by Health Administration & Policy (p. 247). May be repeated within the term for a maximum 6 credits. Equivalent to GCH 594, NURS 594.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

600 Level Courses

HAP 601: E-Commerce and On-line Marketing for Health Services. 3 credits.
Explores development of online health services; organization of online businesses; online marketing, financial, and clinical transactions; and venture capital and the IPO process. Explores creating and maintaining web pages and databases. Reviews literature on effect of computer services on patient care and health care organizations. Also reviews examples of both successful and bankrupt technology firms in health care. Student groups draft business plan and develop early version of service proposal. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 602: Statistics in Health Services Management. 3 credits.
An introductory course in basic statistics applied to applications in health systems management. Students use spreadsheet applications to perform a variety of statistical analyses (parametric and nonparametric statistics, including regression) to support program evaluation and managerial decision making in health systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 605: Introduction to Health Policy. 3 credits.
An introductory survey to the process and politics of health policy as it relates to the delivery and financing of health care in the United States. Examines the major public and private sector institutions responsible for health policy development, the interaction of these institutions and their competing interests to create and implement health policies, and public programs providing health coverage and services. Classroom and field experience involved. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 609: Comparative International Health Systems. 3 credits.
Uses Roemer’s Model of Health Systems to examine resource allocation, management, and health outcomes in the United States and around the globe. The structure and functioning of national health systems based on geographic location and governance in developing and developed countries (democracies, monarchies, and communist nations). Resource allocation across the continuum of nations and relationship to national health needs, health status, and longevity are examined. Notes: An online course in comparative international health care systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 610: Health/Medical Practice Management.** 3 credits. Regulatory pressures, technology, managed care contracting, revenue cycle management, and legal issues are making medical practice management more complex. Physicians groups struggling with these demands are finding a need for sophisticated management. Prepares the student to manage the modern practice by providing a foundation in the leadership and management of ambulatory health services and small provider organizations. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 612: Maintaining Business Continuity in Health Care.** 3 credits. Considers potential types of catastrophes, their likely impact, and how organizations could continue their mission in the aftermath. Explores interdependences among various components of the health care delivery system, regional health services, disaster planning, business record protection, patient information and information systems protection, manpower planning, professional credentialing, access to supplies and drugs, and financial implications and resources. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 615: Revenue Management for Clinical Practices.** 3 credits. Assists healthcare leaders and managers to become more effective decision makers, problem solvers, and communicators in revenue and financial management of clinical practices. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 610.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 618: Computational Tools in Health Informatics.** 3 credits. Introduces computational tools used in health informatics. Reviews hardware and software needs and uses. Topics covered include operating systems, virtualization and high performance computing, basic programming in a scripting language, basic data analysis and data integration skills, and use of specialized software. All topics are covered in context of specific solutions used in health information systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**HAP 621: Organization Behavior and Healthcare Leadership.** 3 credits. This is an introductory course in the application of organizational behavior and theories of leadership to the management of interdisciplinary teams and decision making in healthcare organizations. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 622: Healthcare Information Systems Analysis and Design.** 3 credits. Introduces system analysis, modeling, design, and management of large-scale healthcare information systems. Describes both traditional and data-driven analysis and design methods. Different aspects of systems analysis and design are illustrated using examples from healthcare industry case studies applied to a group project. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 632: Grants Funding and Development.** 3 credits. Provides knowledge of private and public funders, funding mechanisms, tools and resources. Includes content on private and government funding streams relevant to public health, hospitals and other non-profit health related entities, interpretation of funder motivations and engagement strategies; essential skills for developing externally funded projects; grant proposal writing and grant requirements; assessment skills/strategies
and award management/stewardship. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 640: Current Issues in Health Policy.** 3 credits.
Introduces students to current health policy issues, the public policy process, and their influence on the organization and financing of health care. Attention is given to the 1) roles of key players in health policy formulation and implementation, and 2) public policy responses to major issues such as disparities and uninsured coverage, cost-containment, and quality of care. Differing perspectives on reforming health care are debated. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 645: Introduction to Health Services Research.** 3 credits.
An introductory course in the basic methods of interdisciplinary health services research and program evaluation in health systems and policy. The course covers topics related to policy, management, and program effect and evaluation within health delivery systems, including research design, existing data systems, measurement of quality and basic cost benefit, and effectiveness analysis. Offered by Health Administration & Policy (p. 247). May be repeated within the degree for a maximum of 6 credits.

**Recommended Prerequisite:** HAP 678.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 647: Regulatory Requirements for Health Care Systems.** 3 credits.
Helps health care professionals understand link between infrastructures of organization and regulatory and accreditation processes for health care organizations. Covers major accrediting agencies and their roles, accreditation principles, and survey process. Focuses on hospitals with reference to ambulatory care, managed care organizations, rehabilitation centers, laboratories, and home health and long-term care facilities. Emphasizes requirements of Joint Commission on Accreditation of Health Care Organization and regulations mandated by Health Care Finance Administration. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 651: Senior Housing Sales and Marketing.** 3 credits.
Introduction and analysis of sales and marketing practices within senior housing environments, including but not limited to Active Adult (55+), assisted living, Alzheimer’s assisted living, and Continuing Care Retirement Communities (CCRC’s). Topics include a review of the role of marketing in health care, the senior housing consumer and product, the development of marketing plans, and administrative management of the promotion, lead management, and sales process. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 652: Essentials of Health Insurance and Managed Care.** 3 credits.
Survey course in US health insurance and managed care. Provides an overview of the different types of health insurers and managed care organizations, with content on sales and marketing, provider network management and reimbursement, medical and quality management, claims processing, member services, IT and operational finance. Policy, laws and regulations affecting the industry will also be addressed. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**HAP 661: Policy Development and Analysis for Community Health Programs.** 3 credits.
Prepares students to critically analyze issues and develop skills pertinent to effective policy development for community and family public health programs. Explores what constitutes a vulnerable population and examines current government programs and policies supporting these programs for such populations. Recent case examples ground students in current issues faced by community groups and other health interests.
Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 662: Health Policy for Elders and People with Disabilities. 3 credits.
An introduction to health policy, health economics, and the aging of the American population. Focuses on the effect of chronic illness and disability on health care costs and provides students with skills in policy process and analysis as applied to acute care, long-term care, and health promotion for elders and people with disabilities. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 678: Introduction to the U.S. Health System. 3 credits.
Explores the U.S. Health System focusing on historical development, current configuration and possible future direction. Includes study of health system development, key influencers, accessibility, financing, changing components and effects system has on patients, providers, financiers, employers, government, insurers and society. Role of population health management and public health is explored, including impact of social, cultural, economic, and environmental factors on health care systems and practices. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 680: Applied Public Health Leadership and Management. 3 credits.
Survey course in leadership, management, and planning applied to public health systems. Students apply theoretical knowledge from a variety of disciplines relevant to development and implementation of public health policy, regulatory directives, public health program planning and management (including human resources and financial management), and the design and evaluation of public health services/functions. Content includes strategies for ensuring access to essential public health services and use of evaluation and monitoring systems to ensure the safety, efficiency, and effectiveness of local public health programs/systems. Course emphasizes leadership, communication, systems thinking, data-driven decision making, and ethical practice in public health systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 686: Quality Improvement in Health Services. 3 credits.
Examines how quality in healthcare is measured and controlled in order to improve processes and outcomes. Demonstrates how interdisciplinary teams analyze quality by applying a variety of quantitative methods (such as statistical process control, histograms, and Pareto charts); and qualitative methods (such as root cause analysis, affinity diagrams, nominal group technique, and flow charts). Analyzes performance improvement techniques designed to improve processes. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 690: Independent Study. 1-3 credits.
In-depth studies of selected area of health science theory, research, or practice under direction of faculty. Offered by Health Administration & Policy (p. 247). May be repeated within the degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

700 Level Courses

HAP 700: Introduction to Health Informatics. 3 credits.
Introduces the study of data and information flow in healthcare delivery. Covers the history and evolution of methods in information management and the role and contributions of an inter-disciplinary health informatics workforce. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Corequisite: HAP 678 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

HAP 701: Health Data: Vocabulary and Standards. 3 credits.
Explores the challenges of representing health care data using standardized vocabulary in health information systems. Topics include data standards and semantics, policy, and theory and practice of standardization. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 678, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 702: Managerial Accounting in Health Care. 3 credits.
Practical examination of controllership function in health care organizations and systems (profit and nonprofit), with emphasis on policy formulation and evaluation of performance, including cost methods and systems; measurement criteria; and managerial planning, methods, and techniques. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: Graduate-level statistics course.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 703: Financial Management in Health Systems. 3 credits.
Examines tools and methods of financial management in health care organizations and systems, with emphasis on allocation and use of funds. Analyzes costs and constraints of alternative source of funds, and applies financial decision instruments and effect on operational management and market value of entity. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: Graduate-level statistics course.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 704: Contemporary Issues in Health Systems Management. 3 credits.
Analyzes management theory and practice from recently evolving works that identify, analyze, and resolve strategic organizational problems and issues in health care systems. Applies leadership strategy to effectively manage variety of critical issues, including organizational development, change management, human relations and diversity, quality management for organizational and clinical effectiveness, technology, competing priorities, conflicting constituencies, delivery system redesign, and health services research. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Laboratory

HAP 705: Strategic Management and Marketing in Health Care. 3 credits.
Explores role of strategic management and marketing in healthcare organizations and process used to formulate, implement, and evaluate cross-functional decisions to achieve their objectives. Reviews formulation of strategic plans to address strengths, weaknesses, opportunities and threats facing organizations from both external and internal environments. Considers type of environmental forecasts and competitor intelligence healthcare organizations need to make timely and adaptive strategic and marketing decisions. Addresses conditions necessary for successful strategic execution. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 706: Integrated Health Systems Management. 3 credits.
Explores emerging structures for financing and delivery of comprehensive health services in integrated health systems. Covers successful development and management of alliances, provider hospital organizations, and managed care systems with emphasis on strategies for vertical integration, community partnering, contract negotiation, governance, and management of antitrust situations. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 707: Human Resource Management in Healthcare. 3 credits.
Addresses how people are managed within healthcare organizations to achieve performance consistent with the organization’s strategic objectives. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 709: Health Care Databases. 3 credits.
Introduces design and use of health and medical databases, providing hands-on experience. Explores uses of medical record systems. Includes review and analysis of databases and database management systems. Examines application of databases to clinical and managerial transaction. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
HAP 712: *Topics in Public Policy*. 3 credits.
Provides students with foundational principles, informatics tools, methodologies, data sources, terminologies, and policy issues related to the emerging field of population health informatics. Examines key concepts such as registries, electronic health records, epidemiological databases, and quality reporting. Employs specific health informatics tools throughout the course, with many opportunities for gaining practical experience. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

HAP 713: *Project Management in Health Information Technology*. 3 credits.
Applies body of knowledge in project management to the implementation of information technology and systems in healthcare organizations. Examines how tasks such as needs assessment, project planning, project cost analysis, risk management, and management of personnel are readily included in the use of health information systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Research

HAP 714: *Ethical Issues in Health Administration and Policy*. 3 credits.
Seeks to explore selected ethical issues in health administration and policy and decision options by understanding ethical theories, concepts, and principles and their role and selective application in the development, organization, and administration of health policy, as well as the organization and delivery of health services. Students will learn specific ethical concepts, theories, and principles, how these inform existing health policies and practices, and how ethical reasoning can operate in the policy process and administrative decisions in the health delivery systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

HAP 715: *Health Economics*. 3 credits.
Emphasizes understanding of economic efficiency in the U.S. health system. Microeconomic methods examine markets and resources in health care. Health care examined as commodity. Explores demand for health and medical care services, provider behavior, and function and behavior of insurance markets. Topics include government role, financing arrangements, insurance reform, rationing, price regulation, and provider competition. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

HAP 718: *Consumer Health Informatics*. 3 credits.
Explores the emerging subfield of health informatics, which is at the intersection of public and community health, health education, and more traditional informatics areas. Demonstrates the use of technology to increase awareness and improve population health. Reviews issues involved in consumer health informatics, and explores hands-on informatics tools and applications. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 709.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

HAP 719: *Advanced Statistics in Health Services Research I*. 3 credits.
Covers principles and methods of statistical data analysis and inference. Emphasizes the use and application of various data analysis techniques and their assumptions. Computer outputs will be used to demonstrate the application of statistical techniques in analyzing health related data sets. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 602 or GCH 601 or an equivalent statistics course.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

HAP 720: *Health Data Integration*. 3 credits.
Students learn to manipulate large databases, create link table queries, write SQL application programs, understand sources of data conflicts, and identify methods of integrating ODBC databases with legacy data. Covers data warehousing, methods of analyzing large databases, including Bayesian belief networks and machine learning in health care context. Features semester long data integration group project. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 709.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

HAP 721: Project in Data Analysis. 1-4 credits.
Focuses on analysis of data from electronic health records. Includes instruction on preparation of data including (a) removing inaccurate information, (b) organizing the timing of events/variables, (c) summarizing time-based variables. Students work on real data obtained by them from a practicum through an employer or real data supplied by instructor. Students must complete a literature review, describe methods used, present results, and discuss findings. Offered by Health Administration & Policy (p. 247). May be repeated within the degree for a maximum 4 credits.

Recommended Prerequisite: HAP 361 and HAP 602 or equivalent statistics and database courses.

Schedule Type: Independent Study

HAP 724: Analysis for Healthcare Executive Decision Making. 3 credits.
Challenges students to solve complex problems by integrating the knowledge, skills, and abilities attained in prerequisite courses. Applies quantitative and qualitative tools and methods and critical thinking skills to find solutions to comprehensive case studies. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 686, HAP 703, HAP 705.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 725: Statistical Process Control in Healthcare. 3 credits.
Provides students with hands-on experience with data from electronic health records. Introduces students to causal analysis of observational data, including propensity scoring and stratification. Provides students with access to simulated data from electronic health records. Exposes students to trends that influence the quality management system and drivers for change, including measures used by CMS to strengthen value based payment. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 686, HAP 703, HAP 705.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

HAP 727: Program Evaluations in Health Care. 3 credits.
Methods of evaluating health and social programs, including anthropological case studies, decision analytic and quasi-experimental approaches. Emphasis is placed on using methods of continuous quality improvement and benchmarking exchanges in evaluating multisite programs. Assess cost effectiveness of programs (including assessment of patient census, employee activities and program outcomes). Evaluation of health care interventions, rate setting, and managed care are discussed. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
organization, and financing. Offered by Health Administration & Policy (p. 247). May not be repeated for credit. Equivalent to HAP 642.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 745: Health Care Security Policy. 3 credits.
Focuses on health security and privacy policy and compliance issues. Students will develop policies for the type of threats faced by facilities. The legal and business policies for facility, personnel, travel, information, and patient security will be discussed. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 746: Health Policy Leadership. 3 credits.
Examines leadership strategies to influence health policy-making from a community stewardship and interest group advocacy perspective. Students will develop an understanding of how health and socio-economic issues affect the development, implementation and change of health policy, appreciate the complexity of engaging the public policy process and selectively employ strategies to influence politics and the policy-making process. Offered by Health Administration & Policy (p. 247). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 750: Legal Issues in Health Administration. 3 credits.
Prepares health professionals to understand legal principles, statutes, regulations, and case law related to managing health care organizations and health professionals’ practice. May compare legal health care issues from domestic and international perspectives. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 752: Advanced Health Information Systems. 3 credits.
Provides in-depth analyses of health information systems including Electronic Health Records, Personal Health Records, and Decision Support Systems. Analyzes architectural trends, workflow redesign, and implementation strategies. Describes new trends in computing technologies and infrastructure in health applications. Laboratory time provides learning experience and practical skills in various allied situations. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 700 and HAP 709, or permission by the instructor or Program Coordinator.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 760: Philosophy of Science in Health Services Research. 3 credits.
An introductory course on the theory and philosophy of science and humanism that relate to the design and conduct of health services research. The course examines selected theories on the nature of reality (ontology), the justification of knowledge claims (epistemology), and how knowledge is constructed (methodology) in design and analysis of health services research. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral program or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 762: Cost-Effectiveness for Health Care Management and Policy Decisions. 3 credits.
A survey course in health services research methods for the application of economic evaluation techniques used in health care policy analysis and clinical or administrative applications for health care service planning and evaluation. Introduces methods applied to health care technology assessment, medical decision making, health resource allocation, and policy-making. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 764: Health Policy and Government Payment Systems for Health Care Services. 3 credits.
Examines the rationale for government intervention in provider payment and explores the current policy issues and politics of major government provider payment systems, including Medicare and Medicaid, and examines options for managing these programs more effectively. The course will "follow the money" as it flows through government and provider payment systems, model potential changes in such systems, and identify policies for improving the operation of these programs and payment systems. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
HAP 765: Methods for Health Policy Analysis. 3 credits.
Explores conceptual, analytic, and technical methods/approaches used in health policy analysis and planning. Students will learn to select from among alternative methods for applied concept modeling, graphical data presentation, needs assessment, goal clarification, group decision methods, and a variety of quantitative applications and frameworks for evaluating policy impact. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 766: Policy Implementation and Health System Management Dilemmas. 3 credits.
Analyzes selected public policies and regulations and the impact of implementation and compliance/noncompliance on health care systems and organizations. Examines management responsibilities, challenges, and dilemmas (fiduciary and ethical) of implementing selected policies and regulations (promulgated or proposed). Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 703 or equivalent, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 770: Medical Decision Making and Decision Support Systems. 3 credits.
Introduces the complex subject of medical decision making. Examines systematic approaches to decision making. Explores principles governing the design, application, and maintenance of clinical decision support systems. Laboratory time provides learning experience in various applied situations. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 701 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 775: Implementing Health Reform in Health Service Organizations. 3 credits.
Prepares health professionals to understand, lead, and manage health service organizations undergoing payment reform, evolving quality and outcomes reporting requirements, process redesign challenges, culture change, and a changing regulatory environment. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: HAP 678.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 777: Health Data Visualization. 3 credits.
Introduces the principles and techniques of data visualization with special focus on applications in healthcare. Students will learn practical skills to make visually appealing graphics on web browsers to present their data using a publicly available JavaScript library D3 (Data-driven documents). Notes: Assumes that students have basic knowledge of the web, browsers, HTML, CSS, and JavaScript programming. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Schedule Type: Lecture

HAP 780: Data Mining in Health Care. 3 credits.
An introductory course to data mining and knowledge discovery in health care. Methods for mining health care databases and synthesizing task-oriented knowledge from computer data and prior knowledge are emphasized. Topics include fundamental concepts of datamining, data preprocessing, classification and prediction (decision trees, attributional rules, Bayesian networks), constructive inductive, cluster and association analysis, knowledge representation and visualization, and an overview of practical tools for discovering knowledge from medical data. These topics are illustrated by examples of practical applications in health care. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: Graduate-level statistics course.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Research

HAP 789: Pre-Capstone Professional Development Seminar. 1-3 credits.
Provides students with guidance and preparation for engaging in the capstone practicum. Offered by Health Administration & Policy (p. 247). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HAP 790: Capstone Practicum in Health Systems Management. 3 credits.
Field practicum in health systems management where students function as an integral member of an organizational entity to complete a non-thesis project while continuing to build skills in leadership, critical thinking and systematic problem analysis. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

Recommended Prerequisite: All coursework in the major.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

HAP 791: Practicum in Public Health. 3 credits.
The practicum provides students with an in-depth supervised experience in an approved public health organization. The practicum will require
students to complete a project related to an actual public health issue that is a focus within the organization. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** Students must complete all of the core MPH coursework (epidemiology, biostatistics, health education, environmental health, and public health administration) and pass the MPH comprehensive exam with a 70% or better.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Internship

**HAP 793: Final Project in Applied Health Policy.** 3 credits.
Provides students experience in executing an approved written research project related to a public health policy issue. Students will demonstrate skills learned in the MSHMP program. Projects require students to understand different positions related to a particular policy issue, to assess existing evidence and research related to the policy issue, and to formulate additional research questions. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Research

**HAP 799: Master’s Thesis.** 1-6 credits.
Provides students with skills to develop their research proposal, conduct their research, and complete their thesis in a relevant field of study. Offered by Health Administration & Policy (p. 247). May be repeated within the degree.

**Recommended Prerequisite:** Admission to one of the master’s programs in the department and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

**800 Level Courses**

**HAP 819: Advanced Statistics in Health Services Research II.** 3 credits.
Covers principles and methods of advanced statistical data analysis and inference with applications in health services research. Emphasizes the use and application of various data analysis techniques, including multivariate statistics, regression and longitudinal data analysis. Use of statistical software STATA demonstrates the application of statistical techniques in analyzing health related data sets. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 719.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**HAP 822: Research Designs and Analysis in Pharmaceutical and Health-Related Clinical Trials.** 3 credits.
A survey course that introduces students to the design and management of clinical trials research and pharmaceutical research and development, including drug development and FDA drug approval. This course also covers a variety of biostatistical methods as they apply to biomedical and biotechnology industry research with human subjects. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 710 or equivalent graduate statistics course.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**HAP 823: Comparative Effectiveness Analysis using Observational Data.** 3 credits.
Applies linear and logistic regression to analysis of comparative cost and effectiveness using massive data in electronic health records. Emphasizes (1) ridge regression and (2) propensity scores. Covers the following topics: (1) counterfactual framework and assumptions, (2) data balancing, (3) matching or weighting, and (4) sensitivity analysis. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 719.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**HAP 835: Causal Inference in Health Services Research.** 3 credits.
Discusses the nature of causation and alternative means of inferring causal relationships. Included are experimentation, matching, instrumental variables, conditioning, and mechanism in network models. Covers a broad range of methodological considerations that emerge in identifying causal effects. The focus is less on analysis of data and more on considerations of causal inference in non-randomized study design. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**HAP 866: Politics of Influencing Health Care Policy.** 3 credits.
Focuses on process of formulating health care policy and analyzing implications for nursing, administration in nursing, and education and nursing service. Examines current and impending health issues, legislative process, and program implementation evaluation. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**HAP 868: Advanced Research Seminar in Health Policy Analysis.** 3 credits.
Seminar on advanced research methods that analyzes theoretical and analytic foundations to critique health services research and health policy analysis. Students synthesize, integrate, and apply theoretical knowledge and advanced skills relevant to health services research, policy analysis, and program evolution. Notes: Limited to doctoral
students having completed core courses in statistics and research design, or permission of instructor. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 703 or equivalent or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**HAP 880: Advanced Health Data Mining.** 3 credits.
Provides the knowledge and skills needed to analyze health data using modern tools. Describes analytics of administrative and clinical data. Covers concepts and tools for big data analytics and NoSQL data analytics. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 719, HAP 780, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**900 Level Courses**

**HAP 925: Advanced Methods in Qualitative Research for Health Care.** 3 credits.
Builds upon the foundation of qualitative research in health care. Designed to develop skills in data generation techniques; data analysis using NVivo and text analysis software, including narrative and intentions analysis; application of standards for qualitative research; and utilization of various styles for qualitative reports and research proposals. The course also reviews mixed methods designs for research studies. Offered by Health Administration & Policy (p. 247). May not be repeated for credit.

**Recommended Prerequisite:** HAP 719, HAP 780, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**HAP 998: Doctoral Dissertation Proposal.** 1-3 credits.
An independent study for HAP doctoral students resulting in the development of a doctoral dissertation proposal. Includes development of the research problem, study methods, data analysis and literature review. Notes: The course must be supervised by a HAP faculty member qualified to serve as a dissertation chair. Offered by Health Administration & Policy (p. 247). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Advancement to candidacy.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**HAP 999: Doctoral Dissertation.** 1-9 credits.
Under faculty direction, develop dissertation proposal and complete the dissertation. Offered by Health Administration & Policy (p. 247). May be repeated within the degree for a maximum 25 credits.

**Recommended Prerequisite:** Course is open to honors college students only.

**Schedule Type:** Independent Study

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**HHS 491:** Foundations of Clinical Research. 1 credit.
Provides students with fundamental concepts and basic analytic methods pertaining to the design, analysis, and interpretation of clinical research. Outlines the research process by introducing the components of research - from beginning a literature search, to designing an experiment, to selecting appropriate outcome measures, and collecting data. Offered by Health and Human Services (p. 235). May not be repeated for credit. Equivalent to HAP 480, SOCW 480.

**Recommended Prerequisite:** Open only to CHHS majors or students who have completed CHSS minor or certificate courses.

**Schedule Type:** Lecture

**HHS 492:** Internship in Clinical Research. 3 credits.
Provides students with experiential learning in a research laboratory that focuses on clinical health research. Students are matched with a clinical research supervisor that provides both research and professional development mentorship. Through this opportunity, students enhance their research, critical thinking, problem-solving and presentation skills. An application must be submitted in the semester prior to enrollment in the course. During the semester prior to entry, students may be asked to acquire certain competencies/certifications in order to fully participate at their research site (e.g., human subjects research protections training, lab safety, certification, HIPAA training). Offered by Health and Human Services (p. 235). May not be repeated for credit.

**Recommended Prerequisite:** All courses in the PhD program.

**Schedule Type:** Seminar

**HHS 493:** Research Internship in Health and Human Services. 3 credits.
The student works as a member of a team engaged in health and human services research and attends a bi-weekly research seminar. Under direction of the course seminar leader and the faculty research mentor, the student will acquire selected research skills and develop introductory research writing and presentation skills. Offered by Health and Human Services (p. 235). May not be repeated for credit. Equivalent to HAP 480, SOCW 480.

**Schedule Type:** Seminar

**HHS 494:** Healthy Aging. 3 credits.
Offers a broad perspective of normal aging in the older adult, and the impact of chronic disease and psychosocial and cultural factors on the aging process. Offered by Health and Human Services (p. 235). May not be repeated for credit.

**Schedule Type:** Lecture

**HHS 495:** Research/Scholarship Intensive. 1 credit.
Students participating in the Research/Scholarship Intensive are required to complete an independent study research project. The student will acquire selected research skills and develop introductory research writing and presentation skills. Offered by Health and Human Services (p. 235). May not be repeated for credit.

**Schedule Type:** Independent Study
500 Level Courses
HHS 597: Approaches to Quantitative Data Analysis in Health Care Research. 3 credits.
Examines univariate and bivariate statistical procedures appropriate for analyzing quantitative health care research data. Includes selecting, applying, and interpreting data analysis procedures. Offered by Health and Human Services (p. 235). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses
HHS 646: Social Gerontology. 3 credits.
Examines physical, psychological, sociological, cultural, spiritual, and economic aspects of aging and explores the challenges of service delivery to older persons. Considers the impact of aging populations on the social structure, economy, demography, and social policy of society and identifies social and cultural forces that influence older persons and their families, with special regard to caregiving, institutionalization, and social roles in retirement. Offered by Health and Human Services (p. 235). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HHS 648: Aging and Health. 3 credits.
Provides an overview of normal aging and explores factors that affect health and well being in older adults; demonstrates strategies for maintaining health and managing chronic illness in older adults; examines common misconceptions about aging and healthcare issues; and explores the process of normal aging and the presentation of common health conditions in older adults. Offered by Health and Human Services (p. 235). May not be repeated for credit. Equivalent to NURS 648.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

800 Level Courses
HHS 810: Systematic Reviews of Healthcare Research. 3 credits.
Applies systematic methods for evaluating current research in order to develop empirically-based decisions about the next major research questions that need to be addressed in the students’ selected area of inquiry. Offered by Health and Human Services (p. 235). May not be repeated for credit.

Recommended Prerequisite: Master’s degree in nursing, social work or health-related discipline.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

HHS 818: Advanced Ethics of Healthcare Research. 3 credits.
Analyzes ethical issues associated with designing and conducting healthcare research in diverse populations and settings. Offered by Health and Human Services (p. 235). May not be repeated for credit. Equivalent to NURS 957.

Recommended Prerequisite: Master’s degree in nursing, social work, or health-related discipline.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

HHS 825: Conducting and Publishing Healthcare Research. 3 credits.
Applies principles of writing for scientific publication. Offered by Health and Human Services (p. 235). May not be repeated for credit. Equivalent to NURS 875.

Recommended Prerequisite: Master’s degree in nursing, social work, or health-related discipline.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Internship

Hebrew (HEBR)

100 Level Courses
HEBR 101: Elementary Hebrew I. 3 credits.
Designed for students with no knowledge of Hebrew. Introduction including grammar, vocabulary, oral skills, listening comprehension, and reading. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture
HEBR 102: Elementary Hebrew II. 3 credits.
Continuation of HEBR 101. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: HEBR 101 or equivalent.

Schedule Type: Lecture

HEBR 150: Introduction to Biblical Hebrew. 3 credits.
Introduces basic vocabulary, grammar, and development of reading skills with introduction to religion and culture of ancient Israel that produced the Hebrew Bible/Old Testament. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture

HEBR 160: Readings in Biblical Hebrew. 3 credits.
Continuation of HEBR 150 to increase students’ proficiency in vocabulary and understanding of morphology and syntax. Selected passages from Hebrew Bible read; students introduced to text formation and analysis. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: HEBR 150 or equivalent.

Schedule Type: Lecture

200 Level Courses

HEBR 201: Intermediate Hebrew I. 3 credits.
Further development of skills acquired in HEBR 101 and 102, including grammar, oral expression, listening comprehension, reading, and writing. Notes: Lab work required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: HEBR 102 or equivalent.

Schedule Type: Lecture

HEBR 202: Intermediate Hebrew II. 3 credits.
Continuation of HEBR 201. Notes: Lab work required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: HEBR 201 or equivalent.

Schedule Type: Lecture

Higher Education (HE)

600 Level Courses

HE 601: The Community College. 3 credits.
Studies institutional character of the community college, including history, purpose, clientele, organization, finance, and social function. Studies issues currently faced by community colleges. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 601.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 602: College Teaching. 3 credits.
Describes issues that affect teaching and learning and provides basic tools to use in college classroom. Teaches how to plan course, develop syllabus, promote learning among diverse students, and implement classroom assessment techniques. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 602.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 603: Higher Education in the Digital Age. 3 credits.
Studies how digital tools and resources shape and are shaped by higher education both inside and outside of the classroom. Includes the complex ways in which colleges integrate changing teaching and learning, information, and communication technologies. Combining reading, writing, viewing and hands-on learning, students examine issues through the content and lens appropriate for their discipline and goals. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 603.

Recommended Prerequisite: Basic familiarity with computer operations

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 605: Learning Assessment. 3 credits.
Focuses on classroom and program-level learning assessment, and describes the political and historical context for assessment. Offers hands-on practice of assessment for instructors and student affairs professionals. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 605.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in College Teaching, Education (Community College), Education, Higher Ed Administration or Interdisciplinary Studies.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar
HE 606: Diversity in Higher Education. 3 credits.
Explores instructional interactions and communication strategies for diverse learner populations. Includes discussion of sociological, behavioral, and cognitive theory on culture. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 606.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 610: Research Designs in Higher Education. 3 credits.
Provides an introduction to higher education research methodologies, analysis, and decision-making through introduction of basics of research design including problem identification, literature review, method selection, data collection and analysis, application, writing, and ethics. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 710.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HE 621: Higher Education in the United States. 3 credits.
History of higher education from colonial period to the present. Examines philosophic, political, social, and economic forces that have influenced development. Reviews today’s issues and challenges. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 621.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 624: Finance and Fiscal Management in Higher Education. 3 credits.
Overview of higher education finance and fiscal management. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 624.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 641: Introduction to Helping Skills. 3 credits.
Focuses on helping skills that assist others in reflecting on concerns, considers possible causes of problems, and contemplates options and strategies for problem solving. Introduces students to and practices basic helping skills. Explores ethical issues surrounding helping skills and determining when to refer students to professional counselors. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 641.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 643: Multicultural Helping Skills. 3 credits.
Sensitizes students to and promotes an understanding of multiple cultures and encourages students to examine their own attitudes toward various groups, explore their own identities, and to acquire expertise in the use of helping skills with various populations. Emphasizes the learning of approaches and the application of techniques that facilitate effective multicultural communication in higher education. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 643.

Recommended Prerequisite: CTCH 641 or HE 641.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 644: Student Services in Higher Education. 3 credits.
Focuses on development and organization of student personnel programs and services in institutions of higher learning. Covers philosophy, methods, and techniques. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 644.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 645: The Contemporary College Student. 3 credits.
Analyzes changing demographics, barriers, and developmental issues facing college students. Studies impact of college environment on
student development, and interaction between students of varying subcultures and the environment. Examines technology issues and their impact. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 645.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HE 646: Student Development Theory. 3 credits.
Addresses developmental issues facing students, including adult students; factors that affect development; and the need to work with individuals, groups, and organizations within the campus community to establish conducive learning environments. Application of psychosocial, cognitive development, identity, and person-environment interaction theories are considered in depth. Offered by Higher Education Program (p. 524). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HE 685: Practicum. 3 credits.
Supervised on-the-job experience in approved college or university setting or public agency involved in higher education. Develops skills applicable to college-based teaching or higher education administration or policy. Approval of practicum coordinator needed one semester before registration. Notes: Minimum 150 hours of work and participation in internship seminar. Offered by Higher Education Program (p. 524). May be repeated within the degree for a maximum 6 credits. Equivalent to CTCH 685.

Recommended Prerequisite: Admission to certificate, MAIS/CCT, or MAIS/Higher Education program; approval of advisor and practicum coordinator; 12 credits of core requirements; and 3 additional credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

700 Level Courses

HE 701: Higher Education Law. 3 credits.
Introduces students to laws and legal issues that impact higher education and establishes a general familiarity with higher education law. Uses a case study approach to teach students to recognize when a legal issue presents itself in situations involving students, faculty, or administration. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 701.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HE 702: Contemporary and Critical Theories in Higher Education. 3 credits.
Uses the philosophical and sociological grounding of higher education research to provide guidance on decision-making in ambiguous and complex higher education organizations. Offered by Higher Education Program (p. 524). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HE 703: Digital Technologies and Learning. 3 credits.
Researches changing digital landscape in higher education. Combines reading, writing, viewing, and assessing hands-on learning in the digital context with speculation about future digital capabilities. Offered by Higher Education Program (p. 524). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HE 704: The Scholarship of Teaching and Learning. 3 credits.
Overview of scholarship on teaching and learning in higher education. Focuses on ways students learn, how learning can be improved, and different methods of conducting research into teaching and learning. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 704.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HE 705: Access and Social Justice. 3 credits.
Examines the inequitable structural systems that produce unequal access to higher education. Explores the meaning of social justice in higher education, and emphasizes policy, administrative processes, and educational practices. Offered by Higher Education Program (p. 524). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
**HE 710: Leadership in Higher Education.** 3 credits.
Focusing on the leadership of higher education and the role leaders play in institutional transformation, this course explores the complex social and political environments and the current and future trends of higher education. This focus occurs through the foundational grounding of leadership theory and research. Students will be challenged to employ multiple perspectives of leadership in higher education. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 702, CTCH 810.

**Schedule Type:** Lecture

**HE 711: Policy Analysis in Higher Education.** 3 credits.
Intended as a toolkit for the understanding and creation of evidence-based analysis of public policy issues at all levels of governance, this course examines examples of policy research and analysis prompted from discussion around higher education policy issues. Offered by Higher Education Program (p. 524). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**HE 712: Advanced Institutional and Program Assessment in Higher Education.** 3 credits.
Examines educational assessment and evaluation practices and methods. Students critique and design an evaluation study and an evaluation report. Reviews ethical issues and impact of assessment and evaluation for students, employees, and programs. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 826.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**HE 713: The Internationalization of Higher Education.** 3 credits.
Explores the internationalization of higher education through various lenses including administration, student services, curriculum integration, study abroad, and branch campus development. Offered by Higher Education Program (p. 524). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**HE 722: Organization and Administration in Higher Education.** 3 credits.
Provides concepts of organization and administration in contemporary institutions from macro to micro perspectives. Studies theory and practices of the organization as it relates to governance, structure, and management of the institution. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 622.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

**HE 785: Research Apprentice.** 3 credits.
Participation in research or assessment study under the supervision of a faculty member. Written report required. Offered by Higher Education Program (p. 524). May not be repeated for credit.

**Recommended Prerequisite:** HE 610.

**Schedule Type:** Independent Study

**HE 792: Special Topics in Higher Education.** 1-3 credits.
Covers current topics in higher education. Notes: May be repeated when topic is different. Offered by Higher Education Program (p. 524). May be repeated within the degree. Equivalent to CTCH 792.

**Recommended Prerequisite:** Admission to doctoral program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**HE 798: Higher Education Project.** 1-3 credits.
Participation in research or assessment study under the supervision of a faculty member. Written report required. Offered by Higher Education Program (p. 524). May be repeated within the degree. Equivalent to MAIS 798.

**Recommended Prerequisite:** HE 610.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

**HE 799: Higher Education Thesis.** 1-3 credits.
Original research related to student development or higher education. Offered by Higher Education Program (p. 524). May be repeated within the degree. Equivalent to MAIS 799.

**Recommended Prerequisite:** HE 610, HE 785.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

**800 Level Courses**

**HE 805: Research Methodologies in Higher Education.** 3 credits.
Provides a review of sophisticated research methodologies commonly used in higher education including collection and analysis procedures,
ethics, and decision-making. Alignment of research questions, method selection, data collection and analysis procedures, implications, and writing are examined. Offered by Higher Education Program (p. 524). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education (Community College).

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Arts or Doctor of Philosophy degrees.

**Schedule Type:** Lecture

HE 806: *Qualitative Methods in Higher Education Research.* 3 credits. Examines the philosophical and epistemological foundations that guide qualitative inquiry. Trustworthy data collection methods and means of analysis are stressed and practiced. Offered by Higher Education Program (p. 524). May not be repeated for credit.

**Recommended Prerequisite:** HE 805.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education (Community College).

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Arts or Doctor of Philosophy degrees.

**Schedule Type:** Lecture

HE 807: *Quantitative Methods in Higher Education Research.* 3 credits. Develops ability to conduct applications of quantitative methods in higher education research. Reinforces skills acquired in previous research courses. Learning occurs through reading assignments, hands-on experience in using a computer program for data analysis, and application activities. Students will identify and report on quantitative methods used in published research, analyze data, and provide written results. Offered by Higher Education Program (p. 524). May not be repeated for credit.

**Recommended Prerequisite:** HE 805.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education (Community College).

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Arts or Doctor of Philosophy degrees.

**Schedule Type:** Lecture

HE 821: *History of Higher Education in the United States.* 3 credits. Key issues and moments in the history of higher education are examined as a way to understand current structures, cultures, policies, and purposes. Historical perspective will also be used to consider the near future of higher education. Students will examine current trends and possible futures for a specific topic by doing historical research on the issue. Offered by Higher Education Program (p. 524). May not be repeated for credit. Equivalent to CTCH 821.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

HE 885: *Doctoral Internship in College Teaching and Administration.* 3 credits. Supervised internship at a community college, four-year college or university, or nonteaching higher-education setting such as a government agency or administrative office. Develops skills applicable to college teaching or higher education administration or policy. Students must complete a minimum of 180 hours of work and participate in internship seminar. Notes: Students must contact the program at least one semester before enrolling. Offered by Higher Education Program (p. 524). May be repeated within the term for a maximum 6 credits. Equivalent to CTCH 885.

**Recommended Prerequisite:** Admission to doctoral program; approval of advisor and internship coordinator, 18 credits of graduate course work.

**Registration Restrictions:**
Enrollment is limited to students with a major in College Teaching, Education (Community College) or Education.

Enrollment is limited to Graduate level students.

**Schedule Type:** Internship

HE 897: *Directed Reading in Higher Education.* 1-6 credits. Independent reading on topic agreed on by student and instructor. Offered by Higher Education Program (p. 524). May be repeated within the degree for a maximum 6 credits. Equivalent to CTCH 897.

**Recommended Prerequisite:** Admission to the doctoral program and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education (Community College).

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Arts degree.

**Schedule Type:** Independent Study

**900 Level Courses**

HE 998: *Doctoral Dissertation Proposal.* 1-3 credits. Contact program for permission to register. Work on research proposal that forms basis for doctoral dissertation. Offered by Higher Education Program (p. 524). May be repeated within the degree. Equivalent to CTCH 998.

**Recommended Prerequisite:** Completion of all course work and qualifying exams.

**Registration Restrictions:**
Enrollment is limited to students with a major in Education (Community College).

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Arts degree.

**Schedule Type:** Dissertation
HE 999: Doctoral Dissertation. 1-12 credits.
Doctoral dissertation research and writing under direction of dissertation committee. Offered by Higher Education Program (p. 524). May be repeated within the degree. Equivalent to CTCH 999.

Recommended Prerequisite: HE 998 and appointed dissertation committee.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.
Enrollment is limited to students with a major in Education (Community College).
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

History (HIST)

100 Level Courses

HIST 100: History of Western Civilization. 3 credits.
History of Western civilization from ancient Mediterranean origins through medieval and modern development of Europe to contemporary world. Notes: Students who take HIST 100 may not receive credit for HIST 101 or HIST 102. Offered by History & Art History (p. 381). May not be repeated for credit. Equivalent to HIST 101, HIST 102.

Mason Core: Western Civilization (p. 135)

Schedule Type: Lecture, Recitation

HIST 101: Foundations of Western Civilization. 3 credits.
Evolution of Western culture from ancient Mediterranean world to formation of modern Europe in 17th century. Notes: Students may not receive credit for HIST 101 if they have taken HIST 100. Offered by History & Art History (p. 381). May not be repeated for credit. Equivalent to HIST 101, HIST 102.

Schedule Type: Lecture

HIST 102: Development of Western Civilization. 3 credits.
History of Western institutions and ideas from 17th century to the present. Notes: Students may not receive credit for HIST 102 if they have taken HIST 100. Offered by History & Art History (p. 381). May not be repeated for credit. Equivalent to HIST 100.

Schedule Type: Lecture

HIST 121: Formation of the American Republic. 3 credits.
Social, political, economic, and intellectual growth of American institutions from colonization through Reconstruction. Notes: Students may not receive credit for HIST 121 if they have taken HIST 120. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

HIST 122: Development of Modern America. 3 credits.
History of the United States since 1877. Notes: Students may not receive credit for HIST 122 if they have taken HIST 120. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Western Civilization (p. 135)

Schedule Type: Lecture, Recitation

200 Level Courses

HIST 202: Freshman/Sophomore Seminar in Global History. 3 credits.
Focuses on skills, methods of learning, and subject matter to introduce discipline of history. Notes: Topics vary. Offered by History & Art History (p. 381). May not be repeated for credit. Equivalent to SYST 202.

Recommended Prerequisite: Freshman or sophomore standing.

Schedule Type: Lecture

HIST 251: Survey of East Asian History. 3 credits.
Surveys history of China and Japan from prehistoric times to ca. 1600. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 252: Survey of East Asian History. 3 credits.
Surveys history of China and Japan from early modern times (ca. 1600) to present. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 261: Survey of African History. 3 credits.
Focuses on the sub-Saharan region and examines evolving systems of kinship power, spirituality, and slavery. Explores the interactions between Africans and global influences from the religions of the book and colonialism to the politics of development and continuities and changes in production. HIST 261 surveys African history from the earliest times to 1800. HIST 262 surveys African history from 1800 to the present. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 262: Survey of African History. 3 credits.
Focuses on the sub-Saharan region and examines evolving systems of kinship power, spirituality, and slavery. Explores the interactions between Africans and global influences from the religions of the book and colonialism to the politics of development and continuities and changes in production. HIST 261 surveys African history from the earliest times to 1800. HIST 262 surveys African history from 1800 to the present. Offered by History & Art History (p. 381). May not be repeated for credit. Equivalent to SYST 262.

Mason Core: Non-Western Culture

Schedule Type: Lecture, Recitation
times to 1800. HIST 262 surveys African history from 1800 to the present. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 271: Survey of Latin American History. 3 credits. Surveys colonial era to 1825. Emphasizes interactions of United States, Latin America. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 272: Survey of Latin American History. 3 credits. Surveys development of independent Latin America since 1825. Emphasizes interactions of United States, Latin America. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 281: Survey of Middle Eastern Civilization. 3 credits. Survey of Middle Eastern history from rise of Islam to present, emphasizing processes that led to emergence of economic, cultural, social, and political institutions that characterize region today. Surveys period from rise of Islam in 570 to medieval period (ca. 1258) Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 282: Survey of Middle Eastern Civilization. 3 credits. Survey of Middle Eastern history from rise of Islam to present, emphasizing processes that led to emergence of economic, cultural, social, and political institutions that characterize region today. Surveys medieval period to present. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

300 Level Courses

HIST 300: Introduction to Historical Method. 3 credits. Introduces research skills and methods, as well as historical interpretation, culminating in written and oral presentations. Notes: Topics vary according to instructor. History majors strongly urged to take HIST 300 as soon as possible after reaching 30 credits. Grade of C or better is required to graduate with BA in history. Students may repeat HIST 300 only with permission from the Department of History and Art History and repetitions are limited. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Specialized Designation: Scholarly Inquiry, Writing Intensive in the Major

Recommended Prerequisite: History majors with 30 credits or permission of instructor.

Registration Restrictions: Enrollment is limited to students with a major in History.

Schedule Type: Lecture

HIST 301: Classical Greece. 3 credits. Political, social, economic, and cultural history of classical Greece from development of the city-state through 5th century. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 302: Classical Rome. 3 credits. Political, social, economic, and cultural history of classical Rome from founding of the city through fall of Roman republic. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 304: Western Europe in the Middle Ages. 3 credits. Survey of development of European society from collapse of Roman rule in 5th century to advent of Black Death in 14th century. Emphasizes political, social, cultural, and intellectual growth of society that developed from Roman, Catholic, and Germanic roots. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of history or permission of instructor.

Schedule Type: Lecture

HIST 305: The Renaissance. 3 credits. Survey considering Renaissance as phenomenon rather than chronological period. Emphasizes growth of humanism in Italy in 14th and 15th centuries, development of new political concepts, and laicization of society. Includes transmission of these developments to transalpine Europe in late 15th and 16th centuries. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 306: The Reformation. 3 credits. Late medieval ecclesiastical conditions and reform movements, late scholasticism, Protestant Reformation, Catholic Reformation, dynastic rivalries, and religious wars. Concludes with Peace of Westphalia. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 307: Old Regime and Revolutionary Europe. 3 credits. Political, social, economic, and cultural history of Europe from 1648 to 1815. Crisis of authority, consolidation of the state, absolutism, colonial expansion, the Scientific Revolution and the Enlightenment, and the French Revolution and Napoleon. Offered by History & Art History (p. 381). May not be repeated for credit.
Central Asia, and the Caucasus, which continue to influence world politics and culture today. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 308: Nineteenth-Century Europe. 3 credits.
History of Europe from Congress of Vienna to outbreak of World War I. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 309: Europe in Crisis: 1914-1948. 3 credits.
Two world wars, the Great Depression, and political and cultural revolutions transformed Europe as never before. Explores causes and consequences of these tumultuous events, and concludes with consideration of reconstruction that caps period. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 312: Nationalism in Eastern Europe. 3 credits.
Examines history of modern Eastern Europe from mid-19th century through collapse of communist regimes in 1989, and includes focus on Yugoslav wars of 1990s. Nationalism provides organizing theme; topic approached through literature, political, social, cultural, and new media sources. Class sessions emphasize discussion of central issues and sources. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 314: History of Germany. 3 credits.
Political, diplomatic, economic, social, and cultural development of Germany from dissolution of Holy Roman Empire to present. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 322: Modern Britain. 3 credits.
History of Britain from mid-18th century to present. Focuses on social, political, and economic transformations of industrialization; culture of 19th-century industrial society; problems of late 19th-century economic competition and imperialism; creation of welfare state; and experience of post-World War II political, social, and economic realignments. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of history or permission of instructor.

Schedule Type: Lecture

HIST 326: Stalinism. 3 credits.
Examines Josef Stalin and Stalinism as a political, economic, social, and cultural system, with a focus on the period from Lenin’s death in 1924 through Stalin’s death in 1953. Explores the history of rapid industrialization, collectivization of agriculture, famine, terror, war, Cold War, and human suffering in the Soviet Union and Eastern Europe. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 327: The Soviet Union and Russia Since World War II. 3 credits.
Analyzes the Soviet Union, the Cold War “enemy” of the United States, from victory in World War II under Joseph Stalin through collapse in 1991. Studies the fifteen independent countries that emerged from the Soviet collapse, including Russia, the Baltic States, Ukraine, Belarus, Moldova, Central Asia, and the Caucasus, which continue to influence world politics and culture today. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 328: Rise of Russia. 3 credits.
Political, social, and cultural development of Russia from early times to the end of the 19th century. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 331: Postwar United States, 1945-1973. 3 credits.
Examines political, cultural, and economic history in the three decades after 1945. Themes include the emergence of the civil rights movement and feminism; the domestic and international events of the Cold War, especially the Vietnam War; and the rise and fall of the presidency’s prestige in the years of the Great Society and Watergate. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 332: United States since 1973. 3 credits.
Examines political, cultural, and economic history since the end of the Vietnam War. Themes include the shifting political economy of the country during the resurgence of conservatism, the political debates over culture and identity, and the waning of the Cold War and its replacement with other international concerns. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 333: The Automobile in the United States. 3 credits.
Examines the biography of one of the most important characters in twentieth-century U.S. history: the automobile. Embraces the histories of business, policy, labor, the environment, technology, and culture, and seeks a holistic understanding of the role of the car in American life. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 335: The African American Experience in the United States: African Background to 1885. 3 credits.
History of African American experience in United States including African origins; trans-Atlantic slave trade; development of slavery in colonial, revolutionary, and antebellum periods; abolitionist movements; and African American participation in Civil War and during Reconstruction. Offered by History & Art History (p. 381). May not be repeated for credit.
Schedule Type: Lecture

HIST 336: The African American Experience in the United States: Reconstruction to the Present. 3 credits.
History of African American life in post-slavery America, and rise and consequences of racial segregation in 19th and 20th centuries. Examines African American response to continued racial inequality and repression. Covers great migration, urbanization, black nationalism, and civil rights era, as well as contemporary debates about race. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 337: Race and Gender in American Sports. 3 credits.
Examines how ideas about race and gender have affected sports in America from late 19th century to the 1980s. Will also consider how athletes and sporting activities have shaped American racial and gender paradigms. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 338: History of College Athletics. 3 credits.
Examines America's unique blend of higher education and sports from 1870s to modern collaborations between college athletic programs and America's media outlets. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 339: History of Baseball. 3 credits.
Examines development of baseball in U.S. context of labor, intellectual, economic and political events including racial segregation. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 340: Basketball and the American Experience. 3 credits.
Explores history of basketball in the United States since the late 1800s. Examines how basketball reflects and informs attitudes toward race, ethnicity, gender, and national identity. Possible topics include YMCA movement, Jews in basketball, racial segregation, growth of college basketball, international politics, evolution of black aesthetic, ABA-NBA merger, women's basketball, Magic Johnson-Larry Bird rivalry, Michael Jordan, and basketball's professionalization, commercialization, and globalization. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 341: History of Sport in the United States. 3 credits.
Examines the roots of American sport in colonial play and recreation, the emergence of organized and national sports, issues of gender and race in the sporting world, and the intersection of U.S. sport with events such as the Civil Rights Movement and the Cold War. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 342: History of the Olympics and the United States. 3 credits.
Traces history of American participation in the Olympics from 1896 to the present. Topics may include American leadership in the Olympic Movement, the historical legacy of American Olympic host cities, American Imperialism, Nazism, issues of race, gender and ethnicity in the Olympics, the Cold War and Olympic boycotts, and commercialization of sport. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 350: U.S. Women's History. 3 credits.
History of women and their changing status and gender roles in American society from colonial period through "second wave" of feminism in 1970s. Explores images and lives of women of different class, ethnic, and regional origins. Also focuses on women's political, economic, and legal conditions, and changes in them. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 351: History of the Old South. 3 credits.
History of South to outbreak of Civil War, with particular emphasis on rise of sectionalism. Focuses on development of distinct Southern culture through emergence of economic, political, social, agricultural, and intellectual institutions. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 352: The South since 1865. 3 credits.
History of South during Reconstruction, Redeemer era, and New South, with particular emphasis on race relations. Covers political, economic, cultural, and intellectual development from aftermath of war. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 353: History of Traditional China. 3 credits.
China from earliest times to period of modern Western intrusion. Development of traditional Chinese culture, society, and government. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 354: Modern China. 3 credits.
China from 1644 to the People's Republic of China. Emphasizes coming of West and various stages of Chinese reaction. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 355: Modern Japan. 3 credits.
Japan from Meiji Restoration to World War II. Emphasizes Japan's modernization in face of challenge. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 357: Postwar Japan. 3 credits.
History of Japan from World War II to present. Examines Japanese experience of several key moments: Japan's defeat in Pacific War, reconstruction during U.S. occupation, rise to economic prominence during 1960s and 1970s, and cultural and international identity crisis
during 1980s and 1990s. Offered by History & Art History (p. 381). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Non-Western Culture

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**HIST 358:** Post-1949 China. 3 credits.

Puts People's Republic of CHINA (PRC) into historical context by assessing legacies of China's socialist revolution (1949-1976) and post-socialist reforms (1978-present). Explores revolutionary heritage of the Chinese Communist Party, goals and agendas of China's socialist state, ideologies and policies shaping urban and rural development, individual agency and responses to revolutionary mass mobilization and market reforms. Offered by History & Art History (p. 381). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Lecture

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**HIST 366:** Comparative Slavery. 3 credits.

Examines systems of slavery from ancient world to modern world, with special emphasis on Atlantic slave trade and slave societies in Latin America and Anglo America. Considers impact of slaves and slavery on cultural, economic, and political systems in Africa and Americas from 16th to 19th centuries. Offered by History & Art History (p. 381). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Lecture

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**HIST 367:** History, Fiction, and Film in Latin America. 3 credits.

Explores modern Latin American history through different types of texts: scholarly histories, historical novels, fictional films, documentary films, and oral history. Explores ways these texts produce knowledge about the past. What motivates different approaches? What counts as evidence? How do we know what really happened? How do we decide what mattered and what did not? Also introduces several important episodes in 20th century Latin American history. Offered by History & Art History (p. 381). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Lecture

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**HIST 368:** The Civil War and Reconstruction. 3 credits.

Examines the politics of Iraq under the British mandate, as an independent state under the monarchy, and as a republic after the revolution of 1958, emphasizing the social composition of Iraq's people and its ruling elites. Offered by History & Art History (p. 381). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Lecture

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**HIST 369:** Modern Iraq. 3 credits.

Covers the causes, major events, and legacies of America's Vietnam War, including an introduction to Vietnamese history and culture. American decisions for war, strategy and major military engagements, diplomacy and peace talks, and the aftermath of the conflict in Vietnam and United States. Offered by History & Art History (p. 381). May not be repeated for credit.

**Specialized Designation:** Non-Western Culture

**Schedule Type:** Lecture
HIST 378: History of Aviation. 3 credits.
Examines history of aviation from origins to the present in the context of culture, economics, politics, society, technology and war. Addresses such topics as the emergence of aerospace engineering as a profession, the evolution of aerospace technology and growth of the industry, military aviation, the Space Race, and aviation art, literature, music and film. Offered by History & Art History (p. 381). May not be repeated for credit.

HIST 380: Uncovering the U.S. Past Through Film. 3 credits.
Examines Hollywood films as historical sources that reveal the social, political, cultural and economic landscapes of their historical moment. Explores the ways films participate in pressing national debates over gender, race and ethnicity, and national security. Offered by History & Art History (p. 381). May not be repeated for credit.

HIST 384: Global History of Christianity. 3 credits.
Explores the history of Christianity around the world in the context of political and social structures as well as religious beliefs and practices. Offered by History & Art History (p. 381). May not be repeated for credit.

HIST 385: Humanities College to Career. 1 credit.
Focuses on career choices and effective self-presentation for soon-to-be graduating students with majors in the humanities. Explores how skills typically learned in humanities majors can be leveraged for a successful transition to post-graduation employment. Offered by History & Art History (p. 381). May not be repeated for credit.

HIST 386: Topics in History. 1-6 credits.
Study of historical topics of special interest. Notes: Topics announced in advance. May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

HIST 387: Topics in Global History. 3-6 credits.
Study of historical topics or periods of special interest in global, Latin American, African, Asian, or Middle Eastern history. Notes: Topics announced in advance. May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

HIST 388: Topics in European History. 3 credits.
Study of historical topics or periods of special interest. Notes: Topics announced in advance. May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

HIST 389: Topics in U.S. History. 3 credits.
Study of historical topics or periods of special interest. Notes: Topics announced in advance. May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

HIST 390: The Digital Past. 3 credits.
Teaches the fundamentals of information technology within the context of a history course. Students learn fundamentals and skills as well as how our society became so enamored of and dependent on these knowledge and information tools. Understanding a new technology requires understanding how new technologies transform the societies that embrace them. Emphasizes the use of free and open-source software whenever possible. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Information Technology: With Ethics (p. 135)

HIST 391: History of Virginia to 1800. 3 credits.
Discovery and settlement of Virginia. Colonial period with emphasis on development of representative government and race relations, Golden Age of Virginia dynasty, and coming of Civil War. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of history or permission of instructor.

HIST 392: History of Virginia Since 1800. 3 credits.
Decision to secede, Civil War and Reconstruction, Readjustors and Populism, disfranchisement and Constitution of 1902, and rise of Senator Harry F. Byrd. Recent developments. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of history or Permission of Instructor.

HIST 393: Topics in Film and History. 3 credits.
Study of historical periods or topics from perspective of feature films and documentaries. Notes: Topics available in advance from the department. May be repeated when topic is different. A maximum of 6 credits may be applied to the BA in history. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 6 credits.

HIST 394: Globalization and History. 3 credits.
Explores major events in the making of the modern world from a global perspective, with emphasis on interconnections and the historical development of power, authority, and governance. Offered by History & Art History (p. 381). May not be repeated for credit.

HIST 395: Topics in Digital History. 3 credits.
Introduces students to issues and methods in digital history through study of a particular topic. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 15 credits.
Schedule Type: Lecture

HIST 396: Topics in Public History. 3 credits.
Introduces students to issues and methods in preserving history and presenting historical information to a variety of audiences through museum exhibits, websites, public commemorations, and other means. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 6 credits.

Schedule Type: Independent Study

HIST 398: Historical Study Abroad. 1-6 credits.
Intended for participation in formally organized course offered by Center for Global Education during intersession or spring break. Notes: May be repeated with permission of department. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Internship

HIST 399: Internship. 1-9 credits.
Approved work-study programs in cooperation with specific organizations including area museums; archives; historic sites; and local, state, and federal agencies. Notes: Credit determined by department. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 9 credits.

Registration Restrictions:
Enrollment is limited to students with a major in History.

Schedule Type: Internship

400 Level Courses

HIST 401: Colonial America. 3 credits.
Intensive study of colonial American history from European origins through Revolutionary War. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 403: Revolutionary Era in American History, 1763-1812. 3 credits.
Study of formative years of new republic from Treaty of Paris of 1783 to election of 1820. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of HIST or permission of instructor.

Schedule Type: Lecture

HIST 404: Jacksonian America, 1812-1854. 3 credits.
Study of age of Andrew Jackson. Emphasizes democratic institutions that emerged as dominant influences in American society. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of history or permission of instructor.

Schedule Type: Lecture

HIST 405: Women in Islamic Society. 3 credits.
Surveys history of women in Islamic society from rise of Islam to present day. Examines historical processes that affected role and status of women in society, and specific topics around which issues of gender status and identity coalesced, especially in modern period. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of history or permission of instructor.

Schedule Type: Lecture

HIST 406: The Russian Revolution. 3 credits.
Era of revolutionary activity from 19th century to end of 1920s, with emphasis on Russian Revolutions of 1917. Explores why revolutionary situation developed; political, social, and cultural issues at stake; why it took various forms; and revolution's contribution to nature of Soviet state and post-Soviet problems. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 45 credits or permission of instructor.

Schedule Type: Lecture

HIST 436: European Society and Culture: 19th and 20th Centuries. 3 credits.
Examines major cultural trends in Europe since French Revolution. Major themes include romanticism; socialism; Marxism; and social effect of modernization, science, and societies. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 460: Modern Iran. 3 credits.
Modern Iran, from 1800 to present, in context of several broad themes: institutional structure of state; role of great powers in Iran and Iranian response to economic, military, technological, and ideological challenge posed by West; interaction of religion and other ideologies and politics; economic development and impact on politics and society; and ways historians have sought to understand and interpret modern Iranian history. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 461: Arab-Israeli Conflict. 3 credits.
Overview of history of Arab-Israeli conflict. Examines conflict from various perspectives: over land and between competing nationalisms and identities; in terms of national interests of various states, including Israelis and Palestinians as well as other Arab governments and great powers; and in terms of peace making and conflict resolution. Some knowledge of history of Middle East since World War I strongly advised. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

HIST 462: Women in Islamic Society. 3 credits.
Surveys history of women in Islamic society from rise of Islam to present day. Examines historical processes that affected role and status of women in society, and specific topics around which issues of gender status and identity coalesced, especially in modern period. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture
HIST 465: The Middle East in the 20th Century. 3 credits.
Political, social, and cultural history of Middle East since World War I. Emergence of Israel, Arab nationalism, and political and economic influence of Middle East in world affairs. Offered by History & Art History (p. 381). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Recommended Prerequisite: 6 hours of HIST or permission of Instructor.

Schedule Type: Lecture

HIST 480: Alexander the Great. 3 credits.
Rise of Persia, Persian wars with Greece, subjugation of Greece by Philip II of Macedonia, and Alexander the Great and his conquest of Persian empire. Offered by History & Art History (p. 381). May not be repeated for credit.

Schedule Type: Lecture

HIST 490: Honors Directed Readings. 3 credits.
Students must have completed at least one course in the field, or with the professor, chosen for these honors courses. Notes: The 3 reading credits should be taken before 3 research credits, though they may be taken concurrently. Either may be taken concurrently with HIST 499. Linked, individualized courses, usually given by same instructor. Involves directed readings. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Acceptance into the departmental honors program and permission of instructor.

Schedule Type: Independent Study

HIST 491: Honors Directed Research. 3 credits.
Students must have completed at least one course in the field, or with the professor, chosen for these honors courses. Notes: The 3 reading credits should be taken before 3 research credits, though they may be taken concurrently. Either may be taken concurrently with HIST 499. Linked, individualized courses, usually given by same instructor. Culminates in research paper related to subject of readings. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Acceptance into the departmental honors program and permission of instructor.

Schedule Type: Independent Study

HIST 498: Directed Readings/Research in History. 1-3 credits.
Readings, research conducted on individual basis in consultation with instructor. Notes: Only 3 credits may be applied to credits for degree. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: History majors with 90 credits and Permission of Instructor.

Schedule Type: Independent Study

HIST 499: RS: Senior Seminar in History. 3 credits.
Research on specialized historical topic culminating in seminar paper and oral presentation. Synthesis course; students expected to integrate knowledge and skills acquired in Mason Core courses. Notes: Subject determined by instructor. Student may present no more than 3 credits for graduation credit. Must receive passing grade to graduate with BA in history. Offered by History & Art History (p. 381). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Specialized Designation: Research/Scholarship Intensive, Writing Intensive in the Major

Recommended Prerequisite: History majors with 90 credits

Registration Restrictions:
Required Prequisites: (HIST 300C), (ENGH 302C, ENGL 302C, HNRS 110C or 210C).
C Requires minimum grade of C.

Enrollment is limited to students with a major in History.

Schedule Type: Seminar

500 Level Courses

HIST 510: Approaches to Modern World History. 3 credits.
Introduces historical study of world beyond Europe and United States. Students read major theoretical works and case studies of particular regions. Examines imperialism, national identity, and various forms of popular resistance; familiarizes students with range of scholarly approaches, including world systems theory and subaltern studies. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Admission to graduate program in history.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 525: Problems in Latin American History. 3 credits.
Analysis of selected problems. Emphasizes reading and discussion of historical interpretations, and development of bibliography. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 535: Problems in Comparative World History. 3 credits.
Investigates selected problems in global and comparative history, covering multiple countries or world regions. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 555: Problems in Asian History. 3 credits.
Discussion of readings and historical interpretations and compilation of a comprehensive bibliography on given theme. Notes: Topics announced by instructor. May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 565: Problems in African History. 3 credits.
Analysis of selected problems in African history. Emphasis on reading and discussion of historical interpretations and development of bibliography. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

600 Level Courses

HIST 601: Themes in U.S. History I. 3 credits.
Survey of U.S. History prior to 1877. Designed for individuals entering the graduate program who need to strengthen preparation in area, or who seek to enhance knowledge of latest interpretations in field. Stresses factual knowledge and its interpretation. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 602: Themes in U.S. History II. 3 credits.
Continuation of HIST 601. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 605: Themes in European History I. 3 credits.
Survey of European history from 1500 to 1815. Designed for individuals entering graduate program who need to strengthen preparation in this
area, or who seek to enhance knowledge of latest interpretations in field. Stress factual knowledge and its interpretation. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 606: Themes in European History II. 3 credits.
Survey of European history from 1815 to present. Designed for individuals entering graduate program who need to strengthen preparation in this area, or who seek to enhance knowledge of latest interpretations in field. Stress factual knowledge and its interpretation. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 610: The Study and Writing of History. 3 credits.
Methodology of the historian including techniques of research, use of documentation and other sources, development of bibliography, and synthesis of material. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 613: The Colonial Origins of American Society. 3 credits.
Study of evolution of elements in colonial society that affect contemporary American institutions and patterns of behavior. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 615: Problems in American History. 1-6 credits.
Readings and discussion of bibliographies, interpretations, and research trends in topics selected by instructor. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 616: U.S. Westward Movement. 3 credits.
Investigates continuity and change in American West. Topics include economic development, ethnicity, rural and urban life, and role of federal government. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 617: Topics in the American Civil War Era. 3 credits.
Joint project of instructor and students into various aspects of common topic in Civil War era, with emphasis on historiography and historical method. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 618: The Age of Jackson, 1815-1854. 3 credits.
Survey of social, cultural, intellectual, economic, and political changes in United States during period of rapid growth and expansion. Topics include second-party system; growth of sectionalism, nationalism, and expansionism; industrialization and spread of market economy; rise of romantic reform and evangelical religion; and growth of abolitionist and proslavery movements. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 620: Development of the Early Republic, 1783-1815. 3 credits.
Investigates breakdown of Confederation, Constitutional Convention, and role of revolutionary ideology of republicanism. Discusses leadership and policies of republic in hostile international context. Students read extensively in monographic literature and prepare research paper. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 622: U.S. South Since 1865. 3 credits.
Provides a graduate level survey of the major themes and trends in the historical literature on the U.S. South since 1865. Topics covered include Jim Crow, the New Deal, the long Civil Rights movement, the rise of the Sunbelt, and the changing role of the South in national politics. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 623: Recent U.S. History, 1945 to Present. 3 credits.
Selected political, social, economic, diplomatic, and cultural forces that shaped the post-World War II American experience. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 626: Approaches to American Culture. 3 credits.
Focuses on various approaches historians have taken to history of American culture: questions they asked, assumptions they made, disciplinary tools they used, and types of materials they analyzed. Concentrates on patterns of culture, and what they say about American past and present. Offered by History & Art History (p. 381). May not be repeated for credit.
HIST 633: *Reconstruction*. 3 credits.
Examines panoply of political, social, economic, and constitutional concerns from 1863 to 1880, as North and South struggled over outcome of Civil War. Addresses political institutions and power in postwar North and South, and place of former slaves in society, politics, and economy. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Considers issues of United States between the two world wars. Explores various ways issues complemented and contradicted each other in rich and complex historical era. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 635: *Problems in European History*. 3 credits.
Investigates selected problems. Readings, discussions, development of bibliographies. Primary sources used where possible. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 636: *Political Culture in Twentieth-Century Germany and Austria: Continuities and Discontinuities*. 3 credits.
Recent interpretations of key political events of 20th century. Asks if there were fundamental continuities in structure of German and Austrian society that can be observed throughout the period under review. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: Baccalaureate degree in history or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Examines rise of "new imperialism" in Great Britain from 1870 to end of empire, and gradual formation of Commonwealth of Nations. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 639: *Society and Politics in Western Europe, 1750-1914*. 3 credits.
Focuses on changes in social conditions and ramifications in political life. Attention to urbanization of workers, changes in peasantry, growth of middle classes, decline of nobility, and major political developments and expansion of liberal reforms. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 640: *Metropolitan Cities of Europe in the Nineteenth and Twentieth Centuries*. 3 credits.
Studies individual cities, and investigates particular cities in depth. Considers economic, social, cultural, and political features of urban life. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 642: *Humanism and the Renaissance*. 3 credits.
The Renaissance as a unique period in European cultural history from ca. 1350 to 1520. Concentrates on Italian situation as standard, with consideration given to manifestations of Renaissance in northern Europe, especially Germany, until Reformation. Focuses on recent studies of political, social, intellectual, and religious changes. Students write class reports and a larger bibliographic paper. Offered by History & Art History (p. 381). May not be repeated for credit.
Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**HIST 643: Religion and Society in the Reformation Era.** 3 credits.
Overview of most recent historical work on social and cultural history of premodern West, ca. 1400 to 1800. Uses theoretical approaches and empirical methodologies of other disciplines, especially social anthropology, sociology, and literary theory, to shed new light on popular culture, class, manners, taste, rituals, religion, language, gender, and the state. Formulates new topics of research and poses new questions, and suggests new approach to more traditional topics such as politics, religion, and ideas. Offered by History & Art History (p. 381). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**HIST 644: Society and Culture in Early Modern Europe.** 3 credits.
Overview of most recent historical work on social and cultural history of premodern West, ca. 1400 to 1800. Uses theoretical approaches and empirical methodologies of other disciplines, especially social anthropology, sociology, and literary theory, to shed new light on popular culture, class, manners, taste, rituals, religion, language, gender, and the state. Formulates new topics of research and poses new questions, and suggests new approach to more traditional topics such as politics, religion, and ideas. Offered by History & Art History (p. 381). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**HIST 645: The Russian Revolution and the Origins of the Soviet State.** 3 credits.
Period between 1890 and 1924 with concentration on sources of Bolshevism, problems of old regime as they led to revolutions of 1905 and 1917, and establishment of new regime and its survival in environment of foreign and civil war. Offered by History & Art History (p. 381). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**HIST 646: Religion in North America to 1870.** 3 credits.
Dimensions of religion and religious experience in early America, from the beginnings of European settlement into the mid-to-late nineteenth century. Offered by History & Art History (p. 381). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

**HIST 647: U.S. Religion since 1870.** 3 credits.
Dimensions of religion and religious experience in the United States, from the mid-to-late nineteenth century through recent decades. Offered by History & Art History (p. 381). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

**HIST 648: Topics in U.S. Religious History.** 3 credits.
Readings and discussion of bibliographies, interpretations, and research trends in U.S. religious history. Topics selected by the instructor. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

**HIST 675: Problems in Military History.** 3 credits.
Readings and discussion of bibliographies, interpretations, and research trends in military history topics selected by the instructor. Notes: May be repeated when topic is different. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 677: The Vietnam War. 3 credits.
Considers the causes, major events, and historiographic debates of America’s Vietnam War including the war’s antecedents in Vietnamese history, American decisions for war, strategy and major military engagements, the American antiwar movement, and diplomacy and peace talks. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 679: War and Remembrance. 3 credits.
Considers various approaches to the study of public or collective memory as it pertains to war, in particular how people around the world have constructed memories of war and how those memories have been expressed in literature, popular culture, memorials, and commemorative activities. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 680: Introduction to Digital Humanities. 3 credits.
Introduces students to key concepts, tools, and practices of digital humanities. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 685: Topics in Applied History. 3 credits.
Addresses specific topics in applied history selected by the instructor, with emphasis on combining theoretical analysis and readings with attention to practices and skills of applied history. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 15 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 688: Topics in History and New Media. 3 credits.
Covers specific topics in history and new media selected by the instructor, with an emphasis on combining theoretical analysis and readings with hands-on projects and problem-solving. Notes: May be repeated for credit when topic is different. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 689: Teaching and Learning History in the Digital Age. 3 credits.
Examines what happens when instructors integrate new media technology into history classroom. Includes consideration of learning theory, new media theory, and an in-depth examination of state-of-the-art in practice. In the final third of semester, students produce practicum that is either working history teaching web site or concept paper for site, depending on student’s degree of technical sophistication. No prior facility with information technology required. Course appropriate for graduate students working as teachers or planning career in teaching. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 690: The Administration of Archives and Manuscripts. 3 credits.
Introduces principles and practices of managing records and administering archival and manuscript collections, public and private. Designed for graduate students with special interest in historical sources as well as for those specializing in applied history. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

HIST 691: Museum Studies. 3 credits. General introduction to museums of history and museum studies in the United States, intended for interested citizen as well as for assistance to students in course and career choices. Explores development, present state, and future possibilities of U.S. Museums, with some reference to international developments. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 hours of U.S. HIST or permission of department.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 692: Historical Editing. 3 credits. Introduces fundamentals of historical editing of documents, including microform, word processing, and computer techniques. Designed for those seeking introduction to various areas of applied history, and those intending to edit historical documents for publication. Offered by History & Art History (p. 381). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 693: Historic Preservation. 3 credits. General introduction to historic preservation in the United States, intended for interested citizen and to assist students in course and career choices. Explores development, present state, and future possibilities of historic preservation in the United States, with some reference to international aspects of preservation. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: 6 credits of U.S. history or permission of department.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 694: Digital Public History. 3 credits. Introduces students to the theories and methods central to doing digital public history, and develops the skills necessary for students to plan and execute their own projects. Topics include digital strategy development, developing effective digital exhibits, describing and publishing digital collections, mobile computing and curating the landscape, creating participatory history projects, and effective methods for evaluating digital public history work. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: HIST 696 or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 695: History Symposium. 1-3 credits. Subject of academic and community interest pursued through discussions and lectures by distinguished guest instructors. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: HIST 696 or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

HIST 696: Clio Wired: An Introduction to History and New Media. 3 credits. Students with limited computer competency should consult department before enrolling. Introduces changes that new media and technologies are bringing to how we research, write, present, and teach about the past. Students explore theoretical and historical issues as well as learn hands-on skills in digital history. Notes: Students with limited computer competency should consult with department before enrolling. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: HIST 696 or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

HIST 697: Creating History in New Media. 3 credits. Seminar; students create original historical projects in digital media. Offered by History & Art History (p. 381). May not be repeated for credit.

Recommended Prerequisite: HIST 696 or permission of instructor.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type: Seminar**

**HIST 698: Programming in History and New Media.** 3 credits.
Provides students with advanced conceptual and technical skills to enhance historical practice and research in the digital arena. Focuses on in-depth analysis of theoretical frameworks and on developing proficiency in a variety of programming languages and tools for humanistic and historical research. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** HIST 696, 697, or literacy in new media.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type: Seminar**

**700 Level Courses**

**HIST 711: Research Seminar in U.S. History.** 3 credits.
Research in specialized topics using primary sources. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** HIST 610 or permission of department.

**Registration Restrictions:**
Enrollment limited to students with a major in Cultural Studies, Education (Community College) or History.
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type: Seminar**

**HIST 731: Research Seminar in European History.** 3 credits.
Research in specialized topics using primary sources. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** HIST 610 or permission of department.

**Registration Restrictions:**
Enrollment limited to students with a major in Cultural Studies, Education (Community College) or History.
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type: Seminar**

**HIST 751: Research Seminar in Comparative World History.** 3 credits.
Research seminar requiring comparative research and analysis. Organized around significant topic or theme in field of world history. Notes: Topics vary from year to year. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** Admission to graduate program in history and 3 hours of applied history.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Internship

**HIST 795: Practicum in Digital History. 3 credits.**
Exposes students to various projects in digital history through work and study at the Center for History and New Media. All placements must be approved by CHNM to ensure the suitability of students and projects. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in History.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

**HIST 796: Directed Readings. 1-6 credits.**
Independent reading on topic agreed to by student and faculty member. Offered by History & Art History (p. 381). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

**HIST 798: Directed Research and Writing in History. 3 credits.**
Intended for students in department’s predoctoral track who are not writing master’s thesis. Goal is to produce substantial and original contribution to historical knowledge on model of article in scholarly journal. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MA program, HIST 610, and research seminar.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

**HIST 799: Thesis. 1-6 credits.**
Master’s thesis research and writing under direction of faculty committee. Offered by History & Art History (p. 381). May be repeated within the degree.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:**

**800 Level Courses**

**HIST 801: New Developments in History. 3 credits.**
Survey of current developments in historical analysis and methodology. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** Admission to doctoral program.

**Schedule Type:**

**HIST 803: Doctoral Readings for Major Field. 3 credits.**
Independent readings for PhD students on topic agreed on by student and instructor, taken in preparation for completing major field exam. Should be broadly comprehensive of field, and cover major historical themes and historiographical debates. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 20 credits.

**Recommended Prerequisite:** Admission to doctoral program.

**Registration Restrictions:**
Enrollment is limited to students with a major in History.

Enrollment is limited to Graduate level students.

**Schedule Type:**

**HIST 804: Doctoral Readings for Minor Field. 3 credits.**
Independent readings for PhD students on topic agreed on by student and instructor, taken in preparation for completing minor field statement. Designed to help student master literature of subfield that is subject of field statement. Offered by History & Art History (p. 381). May be repeated within the term for a maximum 20 credits.

**Recommended Prerequisite:** Doctoral standing.

**Registration Restrictions:**
Enrollment is limited to students with a major in History.

Enrollment is limited to Graduate level students.

**Schedule Type:**

**HIST 810: History Doctoral Colloquium. 1 credit.**
Introduces array of scholars and scholarship through discussions of innovative historical events, important theories, and significant methodological breakthroughs in history. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** Doctoral standing.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:**

**HIST 811: Doctoral Research Seminar. 3 credits.**
Students pursue research projects in their areas of specialization. Offered by History & Art History (p. 381). May not be repeated for credit.

**Recommended Prerequisite:** Doctoral standing.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:**

**900 Level Courses**

**HIST 998: Doctoral Dissertation Proposal. 1-6 credits.**
Work on research proposal that forms basis for doctoral dissertation. Offered by History & Art History (p. 381). May be repeated within the degree.
Recommended Prerequisite: Advancement to candidacy.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

**HIST 999: Doctoral Dissertation Research.** 1-12 credits.
Doctoral dissertation research and writing under direction of student’s dissertation committee. Offered by History & Art History (p. 381). May be repeated within the degree.

Recommended Prerequisite: Completion of HIST 998.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

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**Honors Program (HNRS)**

**100 Level Courses**

**HNRS 108: Introduction to Research Methods I.** 3 credits.
Introduces students to a wide range of disciplinary research practices. Students learn how to identify a topic and pose a focused research question, use information technology to find relevant sources, and develop a research proposal. Notes: Students must complete HNRS 109, which has a prerequisite of HNRS 108, to fulfill the equivalent of HNRS 110. Offered by Honors Program. May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Lecture

**HNRS 109: Introduction to Research Methods II.** 3 credits.
Students continue to learn a wide range of disciplinary research practices. Students learn how to pose a research question, analyze pertinent evidence, and write and speak clearly by participating in a scholarly conversation. Offered by Honors Program. May not be repeated for credit. Equivalent to HNRS 110.

Recommended Prerequisite: HNRS 108.

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Lecture

**HNRS 110: Research Methods.** 4 credits.
Introduces students to a wide range of disciplinary research practices. Students learn how to pose and pursue a focused research question, use information technology to find relevant sources, analyze pertinent evidence, and write and speak clearly by participating in scholarly conversation. Offered by Honors Program. May not be repeated for credit. Equivalent to HNRS 109.

Specialized Designation: Scholarly Inquiry

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Lecture

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**200 Level Courses**

**HNRS 211: Mentorship in Undergraduate Research.** 2 credits.
Students learn to use their own research experience as a tool to guide beginning scholars by mentoring students in Honors 110: Research Methods, through workshops and oral presentations. Offered by Honors Program. May be repeated within the degree for a maximum of 6 credits.

Recommended Prerequisite: Grade of C or better in HNRS 109, HNRS 110, HNRS 210, or HNRS 302.
Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Seminar

HNRS 230: Cross-Cultural Perspectives (Topic Varies). 3 credits.
Course topic varies by semester. Enables students to broaden cultural horizons and understand human behavior by comparative studies of societies. Offered by Honors Program. May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (HNRS 110C, 302C or 210C).
C Requires minimum grade of C.

Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Lecture

HNRS 240: Reading the Past (Topic Varies). 3 credits.
Course topic varies by semester. Considers constructions of historical narratives and their context in major world historical events by examining significant current topics such as revolution, race, empire, and religion over time. Considers how public narratives about history are constructed. Students will communicate their understanding of multiple historical narratives through written, oral and digital means. Offered by Honors Program. May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (HNRS 110C, 210C, 302C or 109C).
C Requires minimum grade of C.

Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Independent Study

HNRS 300: Advanced Study Abroad. 6 credits.
Offers students in the Honors College the opportunity to take advanced study abroad courses that focus on in-depth research or engaged learning. Offered by Honors Program. May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Grade of C or better in HNRS 109, HNRS 110, HNRS 210, or HNRS 302.

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Independent Study

HNRS 302: Research Methods II. 3 credits.
Introduces students transferring into the Honors College to a wide range of disciplinary research practices. Students learn how to choose and focus a research question, find and analyze sources, organize evidence in an essay shaped by an original thesis, write clearly, and address an audience of scholars. Offered by Honors Program. May not be repeated for credit. Equivalent to HNRS 210.

Specialized Designation: Scholarly Inquiry

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Seminar

HNRS 310: Honors College Connects I. 0 credits.
The first of a two-semester course in which students work in groups on long-term service projects coming from community nonprofit organizations. Offered by Honors Program. May be repeated within the degree for a maximum credits.

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Independent Study

HNRS 311: Honors College Connects II. 0 credits.
A continuation of HNRS 310, culminating in student presentations of their results to the community nonprofit organizations and constituents of the Honors College. Offered by Honors Program. May be repeated within the degree for a maximum credits.

Recommended Prerequisite: Grade of C or better in HNRS 109, HNRS 110, HNRS 210, or HNRS 302.

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Independent Study

HNRS 312: RS: Research in the Public Sphere. 3 credits.
Building on projects begun in HNRS 310, students use research/scholarship skills to address community problems presented by nonprofit organizations. Designated as a research and scholarship intensive course. Offered by Honors Program. May be repeated within the degree for a maximum 6 credits.

Recommended Designation: Research/Scholarship Intensive

Recommended Prerequisite: Grade of C or better in HNRS 109, HNRS 110, HNRS 210, or HNRS 302.

Recommended Corequisite: HNRS 311 or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Seminar

HNRS 330: Research, Technology, and Online Community. 3 credits.
Student applicants selected to participate in the RTOC project will plan and create new media artifacts or learning objects in structured collaboration with university stakeholders and mentors. Through this process, they will deepen their understanding of the research process, learn to appreciate the institutional and social dimensions of undertaking and teaching research, and learn to communicate more effectively about research. Offered by Honors Program. May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Grade of C or better in HNRS 109, HNRS 110, HNRS 210, or HNRS 302.

Registration Restrictions:
Honors College. Designated as a research and scholarship intensive Directed research on topic agreed on by student, advisor, and the
HNRS 411:
Schedule Type: Independent Study
HNRS 353: Technology in the Contemporary World (Topic Varies). 3 credits.
Course topic varies by semester. Critically analyzes emergence and impact of specific technologies on contemporary cultures and the core concepts surrounding these technologies, including legal, social, ethical issues and the technology’s relationship to core information security issues. Students develop a significant research project employing multiple disciplinary perspectives. This project will be communicated ethically and with cultural awareness through written, oral and digital means, showing a critical understanding of technologies and their impact. Offered by Honors Program. May not be repeated for credit.

Mason Core: Synthesis (p. 135)
Registration Restrictions: Required Prerequisites: (HNRS 110 C, 210 C, 302 C or 109 C).
C Requires minimum grade of C.
Enrollment limited to students with the Honors College (Business), Honors College (STEM). or Honors College. attributes.

Schedule Type: Lecture

400 Level Courses
HNRS 400: Honors College Internship. 6 credits.
Offers students in the Honors College the opportunity to take an internship that focuses on research or engaged learning. Students develop individual contracts defining learning and competencies they plan to gain from the experience. Pre-internship proposal and final reflection papers required. Notes: Contact the Honors College a semester before the internship for the application process. Offered by Honors Program. May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: HNRS 109, 110, 210 or 302.
Registration Restrictions: Enrollment limited to students with the Honors College (Business), Honors College (STEM). or Honors College. attributes.

Schedule Type: Internship
HNRS 410: Thesis Proposal. 3 credits.
Provides guidance in research methods to students writing an honors thesis proposal as well as workshop to critique research in progress and to understand the research process in multiple disciplines. Offered by Honors Program. May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Research Associated
Recommended Prerequisite: Grade of C or better in HNRS 109, HNRS 110, HNRS 210, or HNRS 302.
Registration Restrictions: Enrollment limited to students with the Honors College (Business), Honors College (STEM). or Honors College. attributes.

Schedule Type: Seminar
HNRS 411: RS: Honors College Thesis. 3 credits.
Directed research on topic agreed on by student, advisor, and the Honors College. Designated as a research and scholarship intensive course. Offered by Honors Program. May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Research/Scholarship Intensive
Recommended Prerequisite: Grade of C or better in HNRS 109, HNRS 110, HNRS 210, or HNRS 302.

Registration Restrictions: Enrollment limited to students with the Honors College (Business), Honors College (STEM). or Honors College. attributes.

Schedule Type: Independent Study
HNRS 430: Multidisciplinary Challenges in Professional Environments. 3 credits.
Students work to solve a problem or challenge currently faced by an Honors College community partner which is identified in consultation with the Fairfax County Economic Development Authority. Provides students with opportunities to synthesize knowledge and practices developed in prior courses and co-curricular experiences; develops the skills and strategies necessary for working effectively in multidisciplinary teams. Offered by Honors Program. May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: HNRS 109, 110, 210, 302.

Registration Restrictions: Enrollment limited to students with the Honors College (Business), Honors College (STEM). or Honors College. attributes.

Schedule Type: Seminar
HNRS 490: Undergraduate Apprenticeship. 1-3 credits.
Independent work with a faculty mentor on an inquiry-based project involving research, creative activities, or teaching and mentoring. Notes: This course is open only to undergraduates who have been accepted to the Undergraduate Apprenticeship Program. Offered by Honors Program. May not be repeated for credit.

Recommended Prerequisite: 45 credits and acceptance into the Undergraduate Apprenticeship Program.

Schedule Type: Independent Study

Honors Program (Science/Math) (HNRT)

100 Level Courses
HNRT 125: A Liberal Arts Approach to Calculus. 3 credits.
Assumes understanding of basic algebra and functions. Explores various mathematical models and develops concepts and applications of limits and derivatives. Offered by College of Science (p. 593). May not be repeated for credit.

Mason Core: Quantitative Reasoning (p. 135)
Registration Restrictions: Enrollment limited to students with the Honors College (Business), Honors College (STEM). or Honors College. attributes.

Schedule Type: Lecture
200 Level Courses

HNRT 225: *Applied Calculus*. 3 credits.
Theory and applications of calculus for non-STEM students. Assumes a previous introductory course in calculus. Topics include exponential models in the life sciences and business, theory of integration and may include improper integrals, infinite series, differential equations, or probability. Offered by College of Science (p. 593). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Lecture

HNRT 226: *Topics in Quantitative Analysis*. 3 credits.
Studies selected topics of special interest to honors students with suitable preparation. Notes: For students who have taken calculus in high school. HNRT 226 is an alternative to HNRT 125. Offered by College of Science (p. 593). May not be repeated for credit.

Recommended Prerequisite: Calculus in high school.

Registration Restrictions:
Enrollment limited to students with the Honors College (STEM), or Honors College. attributes.

Schedule Type: Lecture

HNRT 227: *Scientific Thought and Processes I*. 4 credits.
Explores and integrates principles of classical and modern science through study of such topics as cosmology, evolution, ecology, mechanics, relativity, quantum physics, and the environment. Notes: Includes a weekly lab session. Offered by College of Science (p. 593). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Laboratory, Lecture

HNRT 228: *Scientific Thought and Processes II*. 4 credits.
Explores and integrates principles of classical and modern science through study of such topics as cosmology, evolution, ecology, mechanics, relativity, quantum physics, and the environment. Notes: Includes a weekly lab session. Offered by College of Science (p. 593). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Specialized Designation: Green Leaf Course

Recommended Prerequisite: HNRT 227

Registration Restrictions:
Enrollment limited to students with the Honors College (Business), Honors College (STEM), or Honors College. attributes.

Schedule Type: Laboratory, Lecture

Human Development and Family Science (HDFS)

200 Level Courses

Examines how individuals and families function and develop over the lifespan. Uses a multidisciplinary approach to integrate theories of family science and human development emphasizing the role of contextual factors in contemporary families’ lives. Explores the impact of gender, socioeconomic, race/ethnicity, culture, and immigrant status on human development and family relationships. Introduces a basic model of scientific inquiry and theorizing. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

Introduces personal and family financial planning and resource management throughout the lifespan. Integrates theories of family finance and resource management using a multidisciplinary approach. Emphasizes role of contextual factors in contemporary families’ financial lives. Explores impact of gender, socioeconomic, race, ethnicity, and culture on family finance and resource management. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

300 Level Courses

HDFS 300: *Individual and Family Services Delivery*. 3 credits.
Overview of human services delivery with a focus on families. Explores the historical and social contexts as well as the theoretical orientations of systems that shape delivery of services to families. Examines: 1) economic and cultural barriers that prevent families from gaining access to services; 2) social policy surrounding services for families; 3) ethical and legal issues in family services. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: HDFS 200.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Human Devl and Family Science.

Schedule Type: Lecture

HDFS 301: *The Hospitalized Child and Family*. 3 credits.
Examines the philosophy, purposes, and concepts of Child Life Specialists. Explores developmental and psychological needs of hospitalized children, their families, and those who provide services to children. Examines the impact of illness and illness-related stressors on the dynamics of the family and strategies for coping. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: HDFS 200 or permission from instructor.

Schedule Type: Lecture

400 Level Courses

HDFS 400: *Advanced Family Processes*. 3 credits.
Examines family system dynamics and processes, with an emphasis on cultural and contextual factors that influence family functioning and well-being over the lifespan. Examines both healthy and dysfunctional family processes (including abuse, neglect, and family violence). Explores
evidence-based practices and interventions that promote family health, resilience, and well-being. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** HDFS 200 or permission from instructor.

**Schedule Type:** Lecture

**HDFS 401:** *Family Law and Public Policy.* 3 credits.
Examines contemporary family life and the impact of government laws, policies, and programs on families over time and across contexts and cultures. Explores the intended and unintended consequences of policies for diverse families across a variety of policy matters, from anti-poverty and social welfare policies to health and environmental policies. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** HDFS 200 or permission of instructor.

**Schedule Type:** Lecture

**HDFS 498:** *Internship and Analysis in Human Development and Family Science.* 3 credits.
First course in a two-course series that supports students in their internship and in transitioning from student to professional. Enables students to discuss work-related experiences within the context of developmental and family theories and research. Fosters and promotes professional development through class and small group discussions, activities, lectures, guest speakers, and practical assignments. Notes: Students will have 135 contact hours for the semester; however, 125 will be in the field and 10 in the classroom. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** HDFS 300.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Human Devl and Family Science.

**Schedule Type:** Internship

**HDFS 499:** *Advanced Internship & Analysis in Human Development and Family Science.* 3 credits.
Accompanies the second semester of the required internship experience. Supports students in the development and implementation of a program for staff and/or clients at internship site. Examine internship-related experiences within the context of developmental and family theories and empirical research. Contemplate and prepare for the transition to professional. Notes: Students will have 135 contact hours for the semester; however, 125 will be in the field and 10 in the classroom. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** HDFS 498.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Human Devl and Family Science.

**Schedule Type:** Seminar

### Information Security Assurance (ISA)

#### 500 Level Courses

**ISA 562:** *Information Security Theory and Practice.* 3 credits.
A technical introduction to the theory and practice of information security, which serves as the first security course for the MS-ISA degree, is required as a prerequisite for all subsequent ISA courses (at the 600 and 700 levels) and subsumes most topics covered by the CISSP examination. Also serves as an entry-level course available to non-ISA students, including MS-CS, MS-IS, and MS-SWE students. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** INFS 501, 515, 519, and SWE 510, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**ISA 564:** *Information Security Theory and Practice.* 3 credits.
Provides hands-on experience in configuring and experimenting with commodity-networked systems and security software in a live laboratory environment, with the purpose of understanding real-world security threats. Takes both offensive and defensive approaches and exposes students to a variety of real-world attacks, including viruses, worms, rootkits, and botnets. Possible mitigation and defending mechanisms, such as firewalls and intrusion detection software, also covered. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** ISA 562 and CS 531 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Laboratory

#### 600 Level Courses

**ISA 650:** *Security Policy.* 3 credits.
Focuses on security policy and its management for information systems having national and international connectivity. Issues include legal, international, cultural, and local factors. Students are expected to participate regularly in presenting material, in discussion of recent security issues, and by writing short papers on major current issues. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: ISA 562\textsuperscript{B}. \textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ISA 652: Security Audit and Compliance Testing. 3 credits.

Presents the fundamental concepts of the IT-security audit and control process that is being conducted in a plethora of environments, including government, the financial industry, and the healthcare industry. The goal of this course is to enable the students to structure and perform audits based on the specifications of Sarbanes-Oxley, HIPAA, and FISMA audit programs. Covers all the CISA certification requirements in depth. Students completing the course are encouraged to attempt the certification exam on their own. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: ISA 562\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ISA 656: Network Security. 3 credits.

An in-depth introduction to the theory and practice of network security. It assumes basic knowledge of cryptography and its applications in modern network protocols. Studies firewalls architectures and virtual private networks and provides deep coverage of widely used network security protocols such as SSL, TLS, SSH, Kerberos, IPSec, IKE, and LDAP. It covers countermeasures to distributed denial of service attacks, security of routing protocols and the Domain Name System, e-mail security and spam countermeasures, wireless security, multicast security, and trust negotiation. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (ISA 562\textsuperscript{B} and INFS 612\textsuperscript{B}) or CS 555\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ISA 674: Intrusion Detection. 3 credits.

Studies methodologies, techniques, and tools for monitoring events in computer system or network, with the objective of preventing and detecting unwanted process activity and recovering from malicious behavior. Topics include types of threats, host-based and network-based information sources, vulnerability analysis, denial of service, deploying and managing intrusion detection systems, passive versus active responses, and designing recovery solutions. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: ISA 562\textsuperscript{B} and 656\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ISA 681: Secure Software Design. 3 credits.

Theory and practice of software security, focusing in particular on some common software security risks, including buffer overflows, race conditions and random number generation, and the identification of potential threats and vulnerabilities early in the design cycle. Emphasis
is on methodologies and tools for identifying and eliminating security vulnerabilities, techniques to prove the absence of vulnerabilities, and ways to avoid security holes in new software and on essential guidelines for building secure software. Explores how to design software with security in mind from the ground up and integrate analysis and risk management throughout the software life cycle. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to SWE 681, SWE 781.

Required Prerequisite: SWE 619.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
ISA 697: Topics in Information Security. 1-6 credits.
Special topics in information security and assurance not occurring in regular ISA sequence. Notes: May be repeated for credit when distinct offerings of course differ in subject. Offered by Computer Science (p. 983). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
ISA 764: Security Experimentation. 3 credits.
Teaches how to conduct security experimentations and empirically demonstrate, validate, and evaluate security vulnerabilities, exploits, and defense mechanisms. By the end of the course, students will gain a deeper understanding and first-hand experience on capturing packets of interests from both wired and wireless networks, and replying interested network flows and how shellcode various buffer overflows attacks, worms, spyware, rootkits, botnets, anonymous communication and traceback mechanisms work. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: ISA 564<sup>B-</sup> and 656<sup>B-</sup>.
<sup>B-</sup> Requires minimum grade of B-.

Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
ISA 785: Research in Digital Forensics. 3 credits.
Focuses on research-related aspects of digital forensics including open problems in digital forensics, countermeasures against digital forensics, and fundamental and practical limitations of current digital forensics techniques. Also covers currently established techniques and tools for digital forensics as well as common legal and ethical issues. Offered by Computer Science (p. 983). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (ISA 562<sup>B-</sup> and INFS 612<sup>B-</sup>) or CS 558<sup>B-</sup>.
<sup>B-</sup> Requires minimum grade of B-.

Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
ISA 796: Directed Readings in Information Security. 3 credits.
Research and analysis of contemporary problem in information security. Notes: Prior approval required by faculty sponsor who supervises student's work. To register, students must complete independent study form available in department office. It must be initialed by faculty sponsor and approved by department chair. Written report also required. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Graduate standing in information security and assurance, with at least 12 prior credits in MS.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Research

ISA 797: Advanced Topics in Information Security. 3 credits.
Special advanced topics not occurring in regular ISA sequence. Notes: May be repeated for credit when distinct offerings of course differ in subject. Offered by Computer Science (p. 983). May be repeated within the term for a maximum 9 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Recommended Prerequisite: 18 credits applicable toward MS.

ISA 798: Research Project. 3 credits.
Research project chosen under guidance of full-time graduate faculty member, resulting in written technical report. Notes: Prior approval required by faculty sponsor who supervises student's work. To register, students must complete independent study form available in department office. It must be initialed by faculty sponsor and approved by department chair. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: 18 credits applicable toward MS.

ISA 799: Thesis. 1-6 credits.
Original or expository work chosen and completed under supervision of graduate faculty member, which results in technical report accepted by three-member faculty committee. Report must be defended in oral presentation. Notes: To register, students must complete independent study form available in department office. It must be initialed by faculty sponsor and approved by department chair. Offered by Computer Science (p. 983). May be repeated within the degree.

Recommended Prerequisite: 18 credits applicable toward MS or permission of instructor.

Information Systems (INFS)

800 Level Courses

ISA 862: Models for Computer Security. 3 credits.
This class will be focused on current research in Security with emphasis in Network and Software Security. Notes: May be repeated with change in topic. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisite: ISA 562B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

ISA 863: Advanced Topics in Computer Security. 3 credits.
Current topics of advanced research. Content varies depending on faculty interests, research developments, and student demand. Requires substantial student participation. May include formal models for computer security, multilevel data models, multilevel database management system architectures, secure concurrency control protocols, distributed secure system architectures, integrity models and mechanisms, security policy, and requirements analysis. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisite: ISA 562B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate level students.

500 Level Courses

INFS 501: Discrete and Logical Structures for Information Systems. 3 credits.
Study of discrete and logical structures for information systems analysis and design including basic set theory and proof techniques, propositional and predicate logic, trees and graphs, finite state machines, formal languages and their relation to automata, computability and computational complexity, formal semantics-operational, axiomatic and denotational approaches. Notes: Credit cannot be applied to a graduate degree in the Volgenau School or the BS degree in computer science. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: Completion of 6 hrs of undergraduate mathematics.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**INFS 515: Computer Organization Course and Operating Systems.** 3 credits.
Computer hardware architecture concepts including number systems, machine representation of numbers, instruction set formats, addressing techniques, memory organization, internal processor structure and operation. Symbolic assembly language fundamental operating systems concepts; process synchronization and scheduling, interprocess communication, memory management, virtual memory, deadlocks, file I/O and disk management, and LINUX operating system case studies. Notes: Credit cannot be applied to a graduate degree in the Volgenau School or the BS degree in computer science. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to ECE 445.

**Recommended Prerequisite:** Undergraduate courses or equivalent knowledge in structured programming in a high-level language.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**INFS 519: Program Design and Data Structures.** 3 credits.
Study of the fundamentals of data structures and algorithms applied in programming solutions to application problems. The course stresses programming in a modern high-level language. Laboratory required. Notes: Credit cannot be applied to a graduate degree in the Volgenau School or the BS degree in computer science. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate courses or equivalent knowledge in structured programming in a high-level language.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

600 Level Courses

**INFS 612: Principles and Practices of Communication Networks.** 3 credits.
Introduces principles of computer networks and applications to Internet. Discusses details of layering, protocols, performance, resource allocation, management, security and other contemporary issues related to networks. Examples of course material are protocols such as HTTP(S), DNS, TCP/IP, RSVP, SNMP, algorithms such as Dijkstra's link state routing; and security measures such as firewalls and encryption, the principles behind them and analysis of performance. Notes: No substitutions can be made for this class. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** INFS 501, 515, 519, and SWE 510, or equivalent

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**INFS 614: Database Management.** 3 credits.
Introduces database systems, emphasizing study of database models and languages and practice of database design and programming. Topics include Entity-Relationship model, relational model and its formal query languages, SQL, theory of relational database design, and object-oriented and logic-based databases. Notes: Requires computing lab. No substitutions can be made for this class. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** INFS 501, 515, 519, and SWE 510, or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**INFS 622: Information Systems Analysis and Design.** 3 credits.
Integration of computing technologies, systems analysis, system design practices, and management criteria in the design of large-scale information management and decision-support systems. Includes cases, computing lab. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** INFS 501, 515, and 519, or equivalent

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture
INFS 623: Web Search Engines and Recommender Systems. 3 credits. Study of Web search engines and recommender systems. Topics to include classical information retrieval methods, Boolean retrieval systems, ranked retrieval, performance metrics, Web crawling, link analysis, overall search engine architecture, fundamentals and classification of recommender systems, learning user interests and object properties, and case studies. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: INFS 501, 515, 519, and SWE 510.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 640: Introduction to Electronic Commerce. 3 credits. Studies electronic commerce from both managerial and technical perspectives. Topics include e-commerce models and concepts; Internet and web protocols and infrastructure; e-commerce marketing and branding; security protocols and standards; e-commerce payment systems; and case studies of business-to-consumer, business-to-business, consumer-to-consumer, and e-government. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: INFS 501, 515, and 519; and SWE 510 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 697: Topics in Information Systems. 1-6 credits. Presents special topics in information systems not occurring in regular INFS sequence. Notes: May be repeated for credit when distinct offerings of course differ in subject. Offered by Computer Science (p. 983). May be repeated within the degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 740: Database Programming for the World Wide Web. 3 credits. Information systems accessible through web and Internet are becoming prevalent. Course focuses on technologies and industry standards for accessing and manipulating persistent data that are suitable for web applications. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: INFS 614.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 760: Advanced Database Management. 3 credits. Study of advanced database models and languages, database design theory, transaction processing, recovery, concurrency, distributed database, and security and integrity. Discusses recent developments and research directions. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: INFS 614.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 770: Knowledge Management for E-Business. 3 credits. Addresses knowledge management (KM) from managerial, technical viewpoints in context of large organizations doing business over web and Internet. Topics include KM life cycle for knowledge creation, aggregation, dissemination, and sharing; ontology modeling, design, and engineering; role of standards such as XML, RDF, web services, and semantic web for e-business; business rules and reasoning engines; and digital rights management for e-business. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: INFS 622 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
INFS 772: Intelligent Agents and the Semantic Web. 3 credits.
Course covers the role of intelligent agents in cooperating to access, harvest, sift and winnow information and knowledge from the semantic web. Topics include agent architectures, practical reasoning and deductive agents, beliefs-desires-intentions (BDI) framework for agent reasoning, commitments and actions; Semantic Web ontology languages, description logics, reasoning and rule languages; and agent communication languages, protocols and standards. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: INFS 614

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 774: Enterprise Architecture. 3 credits.
This course presents the basic concepts and methodologies for the discipline known as Enterprise IT Architecting within a framework, structure, and methodology. Enterprise IT Architecting is a necessary step for designing and developing a system of information systems. It includes the definition of the business, work, functional, information and technical perspectives. As such, it is the enabling approach for the system development process that builds complex information systems. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: INFS 622 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 776: Directed Readings in Information Systems. 3 credits.
Research and analysis of contemporary problem in information system development. Notes: To register, students must complete independent study form available in department office. It must be initialed by faculty sponsor and approved by department chair. Prior approval required by faculty sponsor who supervises student's work. Offered by Computer Science (p. 983). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: Graduate standing in information systems, with at least 12 prior credits in MS.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Research

INFS 797: Advanced Topics in Information Systems. 1-6 credits.
Special advanced topics not occurring in regular INFS sequence. Notes: May be repeated for credit when distinct offerings of course differ in subject. Offered by Computer Science (p. 983). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

INFS 798: Research Project. 3 credits.
Research project chosen under guidance of full-time graduate faculty member, resulting in written technical report. Notes: To register, students must complete independent study form available in department office. It must be initialed by faculty sponsor and approved by department chair. Prior approval required by faculty sponsor who supervises student's work. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: 18 credits applicable toward MS.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Thesis

INFS 799: Thesis. 1-6 credits.
Original or compilary work evaluated by a committee of three faculty members. Notes: To register, students must complete independent study form available in department office. It must be initialed by faculty sponsor and approved by department chair. Offered by Computer Science (p. 983). May be repeated within the degree.

Recommended Prerequisite: 18 credits applicable toward MS.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Thesis

Information Technology (IT)

100 Level Courses

IT 102: Discrete Structures. 3 credits.
Introduces ideas of high-level pseudocode and discrete structures. This course focuses on problem-solving, supporting both abstraction and modeling providing the foundation needed for programming. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (MATH 108*C or 113*C).
* May be taken concurrently.
+ Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 104: Introduction to Computing. 3 credits.
This course, using both lecture and laboratory practice, introduces students to basic computer concepts in hardware, software, networking, computer security, programming, database, e-commerce, decision support systems, and current developments in 3-D printing, virtualization, and Siri-like systems. Additional lectures examine social, legal, ethical issues including privacy, intellectual property, health concerns, green computing, and accessibility. Students learn techniques to search, evaluate, validate, and cite information found online. Hands-on lab includes spreadsheets, databases, presentation, HTML 5, CSS, cybersecurity, blogs, wiki, and mobile app development. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to IT 103.

Mason Core: Information Technology: With Ethics (p. 135)

Registration Restrictions: undefined

Schedule Type: Laboratory, Lecture

IT 105: IT Architecture Fundamentals. 3 credits.
Introduces students to fundamental hardware and software concepts of information technology (IT) to understand the basics of modern computing environments. Students acquire a comprehensive understanding of a computer system’s essential components, component interdependence, and binary functions, factoring in performance, data communication models, telecommunication basics, and information security. Recent trends and advancements in mobile computing, telecommunications, and IT infrastructures are discussed. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions: Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 106: Introduction to IT Problem Solving Using Computer Programming. 3 credits.
Introduces techniques for developing solutions to business problems using procedural programming as an IT resource/tool. Students apply problem solving concepts by analyzing problems and constructing, testing, and implementing algorithms using pseudocode, desk checking, and procedural programming. Topics include: program flow, control structures, programming fundaments, and integrating program modules into a cohesive solution. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions: Required Prerequisites: (IT 103*C, 103T, 103X or 104*C) and (MATH 112*C, 125*C or IT 102*C).
* May be taken concurrently.
+ Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

IT 191: Review of Computing Fundamentals. 1 credit.
Provides a self-paced, comprehensive review of computing fundamentals. Topics include: hardware, software, networking, computer security, programming, database, e-commerce, decision support systems, and other emerging technologies. Open only to students with transfer credit comparable to IT 103 or IT 104 who have not attempted IT 191 or IT 104. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions: Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 193: Review of Multimedia and Web Design. 1 credit.
Provides a self-paced, comprehensive review of concepts and techniques for designing and developing attractive and accessible websites with multimedia components. Introduces and discusses technological, aesthetic, and human factors. Open only to students with transfer credit comparable to IT 213 who have not attempted IT 193 or IT 213. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Registration Restrictions: Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 194: Review of Database Fundamentals. 1 credit.
Provides a self-paced, comprehensive review of database fundaments. Topics include: database classifications, data models with extensive coverage of the relational model, entity-relationship and extended entity relationship models, normalization, advanced data modeling, and Structured Query Language (SQL) programming. Open only to students with transfer credit comparable to IT 214 who have not attempted IT 194 or IT 214. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Registration Restrictions: Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 196: Review of IT Problem Solving Using Computer Programming. 1 credit.
Provides a self-paced, comprehensive review of techniques for developing solutions to business problems through an iterative design and implementation approach. Open only to students with transfer credit comparable to IT 106 who have not attempted IT 106 or IT 196. (MATH 112 prior completion or co-registration is strongly recommended.) Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

Registration Restrictions: Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 198: Independent Study in Information Technology. 1-3 credits.
Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions: Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study
200 Level Courses

IT 206: Object Oriented Techniques for IT Problem Solving. 3 credits.
Introduces techniques for developing solutions to business problems using object-oriented programming as an IT resource/tool. Students apply problem solving concepts by analyzing problems and constructing, testing, and implementing object-oriented solutions using object-oriented analysis and design, data modeling, and object-oriented programming fundamentals. Topics include: Unified Modeling Language (UML), classes, inheritance, polymorphism, and exception handling. Notes: Students cannot receive credit for both IT 108 and IT 206. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 106C or 196C) and (IT 102C, MATH 112C or 125C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

IT 207: Applied IT Programming. 3 credits.
Building on fundamentals of problem solving, logic and algorithm development, and procedural programming, this course further develops these skills while covering server side scripting languages and relational database connectivity. Students will use open source software tools to develop database-enabled web applications. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 106C, 196C or CS 112C) and (IT 102C, MATH 112C or 125C) and (IT 214C or 194C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory, Lecture

IT 213: Multimedia and Web Design. 3 credits.
Through lecture, class demonstration, class discussion, and hands-on lab experience, introduces multimedia and web computer graphics. Focuses on development of web-enabled multimedia applications from practical business perspective. Introduces and discusses technological, aesthetic, and human factors. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 103C, 103T, 103X or 104C).
C Requires minimum grade of C.

Students cannot enroll who have a major in Civil and Infrastructure Engr, Computer Engineering, Computer Science, Electrical Engineering or Systems Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 214: Database Fundamentals. 3 credits.
Covers fundamentals of relational database management systems and their use in business environments. Topics include: database classifications, data models with extensive coverage of the relational model, entity-relationship and extended entity-relationship models, normalization, advanced data modeling, and Structured Query Language (SQL) programming. Students design and implement a real-world relational database and create complex SQL queries to retrieve data from the database. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 103C, 103X, 103T, 104C or CS 112C).
C Requires minimum grade of C.

Students cannot enroll who have a major in Civil and Infrastructure Engr, Computer Engineering, Computer Science, Electrical Engineering or Systems Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 216: Systems Analysis and Design. 3 credits.
Students survey and apply techniques in analyzing and modeling information systems. Requirements are derived in various domains and abstracted at conceptual, logical, and physical levels. Process, data, and state modeling are applied through a project that follows a systems development lifecycle. Object modeling is explored and contrasted with data and process modeling. Individual and group modeling assignments are required. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 106C, 196C or CS 112C) and (IT 206C, 102C or CS 211C) and (IT 194C or 214C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 223: Information Security Fundamentals. 3 credits.
Introduces concept of information security. Discusses need for organizational policy to define required services such as confidentiality, authentication, integrity, nonrepudiation, access control, and availability, and mechanisms to implement those services. Covers different types of security including physical security, computer security, and network security; common threats to and attacks against information systems, including accidental damage, identity theft, malicious software, and "spam"; and defensive measures. Notes: Students cannot receive credit for both IT 221 and IT 223. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 103C, 103T, 103X or 104C) and (IT 191C or 105C).
C Requires minimum grade of C.

Students cannot enroll who have a major in Civil and Infrastructure Engr, Computer Engineering or Computer Science.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 293: Applied IT: Junior Transition. 1 credit.
Focuses on transition issues for sophomores and transfer students in Applied Information Technology programs. Assists sophomore and transfer students with choice of concentration, course selection, and career readiness. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.
**Recommended Prerequisite:** Sophomore standing

**Registration Restrictions:**
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Seminar

### 300 Level Courses

**IT 300: Modern Telecommunications.** 3 credits.
Comprehensive overview of the fundamental principles of telecommunications, including current status and future directions of the public switched telephone network, cellular networks, satellite networks, and computer networks. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisites: (IT 101\textsuperscript{C} and 212\textsuperscript{C}) or IT 105\textsuperscript{C} and (MATH 106\textsuperscript{C} or 113\textsuperscript{C}) and (IT 102\textsuperscript{C}, MATH 112\textsuperscript{C} or 125\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 304: IT in the Global Economy.** 3 credits.
Explores how IT changed nature of society and contributed to evolution of global economy. Examines changing nature of work, education, and communication, and ethical issues such as intellectual property rights, computer-related crime, privacy concerns, and public policy issues. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to CS 306.

**Mason Core:** Information Technology: Ethics Only (p. 135)

**Registration Restrictions:**
Required Prerequisites: (IT 103\textsuperscript{C}, 103T, 103X or 104\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 306: Program Design and Data Structures.** 3 credits.
Fundamentals of data structures and analysis of algorithms. Large programs written in a modern, high-level programming language. Stresses abstraction, modular design, code reuse, and correctness. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisites: (IT 206\textsuperscript{B} or CS 211\textsuperscript{B}) and (IT 102\textsuperscript{C}, MATH 112\textsuperscript{C} or 125\textsuperscript{C}).
\textsuperscript{B} Requires minimum grade of B.
\textsuperscript{C} Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 308: Event-Driven Programming.** 3 credits.
Building on the programming concepts covered in IT 206, this course focuses on graphical user interfaces. Students will design, develop, and document event-driven programs using an object-oriented language. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to INFS 310.

**Registration Restrictions:**
Required Prerequisites: IT 206\textsuperscript{B} or CS 211\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 314: Database Programming.** 3 credits.
The course introduces students to the Oracle Developer application development utilities and tools and describes how to create and manipulate databases in Oracle database management system. The course provides an extensive overview of SQL and introduction to PL/SQL. Topics include data definition and manipulation languages, stored procedures, triggers, indexing techniques, and elementary query optimization. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to INFS 311.

**Registration Restrictions:**
Required Prerequisites: (IT 106\textsuperscript{C}, 196\textsuperscript{C} or CS 112\textsuperscript{C}) and (IT 214\textsuperscript{B} or 194\textsuperscript{B}).
\textsuperscript{C} Requires minimum grade of C.
\textsuperscript{B} Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 315: Mobile Development.** 3 credits.
Studies business-oriented applications for popular mobile platforms including Blackberry, Android and Apple. Provides overview of mobile platforms and devices including evaluation, uses, design and development of applications. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
Required Prerequisites: (IT 206\textsuperscript{B} or CS 211\textsuperscript{B}) and (IT 213\textsuperscript{B} or 193\textsuperscript{B}).
\textsuperscript{B} Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**IT 322: Health Data Challenges.** 3 credits.  
Covers methodology and tools used to work with health data structures supporting organizations’ needs for reliable data that are captured, stored, processed, integrated, and prepared for further querying, decision making, data mining and knowledge discovery for a variety of clinical and organizational purposes. Data security and privacy, data standards, data interoperability, health information exchange, and big data analytics are discussed. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to BENG 322.

**Registration Restrictions:**  
**Required Prerequisites:** (IT 214B or 194B) and (STAT 250C or 344C).  
B Requires minimum grade of B.  
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**IT 324: Health Information Technology Fundamentals.** 3 credits.  
Explores challenges in the development and implementation of information systems and informatics tools in healthcare environment. Discusses the importance and benefits of electronic health records (EHRs). Students learn about EHRs’ creation, management, and evolution, and their use for clinical decision support. In addition health information security, privacy, federal laws, regulations and standards, and their impact on healthcare delivery are discussed. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**  
**Required Prerequisites:** IT 214B or 194B.  
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology or Information Technology.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**IT 328: Health Information Emerging Technologies.** 3 credits.  
Provides an introduction to networking in the healthcare environment and covers a wide range of topics on emerging health information technologies. Discusses internet protocols, safety procedures, and data privacy considerations in healthcare environments, and processes required to design, secure, and troubleshoot a network to support healthcare organizations. Mobile computing, patient portals, personal health records, telehealth, health information exchange are discussed. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**  
**Required Prerequisite:** (IT 341C).  
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**IT 331: Web I: Web Development.** 3 credits.  
Introduces the principles and techniques necessary for successful client-side web development. Topics such as HTML5, Cascading Style Sheets, JavaScript, DOM, XML, AJAX, and jQuery are presented. Students will learn to develop attractive and interactive web pages and applications and use client-side web-scripting languages to solve problems both with a text editor and more powerful WYSIWYG HTML editors. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**  
**Required Prerequisites:** (IT 106C, CS 112C or IT 196C) and (IT 213B or 193B).  
C Requires minimum grade of C.  
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**IT 332: Web Server Administration.** 3 credits.  
Covers the installation, configuration, and administration of Web servers, FTP servers, and DNS servers. Additional topics include security setups, administration, and associated performance issues. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**  
**Required Prerequisites:** (IT 213B or 193B).  
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**IT 335: Web Development using Content Management Systems.** 3 credits.  
Through lectures and hands-on lab experience, presents web development techniques using content management systems (e.g. Joomla, Dot net nuke). Introduces characteristics of various types of websites (corporate portals, intranets and extranets; online magazines, newspapers, and publications; e-commerce and online reservations, government applications, small business websites). Presents methods, languages, tools related to web content management systems from an applied perspective. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**  
**Required Prerequisites:** IT 213B or 193B.  
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture
**IT 341: Data Communications and Network Principles. 3 credits.**
Focuses on primary aspects of data communications and networking. Open Systems Interconnection (OSI) and Internet models; Layer 1 interfaces and cabling configurations; IP network addressing, network design, router and port configurations; security protocols; static routing, RIPv2, and OSPF configurations; TCP, UDP, data reliability, and error correction methods; Telnet, FTP, TFTP, HTTP, SMTP, POP, and DNS protocols. Notes: This course is 50 percent lab work of configuration of routers and network design, implementation, and testing. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** ((IT 101C and 212C) or (IT 105C)) and (IT 106C, 196C or CS 112C) and (MATH 108C or 113C) and (IT 300C2).
*C* May be taken concurrently.
*C* Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 342: Operating Systems Fundamentals. 3 credits.**
Practices and procedures for installing and configuring modern operating systems, including user accounts, file, print, and terminal servers, mobile computing, and disaster recovery. Through practical lab sessions, students receive real-world experiences with multiple operating systems. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** ((IT 101C and 212C) or (IT 105C)) and (IT 106C or 196C).
*C* Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 343: IT Project Management. 3 credits.**
Provides essential strategies and procedures for planning, organizing, staffing, monitoring, and controlling design, development, and production of system to meet stated IT-related need in effective and efficient manner. Fulfills writing-intensive requirement for BS in information technology. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Specialized Designation:** Writing Intensive in the Major

**Registration Restrictions:**
**Required Prerequisite:** IT 293C.
*C* Requires minimum grade of C.

Enrollment limited to students with a class of Junior, Senior Plus or Senior.

**IT 344: Information Storage and Management Technologies. 3 credits.**
Provides an introduction to principles of information storage and management including the emerging field of virtualization technologies. Covers Direct Attached Storage (DAS), networked storage models such as Network Attached Storage (NAS), Storage Area Network (SAN), and Content Addressed Storage (CAS); and applications in business continuity, replication, disaster recovery, and cloud computing. Includes exposure to real-world storage networking technologies. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (IT 341C) and (IT 214B or 194B).
*C* Requires minimum grade of C.
*B* Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 352: Security Administration of Linux Systems. 3 credits.**
Provides theoretical foundation and practical experience installing, configuring, and maintaining Linux systems with an emphasis on best practices for security. Students develop a heterogeneous suite of clients and servers with firewalls and other networking components. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** IT 223B and ((IT 101C and 212C) or IT 105C) and (IT 106C, 196C or CS 112C) and IT 342C.
*B* Requires minimum grade of B.
*C* Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology or Information Technology.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 353: Information Defense Technologies. 3 credits.**
This course will examine and assess the role of information technology as a tool of warfare and civil defense. Topics will be discussed from both defensive and offensive perspectives and will include asset tracking, asymmetric warfare, network centric warfare, physical attacks, cyberterrorism, espionage, psycos, reconnaissance and surveillance, space assets, and applications of GPS and cryptographic technology. Students will research and write about the social, ethical, and political effects of such technology. Notes: For INFT and AIT majors, minors and certificates, and BAS cybersecurity concentration only. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.
Registration Restrictions:
Required Prerequisites: (IT 101C or 105C) and (IT 223B).
  C Requires minimum grade of C.
  B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 357: Computer Crime, Forensics, and Auditing. 3 credits.
Examines information security services and mechanisms in network context. Topics include symmetric and asymmetric cryptography; message authentication codes, hash functions and digital signatures; digital certificates and public key infrastructure; access control including hardware and biometrics; intrusion detection; and securing network-enabled applications including e-mail and web browsing. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to CRIM 304.

Registration Restrictions:
Required Prerequisites: (IT 103X, 103C, 103T or 104C) and (IT 223B).
  C Requires minimum grade of C.
  B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 366: Network Security I. 3 credits.
Examines information security services and mechanisms in network context. Topics include symmetric and asymmetric cryptography; message authentication codes, hash functions and digital signatures; digital certificates and public key infrastructure; access control including hardware and biometrics; intrusion detection; and securing network-enabled applications including e-mail and web browsing. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 206C or CS 211C) and IT 223B.
  C Requires minimum grade of C.
  B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 369: Data and Application Security. 3 credits.
Introduces concept of data and application security. Discuss challenges of database, and application and industrial control system security. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 207C and 223B).
  C Requires minimum grade of C.
  B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 410: Web Programming. 3 credits.
This course covers layers of the n-tier architecture. Students will build web applications using available frameworks at each tier, such as Java Server Faces and Servlets for the UI tier, Web Services for the business tier and Java Database Connectivity for the persistence tier. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: IT 206B or CS 211B.
  B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 413: Digital Media Editing. 3 credits.
Examines three areas of digital media editing - tools for editing, content and logic decision process, and information technology used by major corporations for development and distribution - through video examples from entertainment industry and corporate productions as well as hands-on editing experience. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 213C or 193C).
  C Requires minimum grade of C.
Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 414: Database Administration. 3 credits. Explores advanced concepts of database administration using enterprise-level database management system. Topics include: backup, recovery, corruption, automatic management, resource management, job scheduling, space management, memory management, storage management, diagnosis and corresponding tools. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to INFS 414.

Registration Restrictions:
Required Prerequisites: (IT 314B) and (IT 214B or 194B).
C Requires minimum grade of C.
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 415: Information Visualization. 3 credits. Provides an overview of information visualization applications in intelligence analysis, decision support systems, and network monitoring. Covers human factors, human interface with information, and current and future trends in information visualization. Students also learn to develop a rudimentary visualization application. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 213B or 193B).
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 429: Security Accreditation of Information Systems. 3 credits. This course explains basic principles of performing FISMA certification and accreditation (C&A) of an IT System. The course covers methodology for completing C&A, explains the role of the Certifier and the Information System Security Officer (ISSO), and gives students real world experience with IT Systems in the Federal Government. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 106C or 212C) and (IT 223B).
C Requires minimum grade of C.
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 431: Agile Web Development with Open Source Frameworks. 3 credits. Introduces the principles and techniques for TDD (test-driven development) and deployment using open source frameworks (e.g., Ruby on Rails). Topics such as agile development methodology, version control, and Lean Startup are also presented. Students will work in small teams and propose, develop, and deploy interactive web applications and use an open source application framework to solve real-world problems. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 331C) and (IT 213B or 193B).
C Requires minimum grade of C.
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 436: Web II: Advanced Web Development. 3 credits. Focuses on database-driven web application development and web presentation using server-side coding and advanced techniques. Additional topics include AJAX, web server configuration and web services. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 106C, 196C or CS 112C) and (IT 213B or 193B) and (IT 214C or 194C).
C Requires minimum grade of C.
B Requires minimum grade of B.

Enrollment is limited to students with a major in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.
and countermeasures; privacy and security policies and risk analysis; viruses and other rogue programs; common system vulnerabilities controls; authentication technologies; control and prevention of integrity, availability, and usage controls. Topics include models and Studies security policies, models, and mechanisms for secrecy, IT 462: 

Schedule Type: Lecture

**IT 445: Advanced Networking Principles. 3 credits.** This course focuses on Layer 2 and 3 of the OSI model and WAN technologies. Frame Relay and ISDN, complex router configurations of Variable Length Subnet Masking (VLSM), Classless Inter-Domain Routing (CIDR), Network Address Translation (NAT), Dynamic Host Configuration Protocol (DHCP), and study of Network Management Systems available for Data Communications Networks. Layer 2 involves Ethernet-switching components, including detailed hands-on configuration covering all aspects of switches using the command-line interface method. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (IT 341\(^B\) or L341).
\(^B\) Requires minimum grade of B.

**Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.**

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type: Lecture**

**IT 455: Wireless Communications and Networking. 3 credits.** Covers fundamental principles underlying wireless data communications. Topics include wireless transmission basics, radio propagation issues, antennas, digital modulation, spread spectrum techniques and their applications, and popular standards: WiFi, WiMAX and Bluetooth. Also presents practical knowledge to enable the design, testing, deployment, debugging and commissioning of WiFi, WiMAX networks and point-to-point microwave systems. Discussions on cellular network technologies are also included. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (IT 101\(^C\) or 105\(^C\)) and (IT 102\(^C\), MATH 112\(^C\) or 125\(^C\)) and (IT 341\(^B\) or L341).
\(^C\) Requires minimum grade of C.
\(^B\) Requires minimum grade of B.

**Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.**

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type: Lecture**

**IT 462: Information Security Principles. 3 credits.** Studies security policies, models, and mechanisms for secrecy, integrity, availability, and usage controls. Topics include models and mechanisms for mandatory, discretionary, and role-based access controls; authentication technologies; control and prevention of viruses and other rogue programs; common system vulnerabilities and countermeasures; privacy and security policies and risk analysis; intellectual property protection; and legal and social issues. Notes: For INFT and AIT majors, minors and certificates, and BAS cybersecurity concentration only. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts. Equivalent to INFS 462.

**Registration Restrictions:**
**Required Prerequisites:** (IT 105\(^B\) or 212\(^C\)) and (IT 223\(^B\)).
\(^C\) Requires minimum grade of C.
\(^B\) Requires minimum grade of B.

**Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.**

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type: Lecture**

**IT 466: Network Security II. 3 credits.** Detailed study of certain symmetric and asymmetric cryptographic schemes; analysis of network data (including "packet sniffing"); security at different network layers (including IPSec, SSL/TLS and Kerberos); and secure e-commerce. Teaches principles of designing and testing secure networks, including use of network partitioning, firewalls, intrusion detection systems, and vulnerability assessment tools. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (IT 223\(^B\)) and (IT 341\(^C\)) and (IT 206\(^C\) or CS 211\(^C\)) and (IT 102\(^C\), MATH 112\(^C\) or 125\(^C\)).
\(^C\) Requires minimum grade of B.
\(^B\) Requires minimum grade of C.

**Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.**

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type: Lecture**
IT 467: Network Defense. 3 credits.
Practices and procedures for defending business-class, heterogeneous networks against threats (including system failure, environmental events, human error) and attacks (including intrusion, malicious software, denial of service). Through practical lab sessions, students receive real-world experience designing networks, installing and configuring system components, detecting and recovering from problems and attacks, and gathering data to support prosecution of offenders and refinement of countermeasures. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: IT 366C and 223B.
C Requires minimum grade of C.
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 484: Voice Communications Technologies. 3 credits.
Examines current and emerging technologies for transmission of voice signals over telecommunications systems. Highlights significant differences between the requirements for voice and other forms of data. Topics provide a balance between traditional voice technologies and those that use data networks. Real-world implementations are analyzed to determine reliability, quality, and cost effectiveness. Includes lab experiments with analog and digital technologies. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 300C) and (IT 341B or L341).
C Requires minimum grade of C.
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 488: Fundamentals of Satellite Communications. 3 credits.
Provides a comprehensive overview of the principles of satellite communications systems. Major topics include satellite orbits and constellations, the space segment, antennas, modulation, coding, satellite access methods and link analysis. Also covers satellite applications, with emphasis on recent developments in the satellite communications field. Hands-on design experience is gained through the use of readily available vendor software systems. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (IT 300C) and (IT 341B) and (MATH 108C or 113C).
C Requires minimum grade of C.
B Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 490: Application Maintenance and Spiral Development. 3 credits.
Provides software engineering, programming techniques, platforms and tools necessary for application maintenance, optimization and spiral development. Models discussed may include: incremental development, waterfall, evolutionary; on various platforms: mobile, cloud, web-based.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Schedule Type: Lecture

IT 492: Senior Design Project I. 3 credits.
Students use information technology as a tool to redesign business processes so the enterprise can achieve its objectives. Student teams analyze the business processes of real organizations, quantify the negative impact caused by current process challenges, then develop and present a compelling Business Case for Change. Students develop skills critical for preparing and delivering effective verbal briefings and presentations. Notes: Restricted to AIT/INFT majors. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

Mason Core: Capstone, Synthesis (p. 135)

Registration Restrictions:
Required Prerequisites: (IT 206B or CS 211B) and IT 207C and (IT 213C or 193B) and (IT 214C or 194C) and IT 223B, 300C, 341C and 343C and (MBUS 300C or MSOM 300C).
C Requires minimum grade of C.

Enrollment is limited to students with a class of Senior Plus or Senior.

Enrollment is limited to students in a Bachelor of Science degree.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

IT 493: Senior Design Project II. 4 credits.
Students, in teams, complete projects demonstrating preparedness as an IT professional. This work includes ethical challenges, status reports and engineering notebooks evaluated during class. Teams members develop detailed designs, build solutions up to Beta, present final written reports and final verbal presentations before review panels of business leaders. Students must register for the section that continues their IT 492
section. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Mason Core:** Capstone (p. 135)

**Registration Restrictions:**
**Required Prerequisite:** IT 492\(^C\).  
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Applied Information Technology or Information Technology.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture, Recitation

**IT 495:** *Turning Ideas into Successful Companies.* 3 credits.  
This is a practical course in entrepreneurship. Each class session will focus on specific topics associated with building a business: team creation, business planning, market research, product development, financial planning, funding, people and organizations, competitive strategies, operations, growth and exit strategies, and more. Students will have reading assignments and will participate in competitive team assignments. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** IT 106\(^B\) or 196\(^B\).  
\(^B\) Requires minimum grade of B.

Enrollment limited to students with a class of Senior Plus or Senior.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 496:** *Decision Making in IT Ventures.* 3 credits.  
Introduces students to the decision making processes involved in leading IT companies. Topics include: the role of major IT applications in strategic, tactical, and operational decisions; assessment and justification of IT ideas and investments; methodologies to predict decision outcomes; how to measure IT investments performance; strategies to inspire, influence and organize the workforce to accomplish key business goals. Notes: Students develop skills through assessment and role-playing activities, discussions, cases, and hands-on applications. Offered by Info Sciences & Technology (p. 1044). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (IT 106\(^B\), 196\(^B\) or CS 112\(^B\)).  
\(^B\) Requires minimum grade of B.

Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**IT 498:** *Independent Study in Information Technology.* 1-3 credits.  
Directed self-study of special topics of current interest in IT. Notes: Topics must be arranged with instructor and approved by department chair before registering. Offered by Info Sciences & Technology (p. 1044). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** 60 credits.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Independent Study

**IT 499:** *Special Topics in Information Technology.* 3 credits.  
Topics of special interest to undergraduates. Notes: May be repeated if topics are substantially different. Offered by Info Sciences & Technology (p. 1044). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** 60 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Applied Information Technology, Applied Science, Individualized Study, Information Technology or Infmtn Tchngy Entrepreneurship.

Washington Consortium level students may **not** enroll.

Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**IT 796:** *Directed Reading and Research.* 1-6 credits.  
Reading and research on specific topic in information technology under direction of faculty member. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Independent Study

**IT 797:** *Directed Reading and Research.* 1-3 credits.  
Reading and research on specific topic in information technology under direction of faculty member. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Independent Study
800 Level Courses

IT 896: Directed Readings and Research in IT. 1-6 credits.
Students pursue research on a specific topic under direction of faculty. Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Completed qualifying exams, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Schedule Type: Independent Study

900 Level Courses

IT 990: Directed Readings and Research in Information Technology. 1-6 credits.
Students pursue research on a specific topic under direction of faculty in Information Technology. Note: Students may not take IT 998 and 999 at the same time. Students must contact department at 993-1505 to receive approval and CRN to register. Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree.

Recommended Prerequisite: Completion of all coursework for the PhD in Information Technology, or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate level students.

Enrollment is limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Independent Study

IT 991: Engineer Project Presentation. 1 credit.
Opportunity for engineer degree students to present project proposal for critique to fellow students and interested faculty. Note: May be repeated with change of research topic, but credit toward doctoral degree is given once. Offered by Info Sciences & Technology (p. 1044). May not be repeated for credit. Equivalent to CS 990, STAT 990.

Recommended Prerequisite: Completion of all course requirements for the Engineer degree in Information Technology and permission of Project Director.

Registration Restrictions:
Enrollment limited to students in a Engineer degree.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Independent Study

IT 997: Engineer Project Dissertation. 1-12 credits.
Working on project proposal that forms basis for dissertation for engineer degree. Notes: May be repeated with change in topic, but degree credit is only given once. Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree.

Recommended Prerequisite: Admission to candidacy. Students must submit the Engineer proposal and have it approved prior to registering for this course.

Registration Restrictions:
Enrollment limited to students in a Engineer degree.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Independent Study

IT 998: Doctoral Dissertation Proposal. 1-12 credits.
Working on research proposal that forms basis for doctoral dissertation. Notes: No more than 24 credits of IT 998 and 999 may be applied to doctoral degree requirements. Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree.

Recommended Prerequisite: Admission to Doctoral candidacy. Students must submit the Doctoral proposal and have it approved prior to registering for this course. Students may not take IT 998 and 999 at the same time. Students must contact department at 993-1505 to receive approval and CRN to register. Offered by Info Sciences & Technology (p. 1044). May be repeated within the degree.

Registration Restrictions:
Enrollment limited to students in a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

IT 999: Doctoral Dissertation. 1-12 credits.
Formal record of commitment to doctoral dissertation research under direction of faculty member in information technology. Notes: Students must submit the Doctoral proposal and have it approved prior to registering for this course. Students may not take IT 998 and 999 at the same time. NOTE: Students must contact department at 993-1505 to receive approval and CRN to register.

Recommended Prerequisite: Admission to Doctoral candidacy. Students must submit the Doctoral proposal and have it approved prior to registering for this course. Students may not take IT 998 and 999 at the same time. Students must contact department at 993-1505 to receive approval and CRN to register.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.
Initiatives in Educational Transformation-Teaching (IETT)

500 Level Courses

IETT 500: Introduction to IETT. 0 credits.
Introduces students to the ideas and the experiential pedagogy of the IET program in an intensive summer session designed to develop relationships among participating educators and faculty by building a vibrant learning community through shared and emerging knowledge and experience. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

IETT 750: Studies in Language and Culture I. 3 credits.
Explores the interdependence and mutual construction of languages and cultures, as well as how both provide interpretive frames and thus mediate lived experiences. Investigates culture and language as primary shapers of relationships and identities. Engages teachers in constructing culturally responsive curriculum and pedagogy. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

IETT 751: Studies in Language and Culture II. 3 credits.
Deepens understandings of how language and culture shape interpretations that affect people's lives. Investigates student achievement in relationship to classroom experiences and the language and cultural knowledge students bring to school. Examines vernacular discourses, including those in cyberspace and popular culture, while considering pedagogical implications. Probes social justice issues in and out of educational institutions. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

IETT 752: Research in Practice: The Team Project. 6 credits.
Builds further understanding of teacher research with an emphasis on collaborative research process to develop skills, construct knowledge, and transform practice. Teams engage in collaborative inquiry as they form and frame salient questions, take actions to improve teaching and learning, gather, analyze and interpret multiple forms of data, and share their experience in communities of practice. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: MNPE 704
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

IETT 753: Teaching and Learning. 3 credits.
Provides a structured opportunity for offering evidence of individual growth and transformation of professional practice. Through a process of deep reflection, examines fundamental philosophical and pedagogical assumptions, explores individual educational experiences, and critically examines professional practices related to meeting K-12 students' needs, continuous improvement, and program experiences. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

IETT 754: Introduction to Teaching Historic Places with Diverse Populations. 1 credit.
Explores and interprets national, regional, and local historic sites in the Washington DC area, students will practice historical thinking and teaching through an analysis of historic sites as primary sources. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Corequisite: MNPE 700; MNPE 703.
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

IETT 755: Advanced Teaching Historic Places with Diverse Populations. 2 credits.
Building on the exploration and interpreting skills learned in IETT 754, students will practice historical thinking and teaching for diverse P-12 classroom populations to convey critical thinking skills and civic engagement. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: IETT 754.
Recommended Corequisite: IETT 750.
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar
**Integrative Studies (INTS)**

### 100 Level Courses

**INTS 101: Narratives of Identity.** 6 credits. 
Explores the concept of identity through the study of literature and oral communication. Introduces aesthetic, cultural, and historical aspects of these forms of communication as well as their psychological, political, and practical significance, with special emphasis on the role of communication in a free society. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 101.

**Specialized Designation:** Discovery of Scholarship

**Schedule Type:** Seminar

**INTS 102: Global Networks and Communities.** 6 credits. 
Prepares students for participation in a global society by investigating global and local issues in a historical context. Considers critical topics of western civilization, globalization, (neo)colonialism, imperialism, and hegemony. Students gain an in-depth perspective of the intricate relationships between people and cultures at various moments in our history. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 102.

**Specialized Designation:** Green Leaf Course, Discovery of Scholarship

**Schedule Type:** Seminar

**INTS 103: Human Creativity: Science and Art.** 6 credits. 
Investigates the vital role played by human creativity in fine arts and natural sciences. Fosters an understanding of the aesthetic and intellectual components of the arts while exploring the scientific method, the relation of theory and experiment, and the development and elaboration of major ideas in science. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 103.

**Specialized Designation:** Green Leaf Course, Discovery of Scholarship

**Schedule Type:** Seminar

**INTS 165: Independent Study.** 1-12 credits. 
Individualized section form required. Study of a topic not otherwise available to the student. May involve any combination of reading assignments, tutorials, lectures, papers, presentations, or field/laboratory study (determined in consultation with instructor). Students are encouraged to work as a team on a particular topic. Notes: Maximum 12 credits can be used to fulfill graduation requirements. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 12 credits. Equivalent to NCLC 165.

**Schedule Type:** Independent Study

**INTS 194: Service-Learning Experience.** 1-15 credits. 
Service-learning courses offer students, faculty, and community partners an opportunity to work together to integrate and apply knowledge to address community needs. Learning goals, action strategies, and assignments developed collaboratively. Students demonstrate progress through critical reflection that illustrates growth in acquiring and comprehending values, skills, and knowledge content. Critical reflection may take the form of papers, presentations, portfolios, journals, and exams. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 15 credits. Equivalent to NCLC 194.

**Schedule Type:** Internship

**INTS 195: Field-Based Work.** 1-6 credits. 
Directed field studies in topic not otherwise available to students. Notes: Topics vary, but entire course or significant component is located off campus. In addition to fieldwork, course may also include reading assignments, tutorials, lectures, papers, presentations, portfolios, journals, and exams. Students bear costs of required field trips and should consult the Center for Social Action and Integrative Learning for more information. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 24 credits. Equivalent to NCLC 195.

**Schedule Type:** Internship

### 200 Level Courses

**INTS 200: Visual Thinking and the Creativity.** 3-15 credits. 
Investigates modes of visual and textual creativity through art, literature, and variety of visual and textual forms. Through interdisciplinary approach to picturing text, provides opportunity to experiment with creative composition that includes visual elements, and with art forms that include textual elements. Explores blocks to creativity, and provides understanding of how to evaluate and write about visual texts as well as how to produce documents that integrate words and images. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 200.

**Schedule Type:** Lecture

**INTS 201: The World Since 1945.** 6 credits. 
Examines the history of the past 50 years to illuminate the contemporary world as well as build connections between the global and local. Using historical works, fiction, autobiographies, films, and daily newspapers, students explore such major events as the Cold War, the struggle against apartheid in South Africa, the Vietnam War, the Chinese Cultural Revolution, and the continuing conflict in the Middle East. As a learning community, requires active student participation in group projects and discussions. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 201.

**Schedule Type:** Lecture

**INTS 202: Public Speaking and Critical Thinking Skills.** 4 credits. 
Combines process of learning to speak in front of audiences with analysis of arguments and persuasive appeals. Students learn how to create and present effective speeches, adapt messages to specific audiences, and evaluate and critique messages produced for others. One credit of experiential learning enables students to examine public speeches, news stories, political campaigns, and advertising, among others, to make meaningful connections between public speaking theory and practice. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 202.

**Schedule Type:** Lecture

**INTS 203: Inquiry for Action: Facilitating Change.** 6 credits. 
Examines the relationships between academic research, individual acts and society’s social and political structures. Students design a community-based research project, explore a rich array of qualitative and quantitative approaches, apply information and communication technologies to all aspects of the research process, and learn from individuals and organizations outside the classroom. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 203.
Specialized Designation: Discovery of Scholarship

Schedule Type: Lecture

INTS 204: Leadership Theory and Practice. 3 credits.
Examines historical and contemporary leadership theories and invites students to be reflective of their own leadership experiences through the lenses of those theories. Students develop critical lenses through which to evaluate their own self-awareness, effectiveness in groups, and ability to navigate structures and systems. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 204.

Schedule Type: Lecture

INTS 210: Sustainable World. 4 credits.
Covers basic issues in the natural and social sciences that underlie current environmental problems. Considers ethical matters such as equity as they pertain to global resource consumption, pollution, and climate change. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 210.

Specialized Designation: Green Leaf Course, Discovery of Scholarship, Scholarly Inquiry

Schedule Type: Lecture

INTS 211: Introduction to Conservation Studies. 3-6 credits.
Provides foundation for the integrative study of environmental conservation. Formal and informal writing assignments and oral presentations designed to strengthen critical thinking and communication skills important to students who pursue conservation-related professions. Instructors encourage students to use course assignments and off-campus work to identify suitable educational and career paths within the conservation world. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 211.

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

INTS 231: Introduction to Community Studies. 4 credits.
Examines relationship between sustainable communities and democratic citizenship in a diverse society. The objectives are to improve one's understanding of and thinking critically about communities and democratic principles, theories and practice. Students identify and work through problems that communities address by working in a community service-learning setting. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 231.

Schedule Type: Lecture

INTS 244: Beats, Rhyme, and Culture. 4 credits.
Examines the history of hip-hop and the effect it has had on our society. The primary focus is to consider hip-hop as a medium of communication that impacts, represents, and misrepresents the life experiences of youth in the United States. Students are exposed to historical, socioeconomic, and musical/aesthetic contexts of this genre through in-class activities and by attending related cultural events. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 244.

Schedule Type: Lecture

INTS 245: Visual Culture and Society. 4 credits.
Explores the role of visual culture in contemporary society including an examination of photography, the visual and performing arts, film and video, and electronic media. Readings focus on the historical foundations of visuality as well as theories of visual culture and aesthetics. Students investigate the ways that forms of visual culture function in society and how these are linked to race, class, and gender as well as politics and economics. Students will gain hands-on experience working with contemporary visual media tools such as computer graphics and digital video editing. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 245.

Schedule Type: Lecture

INTS 249: Digital Literacy. 4 credits.
Investigates information literacy, the mobile web, and interactive and immersive media, including gaming, social networking, blogging and micro-blogging, intellectual, political and civic collaborations, digital aesthetics and emerging digital cultures and art forms. Explores major theories of digital literacy and culture and introduce diverse social, artistic, theoretical and cultural practices that characterize today's digital domains and virtual environments. Notes: One experiential credit is required in this class. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 249.

Schedule Type: Lecture

INTS 275: Special Topics. 1-18 credits.
Studies topics of special interest to undergraduates. Notes: May be repeated for credit when topic is different. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 18 credits. Equivalent to NCLC 275.

Schedule Type: Lecture

INTS 290: Internship. 1-6 credits.
Internship credit may be applied to 12 credits required in experiential learning. Notes: Students may take no more than 6 credits in any one semester, unless approved by director of experiential learning or executive director. Structured and supervised professional experience, within an approved agency, for which the student earns academic credit. The primary purpose of an internship is to connect the student's academic course work to experiences and challenges outside the university classroom. The faculty also expects that students will enhance their competencies and skills and explore career options. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 24 credits. Equivalent to NCLC 290.

Recommended Prerequisite: Sophomore standing and permission of instructor.

Schedule Type: Internship

INTS 291: Living-Learning Community. 1 credit.
Bridges students' academic interests with their residence hall living experience. Students with common interests live together in the same residence hall and develop personal and academic relationships with other students and faculty from their chosen Living Learning Community focus. Offered by School of Integrative Studies (p. 564). May be repeated within the degree for a maximum 8 credits.

Schedule Type: Seminar

INTS 292: Leadership for Sustainability. 1 credit.
For students living in the Sustainability Living Learning Community and/or students participating in the Greenleaf ENCORE Series. Develop your understanding of sustainability in both theory and practice. Learn how change happens at Mason and identify contributions you can make to
Mason’s continuing pursuit of campus sustainability. Offered by School of Integrative Studies (p. 564). May be repeated within the degree for a maximum 8 credits.

Specialized Designation: Green Leaf Course

Schedule Type: Seminar

Service-learning courses offer students, faculty, and community partners an opportunity to work together to integrate and apply knowledge to address community needs. Learning goals, action strategies, and assignments developed collaboratively. Students demonstrate progress through critical reflection that illustrates growth in acquiring and comprehending values, skills, and knowledge content. Critical reflection may take the form of papers, presentations, portfolios, journals, and exams. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 15 credits.

Schedule Type: Internship

INTS 295: Field-Based Work. 1-18 credits.
Directed field studies in topic not otherwise available to students. Notes: Topics vary, but entire course or significant component is located off campus. In addition to fieldwork, course may also include reading assignments, tutorials, lectures, papers, presentations, portfolios, journals, and exams. Students bear costs of required field trips and should consult the Center for Social Action and Integrative Learning for more information. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 24 credits.

Schedule Type: Internship

INTS 298: Field-Based Work. 1-15 credits.
Experiential-based individualized studies, mentored by instructor. Notes: Topics decided by student and instructor, and approved by executive director. Requirements must be detailed in individualized course contract signed by student, instructor, and executive director. May include reading assignments, papers, journals, and portfolios. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 15 credits. Equivalent to NCLC 298.

Schedule Type: Internship

300 Level Courses

INTS 300: Law and Justice. 3 credits.
Combines various teaching methods including lectures, the Socratic method, case studies, discussion of readings and films, debates, and active inquiry-based learning to investigate the major institutions in the American legal system. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 300.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Seminar

INTS 301: Science in the News. 3 credits.
Examination and discussion of the current trends in science as reported in the popular media. Students learn how to evaluate the science that is reported so they may become informed consumers; discuss how scientific advancement might shape society by looking at how science and society have changed together over time; and use examples from the past to discuss future trends. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 301.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Seminar

INTS 302: Argument and Advocacy. 6 credits.
Develops theoretical background and skills necessary for effective civic engagement and deliberative discourse. Teaches fundamentals of argument construction, function, and analysis. Covers role of argument and advocacy in a democratic society. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 302.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Seminar

INTS 303: Introduction to International Studies. 3 credits.
Explores a multi-disciplinary approach to addressing world issues. Combines lectures, field trips, discussion of readings, films, case studies, projects, and active inquiry-based learning to examine the natural environment, infectious disease and globalization, media and technologies, and war and violent conflict, with an attempt to deepen community members’ understanding of an increasingly interdependent world. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 303.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

INTS 304: Social Movements and Community Activism. 4 credits.
Examines how citizens, individually and collectively, accomplish social change in society through case study analysis. Considers advantages and limits of social change strategies from communication and social movement theory perspectives. Surveys topics including how leaders maintain momentum in face of opposition; how movements and organizations use slogans, symbols and music to inspire followers; and how participants construct persuasive media campaigns and political arguments to facilitate policy change. Notes: One credit of experiential learning enables students to explore their role as social advocates and effective citizens in context of community. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 304.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

INTS 305: Conflict Resolution and Transformation. 6 credits.
Examines the nature and dynamics of conflict and ways to resolve and transform conflict. Experiential learning is used as the vehicle through which students explore their assumptions about communication and develop their skills for resolving interpersonal conflicts. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 305.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

INTS 308: American Landscapes in Fiction, Film, and History. 6 credits.
Waterways and roadways have always had practical, spiritual significance for Americans. Course looks at American literary works and films in historical context to better understand the roles roads, rivers play in shaping physical, cultural landscape of United States. Students explore course themes outside classroom on weekend field trips, and conduct self-directed road trip as a main learning events. Notes: Satisfies
requirements for ENGH 302. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 308.

**Mason Core:** Synthesis (p. 135)

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 310:** Violence and Gender. 3-6 credits.
Using nonfiction, research documentaries, oral histories, case studies, literature, feature films, music, dance, and visual arts, examines the dynamics of violence through different cultural lenses. Students work in university and community settings to integrate their academic experiences with practice. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 310.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 311:** The Mysteries of Migration: Consequences for Conservation. 6 credits.
Investigates the biology of migration and its implications for science policy. Students consider the phenomenon of migration in the context of natural history, conservation, and cultural issues. The course includes several weekend trips for field study. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 311.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 312:** Images and Experiences of Childhood: Social Construct, Literature, and Film. 3-6 credits.
Immerses students in the images of childhood through the media of literature, video, and poetry, with a strong emphasis on historical perspectives of childhood. The class is interactive, requires some work in groups, and requires classroom participation. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to HIST 386, HIST 498, NCLC 312.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 314:** Conflict, Trauma and Healing. 6 credits.
Develops in students an appreciation of human resilience and helps them acquire better coping mechanisms. Imparts knowledge of the nature and dynamics of trauma and healing. Investigates the difficulties people face in responding to settings of conflict such as war, school shootings, abuse, domestic violence, including natural disaster. Examines case studies from a variety of personal, national, and international settings. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 314.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 315:** Spirituality and Conflict Transformation. 6 credits.
Examines dimensions of spirituality, including peacemaking efforts in large-scale conflicts, conflicts within faith communities, and interpersonal disputes. Experiential learning explores spiritually informed resolution. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 315.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 316:** Introduction to Childhood Studies. 4 credits.
Focuses on the study of childhood from birth to adolescence from the perspective of several disciplines. Covers childhood theory, research, and policy and their applications to decisions regarding children and youth. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 316.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 317:** Issues in Family Relationships. 4 credits.
Dynamics of family systems and issues that shape relationships among family members. How families evolve as members grow, leave, and create related family systems; family roles and forms; and communication patterns, decision-making, conflict, stress, and power. Content draws from family communication, family relations, psychology, and counseling. Lecture, discussion, observation, analysis, research, and role-playing. Notes: One credit counts for experiential learning; students complete 45 credits of course-related work outside classroom. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 317.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** Minimum of 55 hours completed.

**Schedule Type:** Lecture

**INTS 318:** Exploring Virginia’s Watersheds. 4 credits.
Comprehensive overview of history, geography, economics, and management of water resources in Virginia; and how rapidly growing population has measurably degraded resource. Includes one weekend field trip. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 318.

**Specialized Designation:** Green Leaf Course, Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 319:** Contemporary Youth Studies. 3 credits.
Examines the history of positive youth development, how scholars study youth, and the theories they use to guide their research. Evaluates the policies and programs aimed at empowering youth. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 319.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 320:** Construction of Differences: Race, Class, and Gender. 6 credits.
Examines race, sex, sexual orientation, and social class in contemporary American society. Examines commonalities in the construction of these categories and experiences of those who occupy them. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 320.
Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

INTS 321: Parent-Child Relations. 3 credits.
Introduces students to concepts and challenges in parenting, along with family diversity and risk factors. Considers interactions between parents and children from birth to adolescence as well as cross-cultural, historical, and societal influences. Explores efforts that have been successful in changing detrimental parenting actions. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 321.

Schedule Type: Seminar

INTS 322: Teacher: A Historical Perspective. 3 credits.
Examines the rich heritage of the teaching profession in Western society. Traces the history of educational philosophy and teaching, beginning with the ancient Greeks and culminating in the 21st century United States. Using the exploration of the various philosophies of education as a foundation, examines contemporary images of teachers in literature and film. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 322.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Seminar

INTS 331: The Nonprofit Sector. 4 credits.
Readings, classroom discussions and activities, and practical experience reveal historical, legal, and socioeconomic forces that define and influence the American nonprofit sector. Explores structures, issues that affect nonprofit management, governing, and financial systems. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 331.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Sophomore standing.

Schedule Type: Lecture

INTS 333: The Nature of Mathematics. 3 credits.
Include theoretical framework, historical context, connections with some other disciplines, and current issues. Selected mathematics topics such as advanced algebra and geometry and introductions to set theory, probability, calculus, and number theory. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 333.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Performance on Math Placement Exam equivalent to requirements for entrance to MATH 110 or MATH 111, successful completion of algebra program in mathematics learning center, or any mathematics course that fulfills the Mason Core requirement in quantitative reasoning; OR permission of instructor.

Schedule Type: Lecture

INTS 334: Environmental Justice. 4 credits.
Examines historical and contemporary sociopolitical and socioeconomic conditions that have given rise to the environmental justice movement. Analyzes how individuals contribute to environmental justice or injustice through everyday decisions. Considers how environmental justice movement responds to these issues. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 334.

Specialized Designation: Green Leaf Course, Writing Intensive in the Major

Schedule Type: Seminar

INTS 335: Ethics, Communication, and Freedom. 3-6 credits.
Students examine ethical principles, discuss some underlying bases for these principles, and work to understand how such principles are experienced and can be applied in a free society. Focus is on examining potential conflicts between ethics and the freedoms believed essential to a healthy democratic society. Cases drawn from sports, medicine, media, politics, and business. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to COMM 454, NCLC 335, PHIL 391.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Sophomore standing and 3 credits each of COMM and PHIL, or Permission of Instructor.

Schedule Type: Lecture

INTS 336: Poverty, Wealth and Inequality in the US. 3 credits.
Explores the social, cultural, political, and spiritual implications of poverty, wealth, and inequality in the United States. Examines the ways in which class identity informs one’s views of the world and its politics; how socioeconomic status affects one’s access to education and other social goods; and how dominant discourses and stereotypes related to poverty influence mass perception regarding a range of social issues, from educational policy to welfare. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 336.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Seminar

INTS 337: Social Justice Consciousness and Personal Transformation. 3 credits.
Explores the many spaces at which the quest to strengthen social justice consciousness interacts with processes and commitments for personal transformation. Analyzes through the lens of the activist and in the spirit of bringing mindfulness to activism, how we come to see and experience the world. Examines how socialization informs consciousness. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 337.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Seminar

INTS 338: Animal Rights and Humane Education. 3 credits.
Explores a combination of critical theories, experiential learning, and dialogical practices to examine the ways in which non-human animals are exploited for human profit. Examines the ramifications of this exploitation ecologically, as a question of sustainability, and spiritually, as a question of the impact of animal abuse on the human spirit. Discusses the use of animals in entertainment, factory farming, animal testing, and sport or trophy hunting; and how individuals and organizations are fighting these practices. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 338.
INTS 355: Introduction to Multimedia. 5 credits.
Technological, aesthetic, and educational issues of using interactive multimedia. Topics include theoretical underpinnings of some technological issues involved in multimedia computing as well as techniques for authoring interactive multimedia projects using a variety of digital media tools. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 355.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Lecture

INTS 436: Art as Social Action. 4 credits.
This learning community explores historical records to understand different ways art has been produced, distributed, and consumed. Examines ways artists have affected change in their worlds. Through interdisciplinary studies, teaches major social movements and artists and theories used in socially engaged art. Students engage in experiential learning outside classroom as course requirement. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 436.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Seminar

INTS 437: Gender Representation in Popular Culture. 3-6 credits.
Explores the way in which masculinity and femininity have been represented across the decades in television, movies, music videos, pop art, and print media. Provides a review of the scholarship on the historical and contemporary roles of women and men in society, and examines the contradictions and expectations associated with gender roles. Incorporates active group learning through creative, insight-oriented exercises, critical thinking and discussions, and group presentations and media research activities. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 437.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Seminar

INTS 438: Digital Futures. 3-6 credits.
Investigates important contemporary issues such as surveillance, privacy, censorship, piracy, gender and ethnicity, digital labor and play, mobile media and globalization, and the commercialization and political potential of the digital public spheres. Introduces students to the latest technological, philosophical and creative thinking on the future of human society in a digital age. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 438.

Specialized Designation: Writing Intensive in the Major
Recommended Prerequisite: NCLC 249 or INTS 249
Schedule Type: Lecture

INTS 355: Mindfulness, Meaning & Well-Being. 3 credits.
Explores the science of well-being, including theories and practices linked to various domains of well-being such as mindfulness, resilience, life-satisfaction, happiness, mind-body wellness, and meaning and purpose. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 355.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Lecture

INTS 360: The Built Environment. 6 credits.
Examines, records, and interprets objects, structures, and landscapes that compose our built environment. Draws on the fields of historical archaeology, architectural history, and urban geography, and employs photography, cartography, and evocative writing to represent the material world we inhabit. Builds on study of one neighborhood in Arlington, Virginia, and expands to entire metropolitan area. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to ANTH 315, ANTH 399, NCLC 360.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Seminar

INTS 361: Neighborhood, Community, and Identity. 3-6 credits.
Examines processes of neighborhood formation and transformation in the context of urbanism, suburbanism, immigration, and transmigration. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 361.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Lecture

INTS 362: Social Justice and Human Rights. 3 credits.
Considers the philosophical foundations of social justice and human rights. Explores the interpretive difficulties related to identifying what constitutes human rights abuses, and evaluates regional perspectives on human rights. Analyzes institutions that strive to promote and enforce social justice and human rights standards including the United Nations system, regional human rights bodies, and domestic courts. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 362.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Lecture

INTS 365: Independent Study. 1-12 credits.
Individualized section form required. Study of a topic not otherwise available to the student. May involve any combination of reading assignments, tutorials, lectures, papers, presentations, or field/laboratory study (determined in consultation with instructor) Students are encouraged to work as a team on a particular topic. Notes: Maximum 12 credits can be used to fulfill graduation requirements. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 12 credits.

Specialized Designation: Writing Intensive in the Major
Schedule Type: Independent Study

INTS 370: Sustainable Food Systems. 6 credits.
Examines the evolution of US food systems with particular emphasis on the national capital region. Students place conventional agriculture and food systems in historical context and research alternative systems that emphasize sustainability. Beyond farm to table, this course asks students to contemplate how capitalism, industrialization, and
environmental ethics shape our land, culture, and society. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Seminar

**INTS 371:** Food Systems and Policy. 3 credits.
Examines the roles of individuals, corporations, and government in creating food policy. Students investigate US agriculture, food production and the environment, food and beverage processing, food safety and labeling, food sales and marketing, dietary guidance, and federal food assistance programs. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Seminar

**INTS 375:** Special Topics. 1-18 credits.
Studies topics of special interest to undergraduates. Notes: May be repeated for credit when topic is different. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 18 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 378:** Medicine, Justice, and Public Policy. 3 credits.
Explores formation of public policy relating to several key issues in medicine. Students examine basic theories of justice and public policy formation and apply these to contemporary issues in the field of medicine. The goal is to examine how current policy on these issues was established and to give examples of major stakeholders in the debate. This course involves some traditional lecture and discussion classes and also features participative learning through group work and web-based discussions. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 378.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 381:** When Cultural Worlds Collide. 6 credits.
Examines what happens when "civilization" encounters "the jungle" by reading, writing, discussing, and viewing written and filmed works dealing with contacts between cultures with colliding world views. Literature (from Conrad's The Heart of Darkness to Shakespeare's The Tempest to Burrough's Tarzan), news articles, radio broadcasts, web home pages, art exhibits, and many film and video presentations provide the basis for in-class and out-of-class activities. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 381.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 390:** International Internship. 1-6 credits.
Internship credit may be applied to 12 credits required in experiential learning. Notes: Students may take no more than 6 credits in any one semester, unless approved by director of experiential learning or executive director. Structured and supervised professional experience, within an approved agency, for which the student earns academic credit. The primary purpose of an internship is to connect the student's academic course work to experiences and challenges outside the university classroom. The faculty also expects that students will enhance their competencies and skills and explore career options. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 24 credits. Equivalent to NCLC 390.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 391:** Introduction to Integrative Studies. 3 credits.
Describes key components of the Integrative Studies Program in The School of Integrative Studies. Students prepare for active participation as a community of learners to develop skills in reflective learning and self-assessment, and identify areas of intellectual and professional interests, values and skills so that students may take greater advantage of opportunities in SIS. As a learning community, this course fosters group collaboration, intensive writing, and reflective learning. Notes: Students may not enroll in this course after completing 12 or more learning community credits or simultaneously with or after completing INTS 491. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 391.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 394:** Service-Learning Experience. 1-15 credits.
Service-learning courses offer students, faculty, and community partners an opportunity to work together to integrate and apply knowledge to address community needs. Learning goals, action strategies, and assignments developed collaboratively. Students demonstrate progress through critical reflection that illustrates growth in acquiring and comprehending values, skills, and knowledge content. Critical reflection may take the form of papers, presentations, portfolios, journals, and exams. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 15 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 395:** Field-Based Work. 1-18 credits.
Directed field studies in topic not otherwise available to students. Notes: Topics vary, but entire course or significant component is located off campus. In addition to field work, course may also include reading assignments, tutorials, lectures, papers, presentations, portfolios, journals, and exams. Students bear costs of required field trips and should consult the Center for Social Action and Integrative Learning for more information. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 24 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 396:** Teaching Assistant Experience. 1-6 credits.
Teaching assistantship and peer-mentoring duties carried out through existing university programs, such as Technology Assistants, Writing Tutors, and Residence Advisors. Also includes teaching assistantship arrangements for specific courses detailed in individualized course contract signed by instructor and student. In addition to peer mentoring/advising, course work may include logistical support, reading

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture
assignments, papers, presentations, and portfolios. Offered by School of Integrative Studies (p. 564). May be repeated within the degree for a maximum 15 credits. Equivalent to NCLC 396.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 397:** Add-On Experiential Learning. 1-3 credits.
For students who wish to add one or more experiential learning credit to existing experiential learning course or learning community. Notes: May also be used by students who wish to add an experiential learning component to course that provides no experiential learning credit (with permission of instructor). Unless experiential learning add-on requirements are spelled out in course syllabus, requirements for add-on experiential learning credit must be detailed in individualized course contract signed by instructor and student. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 4 credits. Equivalent to NCLC 397.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 398:** Field-Based Work. 1-15 credits.
Experiential-based individualized studies, mentored by instructor. Notes: Topics decided by student and instructor and approved by executive director. Requirements must be detailed in individualized course contract signed by student, instructor, and executive director. May include reading assignments, papers, journals, and portfolios. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 15 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 399:** Study Abroad. 1-6 credits.
Intended for participation in formally organized course offered by Center for Global Education. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 16 credits. Equivalent to NCLC 399.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**400 Level Courses**

**INTS 400:** Temptress: Constructs of Sex and Power. 3 credits.
Examines the portrayal of powerful and/or sexual women throughout history, identifying famous historical "temptresses" and investigating the facts known about them. Explores representations and perceptions of contemporary female sexuality, considering possible future concepts and images of female power and sexuality. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 400.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 401:** Conservation Biology. 6 credits.
Provides students with a working knowledge of conservation biology. Integrates the study of social, economic, and political factors with biodiversity, population modeling, habitat degradation, and management issues. Students confront the leading edge of this exciting field by developing real species conservation plans. The experiential learning component of the course will include trips to the Smithsonian Institution's Conservation and Research Center in Front Royal, Virginia, to study with nationally known experts. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 401.

**Specialized Designation:** Green Leaf Course, Writing Intensive in the Major

**Recommended Prerequisite:** Junior standing or permission of instructor.

**Schedule Type:** Lecture

**INTS 402:** Plants and People - Sustenance, Ceremony, and Sustainability. 6 credits.
Examines the direct relationships between people and plants by integrating perspectives from both ethnobotany and economic botany. Provides students with an appreciation of the fundamental role of plants and plant-derived products in all aspects of human life in both industrialized and non-industrialized societies. Explores how plants and their uses have shaped both past and present cultures around the world. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 402.

**Specialized Designation:** Green Leaf Course, Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 403:** Conservation Behavior. 6 credits.
Introduces students to conservation behavior, a field that seeks to apply theories of animal behavior towards solving biological conservation and wildlife management problems. Consists of interactive lectures, readings (including a text and primary literature) and discussion, and hands-on, inquiry-based experiential learning while working in groups at the National Zoo to design and conduct independent behavioral-based research on endangered species. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 403.

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Seminar

**INTS 404:** Ethics and Leadership. 4 credits.
Uses an interdisciplinary approach to deepen and broaden student's learning about theories, models, and constructs related to the study and practice of ethics and leadership. Teaches students to develop ethical decision making strategies, communicate effectively in diverse group settings, value civic engagement and actively apply ethical leadership skills. Includes experiential learning activities and discussions that connect formal knowledge with real world experiences and includes one credit of experiential learning. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 404.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 405:** Women and Leadership. 4 credits.
Examines leadership within the context of the theoretical principles of women's studies through discussion of course texts, interactive exercises, field trips, documentary films, guest speakers, and reflection. Investigates the role that gender plays in the various forms of leadership and leadership styles. Explores the historical record of women in leadership roles, identifying the barriers as well as the opportunities.
Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 405.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 406:** Global Leadership. 3 credits. Develops a concept of global leadership, emphasizing the critical importance of ethical decision-making, social responsibility, and cultural awareness. Students formulate the construction process of a global mindset and begin to develop a personal philosophy of global leadership. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

**Schedule Type:** Seminar

**INTS 410:** Contemporary Health Issues. 3-18 credits. Looks at a variety of health and health care issues. Examines several of the major health concerns of women and, to a lesser degree, men. Also explores the biology and medical implications of these diseases and how our society deals with potential life-altering information. Examines who is making the decisions on the allocation of research funds and prevention of diseases. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 410, WMST 300.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 416:** Refugee and Internal Displacement. 3 credits. Provides students with a deeper understanding of refugee and internal displacement. Explores causes of displacement and its impact on people and societies. Studies the role played by governments, non-governmental organizations (NGOs) and the international community in addressing problems faced by refugees in internally displaced persons in terms of relief assistance and humanitarian services. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 416.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 417:** Human Trafficking and the International Community. 3 credits. Explores the complexity of human trafficking, one of the fastest growing criminal enterprises in the world. Examines forms of human trafficking and the countries that serve as source, transit or destinations of trafficked individuals and groups. Studies the role of the international community in addressing trafficking, including regional and national authorities and non-governmental agencies. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

**Schedule Type:** Seminar

**INTS 420:** Work Effectiveness Skills. 3 credits. Develops a variety of work-readiness skills needed to become successful in both local and global marketplaces. Topics and skills covered include communication, problem solving in the business setting, workplace ethics, listening skills, how to influence others, building team project rapport, and meeting effectiveness skills. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 420.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 422:** An Experiential Approach to American Foreign Policy. 3-6 credits. Takes an experiential approach to the study of American foreign policy. Through case studies, discussions, group projects, and directed research, students learn how foreign policy is made and executed and how they as citizens, activists, or officials can influence national decisions. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 422.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** INTS 331.

**Schedule Type:** Seminar

**INTS 431:** Principles of Fund Raising. 4 credits. Examines history of philanthropy and public policy, and the economic and legal frameworks that shape it. Combining theory and practice, students study human behavior, communications, and management systems that are hallmarks of successful fund raising, and begin to develop skills to generate donations, foundation grants, and other unearned revenue for a nonprofit organization. Notes: Includes 1 experiential learning credit. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 431.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** 60 credits.

**Schedule Type:** Lecture

**INTS 435:** Leadership in a Changing Environment. 4 credits. Examines diverse definitions and processes of change across multiple complex contexts. Focuses on identifying innovative, collaborative solutions to seemingly intractable social problems. Explores topics such as social change and globalization, creative conflict resolution, the nature of power, oppression and influence, and systemic leadership. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 435.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** INTS 331.

**Schedule Type:** Lecture

**INTS 436:** Social Justice Education. 4 credits. Examines educational policy, practice, and materials using a variety of lenses informed by social justice theory and praxis. Investigates ways in which racism, sexism, economic injustice, heterosexism, ageism, and other forms of discrimination influence schools and educational access and opportunity for youth. Considers and practices what individuals and communities can do to ensure that all students have equitable educational opportunities. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 436.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

**INTS 437:** Critical Race Studies. 3 credits. Engages students in an examination of the forms and impacts of racism, as well as movements for racial justice, in the United States. Draws on theoretical frameworks including critical race theory and intersectionality theory in order to examine the structural roots of racism and the implicit
and explicit ways in which racism manifests today. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** NCLC 345 or INTS 345.

**Schedule Type:** Lecture

**INTS 446: Art, Beauty, and Culture.** 3-6 credits.
Designed to help students understand the culture- and time-bound nature of beauty as it relates to art. Exploration of how the codes of acceptability in art forms have changed over time, with discussion about the subversive nature of art and the role that beauty plays in art that is created to engage the viewer in some type of action. Exercises include research projects, site visits, and gallery attendance. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 446.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 455: Consciousness and Transformation in Action.** 3 credits.
Covers how principles and practices of consciousness and transformation relate to the major and career pathway it represents. Includes the theory and practices for deepening the student's own experience with the mindfulness and contemplative approaches to inquire. Capstone course for the minor in consciousness and transformation. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 455.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** Sophomore standing and permission of instructor.

**Schedule Type:** Internship

**INTS 491: The Senior Capstone Experience.** 3 credits.
Should be taken semester before graduation; 85 credits required. Graduation requirement for integrative studies students. Students complete final SIS portfolio and senior exposition. Provides information...
on issues of professional development (interviewing skills, resume development, career strategies, and alumni opportunities). Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 491.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** 85 credits. Open only to New Century College students. Course should be taken the semester prior to graduation.

**Schedule Type:** Lecture

**INTS 492: Graduation Portfolio.** 0 credits. Offered by School of Integrative Studies (p. 564). May be repeated within the degree. Equivalent to NCLC 492.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Independent Study

**INTS 493: Graduation Portfolio.** 0 credits. Notes: INTS 493 is for students who will not be enrolled in any other course work for the semester. Offered by School of Integrative Studies (p. 564). May be repeated within the degree.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Independent Study

**INTS 494: Service-Learning Experience.** 1-15 credits. Service-learning courses offer students, faculty, and community partners an opportunity to work together to integrate and apply knowledge to address community needs. Learning goals, action strategies, and assignments developed collaboratively. Students demonstrate progress through critical reflection that illustrates growth in acquiring and comprehending values, skills, and knowledge content. Critical reflection may take the form of papers, presentations, portfolios, journals, and exams. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 15 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 495: Field-Based Work.** 1-15 credits. Directed field studies in topic not otherwise available to students. Notes: Topics vary, but entire course or significant component is located off campus. In addition to field work, course may also include reading assignments, tutorials, lectures, papers, presentations, portfolios, journals, and exams. Students bear costs of required field trips and should consult the Center for Social Action and Integrative Learning for more information. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 24 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Lecture

**INTS 496: Teaching Assistant Experience.** 1-6 credits. Teaching assistantship and peer-mentoring duties carried out through existing university programs, such as technology assistants, writing tutors, and residence advisors. Also includes teaching assistantship arrangements for specific courses detailed in individualized course contract signed by instructor and student. In addition to peer mentoring/advising, course work may include logistical support, reading assignments, papers, presentations, and portfolios. Offered by School of Integrative Studies (p. 564). May be repeated within the degree for a maximum 15 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 497: Add-On Experiential Learning.** 1-3 credits. For students who wish to add one or more experiential learning credit to existing experiential learning course or learning community. Notes: May also be used by students who wish to add an experiential learning component to course that provides no experiential learning credit (with permission of instructor). Unless experiential learning add-on requirements are spelled out in course syllabus, requirements for add-on experiential learning credit must be detailed in individualized course contract signed by instructor and student. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 4 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**INTS 498: Field-Based Work.** 1-15 credits. Experiential-based individualized studies, mentored by instructor. Notes: Topics decided by student and instructor and approved by executive director. Requirements must be detailed in individualized course contract signed by student, instructor, and executive director. May include reading assignments, papers, journals, and portfolios. Offered by School of Integrative Studies (p. 564). May be repeated within the term for a maximum 15 credits.

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Internship

**500 Level Courses**

**INTS 500: Animal Rights: Issues and Movements.** 3 credits. Explores forms of animal exploitation and abuse, and examines the relationship between humans and non-human animals, drawing from a variety of disciplines and fields such as feminist studies, animal studies, sociology, ethics, critical studies, and environmental studies. Assessment of the methods and strategies used by organizations and movements in order to redress animal exploitation. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**INTS 504: Leadership Theory, Praxis, and Development.** 3 credits. Explores contemporary leadership theories, models, and concepts using a theory-to-practice-to theory framework. Covers leadership theory, supporting research, and practical application. Focuses on active learning through classroom presentations, course texts, a reflection on
theory and practice, and team work. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 504.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

INTS 537: Critical Race Studies. 3 credits.
Engages students in an examination of the forms and impacts of racism, as well as movements for racial justice in the United States. Draws on theoretical frameworks including critical race theory and intersectionality theory in order to examine the structural roots of racism and the implicit and explicit ways in which racism manifests today. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

INTS 538: Representations of Race. 4 credits.
Investigates the social and cultural construction of persistent and harmful racial categories. Offered by School of Integrative Studies (p. 564). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

INTS 540: Contemporary Issues in Social Justice & Human Rights. 3 credits.
Students will examine, study the socio-historical significance of, and consider solutions for some of the most pressing social justice and human rights issues in the world today. The issues examined will cut across identity, region, and scope, and may include concerns as varied as human trafficking, hegemony, animal abuse, child labor, and sexism. Offered by School of Integrative Studies (p. 564). May not be repeated for credit. Equivalent to NCLC 540.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

MAIS 796: MAIS ProSeminar. 1 credit.
Introduces students to the structure of the MAIS program; students create a portfolio of their work which continues during their studies; the portfolio prepares students for the capstone project or thesis. Offered by Interdisciplinary Studies. May not be repeated for credit. 

Recommended Prerequisite: Acceptance into the MAIS Program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

MAIS 797: Interdisciplinary Studies Proposal. 1 credit.
Focused on formulating and writing a MAIS project or thesis proposal. Offered by Interdisciplinary Studies. May not be repeated for credit.

Recommended Prerequisite: Admission to MAIS and completion of 21 credits of graduate course work, including any required research methodology course; MAIS 796.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
and policy. Students obtain practical information on sources of data, research and analysis of issues related to international commerce. Provides the skills necessary to conduct qualitative and quantitative research.

**ITRN 501:** Methods of Analysis for International Commerce and Policy. 3 credits.

Provides the skills necessary to conduct qualitative and quantitative research and analysis of issues related to international commerce and policy. Students obtain practical information on sources of data, their origins, strengths, and weaknesses. Helps develop tools for statistical analysis of data, and includes use of computers for analyzing and displaying information. It covers major data sources as well and literature and indices related to international policy, including trade data, economics and financial indicators, and development indicators. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ITRN 503:** Macroeconomic Policy in the Global Economy. 1-4 credits.

Provides an analytical introduction and overview of basic concepts in macroeconomic theory with an emphasis on applications to problems in the United States and the contemporary global economy. Covers topics such as inflation, growth and business cycles, fiscal and monetary policies, balance of payments and exchange rates. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**MAIS 797:** Interdisciplinary Studies Project. 1-5 credits.

Original research endeavor related to student's MAIS program concentration. Research must result in document meeting MAIS and university standards. Offered by Interdisciplinary Studies. May be repeated within the degree. Equivalent to HE 799.

**Recommended Prerequisite:** MAIS 797 and prior approval of a project proposal by the committee chair, two committee members, and MAIS director.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

**MAIS 798:** Interdisciplinary Studies Thesis. 1-5 credits.

Original research endeavor related to student's MAIS program concentration. Research must result in document meeting MAIS and university standards. Offered by Interdisciplinary Studies. May be repeated within the degree. Equivalent to HE 799.

**Recommended Prerequisite:** MAIS 797 and prior approval of a project proposal by the committee chair, two committee members, and MAIS director.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

**International Commerce and Policy (ITRN)**

**500 Level Courses**

**ITRN 500:** Global Political Economy. 1-4 credits.

Foundation course in the ICP program. Explores issues and ideas affecting global security, stability, growth and development from country, regional and thematic perspectives. Introduces students to key concepts, policies, and practices that underpin international commerce, international relations more broadly, and non-governmental transnational activities. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ITRN 602:** Global Financial Crises and Institutions. 3 credits.

Examines the modern financial sector: how it operates, its regulation, and its role in risk transmission and crisis formation. Reviews global financial markets and instruments. Considers the role of multilateral and regional financial institutions in management of crises, macroeconomic adjustment, development policy and capital flows with emphases on
financial crises including the 2007-09 crisis. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** ITRN 503.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ITRN 603: Global Trade Relations.** 3 credits.
Examines U.S. trade policy in the context of global trade relations. Considers the global trading system from legal, institutional and political perspectives, giving particular attention to trade agencies in the United States and abroad, international agreements, and the World Trade Organization. Trade policy formation is analyzed within the context of competing interest groups and corporate strategies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** ITRN 504.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ITRN 604: International Trade and Technology.** 3 credits.
Examines science and technology policies and international trade, with emphasis on relationships and interactions. Assesses roles of science and technology as economic drivers, and explores strategies employed by companies and governments to link research and development to economic growth and competitiveness. Examines research and development systems and technology-related trade policies of United States, Japan, Europe, major developing countries, and selected newly industrialized economies, emphasizing policies affecting trade and technology. Explores specific cases involving interactions among science, technology, and international trade. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ITRN 710: International Business Transactions: Finance and Investment.** 3 credits.
Focuses on issues of management and organization, and resolution of conflicts that may arise between business organizations and home and host governments. Also focuses on role of multinational corporations in international environment, and impact on global trade, economic development, and political system. Also studies trade and international investment theories and world financial environment. Explores broad issues such as sovereignty of decision making and global impact of business activities. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**ITRN 701: Special Topics in International Commerce and Policy.** 1-3 credits.
Offers specialized courses on various aspects of international commerce and policy. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ITRN 702: Special Topics in International Commerce and Policy: Study Abroad.** 3-6 credits.
Provides opportunity for study abroad under supervision of Mason faculty. Notes: Course topics, content, and locations vary. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**ITRN 710: International Business Transactions: Finance and Investment.** 3 credits.
Focuses on techniques for financing trade and payment methods, including letters of credit, counter trade, and other approaches. Covers issues of direct concern in financing international business operations, such as preparing financing proposals, risk insurance, international taxation, pricing policies, and currency conversion and foreign exchange risk management. Introduces foreign direct investment, alliances and acquisitions, joint ventures, and other methods for investing overseas. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

ITRN 711: United States Law and Global Trade. 3 credits.
Surveys types of regulations imposed by United States, foreign
governments, and international institutions on transnational business
activities. Reviews principal regulatory bodies in United States and
overseas, and powers and authorities. Covers tariffs and customs
regulations; product safety and environmental restrictions; intellectual
property, copyright, trademark, and patent regulations; and licensing
rules. Also covers special restrictions that may be imposed because of
political considerations such as embargoes, munitions controls, and
anti bribery and antiboycott regulations. Offered by Schar School of Policy
& Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 712: World Trade Organization and Global Trade. 3 credits.
Focuses on legal aspects of international trade regulation by studying
international legal and political regime established under WTO, and
assessing impact of domestic economic legislation on U.S. trade
regulations. Offered by Schar School of Policy & Govt (p. 906). May not be
repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 715: Global Environment and the World Economy. 3 credits.
Examines growing relationship between environmental interdependence
and developing world economy. Assesses increased globalization of
environmental and health issues with a focus on the impact on those
issues on international transactions involving trade and development.
Attempts to develop an understanding of relationship of scientific
knowledge to global environment in context of existing political and
economic institutions. Emphasizes formulating and assessing policies
and structures for corporations, nations, regions, and international
organizations. Tensions among free trade, international competitiveness,
and regulatory responses are central. Gives attention to practices of
nations and international organizations, emerging forms of regional and
international cooperation, and growing use of multilateral agreements.
Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 716: European Union in the International System. 3 credits.
Examines current developments in European market integration from
global perspective. Emphasizes impact of single market, and proposed
economic and monetary union of United States and other major trading
partners. Examines European economic relations with Eastern Europe,
former Soviet Union, and Lome Pact countries. Offered by Schar School
of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 717: International Science and Technology. 3 credits.
Examines U.S. science and technology policies (S&T) and structures,
as well as those in other leading countries. Assesses functional links
between S&T and international transactions focusing on trade, national
security, finance, and development assistance. Considers emergence
of multilateralism and international institutional arrangements as
alternatives to traditional bilateral patterns of cooperation. Offered by
Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 718: Global Economic and Human Development. 3 credits.
Interdisciplinary examination of economic and human development
in world economy. Introduces alternative concepts and theories of
economic and human development, and analytical frameworks for
assessing important issues that arise in development process. Topics
include colonialism, economic growth, population, health, education,
industrialization, and rural development. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 720: Regional and Supranational Organizations. 3 credits.
Assesses role of international organizations in international system
today, and focuses on wide range of international and regional economic
and political institutions. Emphasizes changing nature of these
organizations in relation to nation states, and relationship of international
organizations to U.S. national security and economic interests. Offered
by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 731: Business-to-Business Marketing in International Commerce. 3
credits.
Provides understanding of concepts of international marketing process
and international environment within which companies operate. Offered
by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
ITRN 736: Sources of Growth in East Asia. 3 credits. 
Examines extraordinary economic success of East Asian NIEs and some of their problems. Focuses on understanding proximate sources of growth, role of technological development, and salient political issues. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: 
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 738: Fundamentals of International Marketing. 3 credits. 
Offers working knowledge of principles and practices that enable managers to effectively market organizations, products, services, and brands. Emphasizes international dimensions of marketing where appropriate. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: 
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 740: Trade and Regulatory Compliance. 3 credits. 
Acquaints students with legal, regulatory, and practical issues in importation and exportation of merchandise. Topics include theoretical framework for government oversight of international movement of goods; legal issues between parties and governments; and practical guidance concerning structuring of import and export transactions to avoid legal and tariff liability. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: 
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 742: Technology Policy and International Strategies. 3 credits. 
Introduces opportunities and problems created for organizations and society by Internet, and policies affecting trajectory of Internet developments. Also covers technological factors in planning horizon; domestic policy and international treaty factors affecting Internet trajectory; and new horizons for Internet applications. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions: 
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 744: The Politics of International Competitiveness. 3 credits. 
Provides inquiry into governance problems of public managers and political leaders as they cope with global competitiveness in post-industrial era. Focuses on integrating public and private sectors worldwide, with special emphasis on U.S. role and how it influences such areas as technology transfer, national security, electronic commerce, trade policies, money flows, and human resources. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions: 
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 750: Trade and Politics in Eastern Europe and the Former Soviet Union. 3 credits. 
Examines background and recent developments in political, business, and cultural environment confronting American firms seeking to do business in Eastern Europe and former Soviet Union. Emphasizes international trade patterns and relations between these states and United States. Examines modes of doing business in these countries, and unique problems American firms confront. Focuses on privatization, joint ventures, and counter trade. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions: 
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 752: Global Business and Policy. 3 credits. 
Focuses on the multinational firm (MNE) and examines the international activities of large companies as well as small and medium sized enterprises. Assesses how firms strategize across national borders and address the challenges posed by different governance structures, political economies, institutions and cultures. Theoretical concepts are applied to ‘real’ business situations and case studies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: 
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 754: International Commercialization of Space. 3 credits. 
Identifies and analyzes problems and transactions concerning privatization and commercialization of transnational space activities, including launch and satellite operations. Emphasizes interplay of new technologies with existing legal, political, and business structures in formulating viable commercial satellite and launch operations. Focuses on planning and implementing private space actions in conjunction with various public and private international organizations. Sessions focus on interdisciplinary aspects of space commercialization involving technology, finance, tax, insurance, joint venture and business matters, and international legal and national regulatory issues. Guest lecturers include leading business executives engaged in space and satellite operations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Country Risk Analysis.

ITRN 756: National Security and the Global Economy. 3 credits.
Examines impact of globalization and changes in international economic and political systems on concepts of national security. Emphasizes nexus of economic and security concerns in post-Cold War era, with particular attention to emerging issues including trade and economic security, proliferation of advanced military technology and control of weapons of mass destruction, international drug trafficking, and defense conversion. Focuses on implications of changing security requirements on U.S. defense and economic policy and activities. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 757: Business and Politics in Emerging Markets. 3 credits.
Examines developing countries that are major destination points for international financial flows and foreign direct investment. Emerging markets have become a major influence in the world economy both because of the potential for growth and the downside risks from economic crises. The course uses the new institutional economics to analyze the interplay of political, economic, and business conditions. Institutional economics is a combination of economics, economic history, and political science. Topics covered include the politics of economic reform, drivers of globalization and investment, the informal sector, and relationships of risk and reward. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 758: Global Market Planning Practicum. 3 credits.
Provides opportunity to develop international market plan for specific industry or service sector. Students consult with industry experts and use key trade databases to develop strategic plan that recommends market entry strategies. Completed market plan submitted to industry experts for use and dissemination. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 759: Country Risk Analysis. 3 credits.
Presents a wide variety of country risk analysis methods used by corporations, financial institutions, governments, international organizations, specialized consulting groups, and publications. These methods are used to design policies, programs, and projects in the international arena. The course explores natural, commercial, economics, political and financial risk. It also provides a conceptual foundation for understanding the sources of risk, the impacts of risk on public and private sector activities, and the ways that risk can be successfully mitigated or managed. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 760: International Environmental Politics. 3 credits.
Examines growing concerns related to global environmental issues and problems they pose to domestic, foreign, and international political institutions. Covers major environmental issues including global warming, ozone depletion, cross-border flow of pollution, and threats to biodiversity. Assesses strengths and weaknesses of traditional political institutions in dealing with these issues and providing for sustainable economic development while limiting environmental damage. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 761: European Political and Economic Union. 3 credits.
Examines movement for European integration since World War II, focusing on political and institutional development of European Community/Union. Topics include theories of European integration, Treaties of Rome, Single European Act, Maastricht Treaty, European Union (EU) policies and programs, and EU's external relations. Analyzes changing nature of U.S.-EU relations and prospects for EU enlargement into Central and Eastern Europe. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 764: Trade, Investment, and Politics in East Asia. 3 credits.
Examines issues related to international transactions involving Korea, China, Taiwan, and Hong Kong, with some attention to Japan. Focuses on trade and financial relations between these East Asian nations and United States. Assesses impact of culture and domestic political and economic institutions within these states, and roles in regional institutions and in international system. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

ITRN 765: Trade, Investment, and Politics in Sub-Saharan Africa. 3 credits. Examines role and potential of sub-Saharan Africa in international trading system. Emphasizes political, historical, cultural, and development factors. Focuses on perspectives of U.S. firms and on international institutions trading or investing in region. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 766: Trade, Investment, and Politics in the Middle East and North Africa. 3 credits. Examines major economic, political, and cultural issues that influence trade and investment relations with Middle East and North Africa. Focuses on roles of international and regional institutions in economic development, and develops understanding of challenges facing region and their implications for formulating trade and investment strategies by U.S. firms. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 767: Political Economy and Integration in Latin America. 3 credits. Examines contemporary political, economic, and cultural dynamics of Latin American and Caribbean regions. Emphasizes issues and trends that affect U.S.-Latin American political, business, and trade relations, particularly recent political and economic reforms. Examines roles of domestic interest groups and decision-making systems in individual countries, and evolution of regional integration arrangements and integration with international system. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 768: Global Intellectual Property Rights and International Trade. 3 credits. Examines national and regional systems, international contractual relations (licensing), and the evolving global system for protecting intellectual property. Addresses current international treaty system and the ongoing multilateral efforts to strengthen worldwide intellectual property protection. Examines intellectual property regimes worldwide, including regional and bilateral challenges and opportunities, and relevant U.S. law and policy responses. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 769: International Entrepreneurship. 3 credits. Introduces practical planning approach for small and medium-size entrepreneurial firms seeking to enter international marketplace. Focuses on key business and financial documents related to doing business overseas; and assesses role of language, technology, and information systems in formulating successful business strategy. Role playing and simulated negotiations provide opportunities for students to sharpen business skills. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 770: International Contract Negotiation. 3 credits. Reviews growing role of arbitration in international transactions. Examines international, national, and government arbitration bodies, with particular emphasis on how differing cultural characteristics affect negotiating behavior and effectiveness of arbitration. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 771: Trade, Investment, and Politics in South and Southeast Asia. 3 credits. Focuses on trade and finance issues in the most dynamic countries of South and Southeast Asia. Assesses cultural and political factors, regional trade patterns, and institutions, focusing on implications for regional development and business opportunities for U.S. firms. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: ITRN 500.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ITRN 772: International Telecommunications. 3 credits. Focuses on developments in international telecommunications and satellite regulation. Examines regulatory environment, and business and financial aspects of global telecommunications industry. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students. Students in a Non-Degree Undergraduate degree may not enroll.
Italian (ITAL)

100 Level Courses

ITAL 101: Elementary Italian I. 3 credits.
Designed for students with no prior knowledge of Italian. Includes elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Notes: Students may not receive credit for ITAL 101 and ITAL 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ITAL 110.

Schedule Type: Lecture

ITAL 102: Elementary Italian II. 3 credits.
Continuation of ITAL 101. Notes: Students may not receive credit for ITAL 102 and ITAL 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ITAL 110.

Recommended Prerequisite: ITAL 101.

Schedule Type: Lecture

ITAL 110: Elementary Italian. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Notes: Students may not receive credit for ITAL 110 and ITAL 101 or 102. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ITAL 101, ITAL 102.

Schedule Type: Lecture

200 Level Courses

ITAL 201: Intermediate Italian I. 3 credits.
Further development of skills in listening, speaking, and writing. Notes: ITAL 201 and 202 must be taken in sequence. Students may not receive credit for ITAL 201 and ITAL 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ITAL 210.

Recommended Prerequisite: ITAL 102 or permission of department.

Schedule Type: Lecture

ITAL 202: Intermediate Italian II. 3 credits.
Application of language skills to reading, composition, and discussion. Notes: Students may not receive credit for ITAL 202 and ITAL 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ITAL 210.

Recommended Prerequisite: ITAL 201 or permission of department.

Schedule Type: Lecture

ITAL 210: Intermediate Italian. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Italian-speaking regions. Notes: Students may not receive credit for ITAL 210 and ITAL 201 or 202. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ITAL 201, ITAL 202.

Recommended Prerequisite: ITAL 110 or appropriate placement score.

Schedule Type: Lecture
ITAL 250: Gateway to Advanced Italian. 3 credits.
Development of advanced intermediate-level proficiency with a primary focus on seven major communicative functions: describing, comparing, recommending and expressing opinions, recounting the past, expressing likes and dislikes, hypothesizing, and talking about the future. Examination of authentic materials from various Italian-speaking regions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Italian
Recommended Prerequisite: ITAL 210; appropriate placement score; or permission of department.
Schedule Type: Lecture

300 Level Courses
ITAL 320: Topics in Italian Film and Literature. 3 credits.
Explores Italian history through the lens of literary and cinematic movements from 1911 onwards. Compares the representations of historical movements in different artistic languages, from poetry and prose to the moving image. Topics include neorealism, Fascism, the Resistance, the Mafia and others. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)
Specialized Designation: Taught in English
Recommended Prerequisite: ENGL 101, or equivalent.
Schedule Type: Lecture
ITAL 325: Major Italian Writers. 3 credits.
Works of major Italian or Italian-American authors in translation. Writers to be studied vary. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Mason Core: Literature (p. 135)
Specialized Designation: Taught in English
Recommended Prerequisite: ENGL 101/ENGH 101 or equivalent or permission of instructor.
Schedule Type: Lecture
ITAL 330: Advanced Italian: Language and Culture I. 3 credits.
An advanced course that emphasizes linguistic fluency and cultural awareness in contemporary Italian realities. Highlights changes in the domestic, regional, and national spheres. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in Italian
Recommended Prerequisite: ITAL 330; placement score or permission of the instructor.
Schedule Type: Lecture
ITAL 340: Italian through Arts. 3 credits.
Develops linguistic proficiency and historical and cultural awareness through the study of a thematic selection of films. Fosters advanced reading, writing, speaking, and listening skills, incorporating advanced-level grammar and vocabulary in a content-based approach. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in Italian
Recommended Prerequisite: ITAL 250, appropriate placement score, or permission of instructor.
Schedule Type: Lecture
ITAL 360: Southern Italy. 3 credits.
Examines the history and culture of southern Italy with an eye toward cultural and linguistic competence. Students analyze authentic texts ranging from literature to journalism that treat a specific area of southern Italy. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in Italian
Recommended Prerequisite: ITAL 250 or permission of instructor.
Schedule Type: Lecture

400 Level Courses
ITAL 420: Global and Local Italy. 3 credits.
Examines Italian culture in its urban, regional, national, and diasporic manifestations. Analyzes authentic texts, from literature to journalism, in the spirit of a cultural studies approach. Fosters advanced reading, writing, speaking, and listening skills that will enable students to understand and critique contemporary Italy with greater ease and sophistication. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to ITAL 350.

Specialized Designation: Taught in Italian
Recommended Prerequisite: ITAL 330.
Schedule Type: Lecture

Japanese (JAPA)
100 Level Courses
JAPA 101: Introduction to the Japanese Language. 3 credits.
Includes basic grammar, oral expression, listening comprehension, and reading and writing. Notes: Students may not receive credit for JAPA 101
and JAPA 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to JAPA 110.

**Schedule Type:** Lecture

**JAPA 102: Introduction to the Japanese Language.** 3 credits.
Includes basic grammar, oral expression, listening comprehension, and reading and writing. Notes: Students may not receive credit for JAPA 102 and JAPA 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to JAPA 110.

**Recommended Prerequisite:** JAPA 101, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**JAPA 110: Elementary Japanese.** 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, reading, and writing. Notes: Students may not receive credit for JAPA 110 and JAPA 101, 102. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to JAPA 110, JAPA 102, JAPA 109.

**Schedule Type:** Lecture

### 200 Level Courses

**JAPA 201: Intermediate Japanese I.** 3 credits.
Further development of skills acquired in JAPA 101 and 102, including grammar, oral expression, listening comprehension, reading and writing. Use of written language (katakana, hiragana, and kanji) emphasized. Notes: Students may not receive credit for JAPA 201 and JAPA 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to JAPA 210.

**Recommended Prerequisite:** JAPA 102 or equivalent.

**Schedule Type:** Lecture

**JAPA 202: Intermediate Japanese II.** 3 credits.
Continuation of JAPA 201. Notes: Students may not receive credit for JAPA 202 and JAPA 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to JAPA 210.

**Recommended Prerequisite:** JAPA 201 or equivalent.

**Schedule Type:** Lecture

**JAPA 210: Intermediate Japanese.** 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Also introduces students to Japanese culture and society. Notes: Students may not receive credit for JAPA 210 and JAPA 201, 202. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to JAPA 201, JAPA 202, JAPA 209.

**Recommended Prerequisite:** JAPA 110, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**JAPA 250: Gateway to Advanced Japanese.** 3 credits.
Development of advanced intermediate-level Japanese language skills in the interpersonal, interpretive, and presentational modes of communication. Incorporates strong component of critical and comparative analysis of Japanese cultural products, practices, and perspectives of the past and the present. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Japanese

**Recommended Prerequisite:** JAPA 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

### 300 Level Courses

**JAPA 310: Japanese Culture in a Global World.** 3 credits.
Study of globalizing Japanese cultural phenomena from the 19th through the 21st century. Explores how movements of ideas, technologies and products across borders influence both local and global ideas and practice. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in English, Non-Western Culture

**Recommended Prerequisite:** ENGL 101/ENGH 101 or equivalent or permission of instructor.

**Schedule Type:** Lecture

**JAPA 320: Japanese Cinema.** 3 credits.
Comprehensive analysis of Japanese cinema based on cross-cultural perspectives and cultural criticism. Major developments and trends as viewed in selected Japanese films with emphasis on post war and contemporary eras. Knowledge of Japanese history, communication, and cultural studies or film and media studies helpful. Notes: May be repeated when topic is different with approval of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum of 3 credits.

**Specialized Designation:** Taught in English

**Schedule Type:** Lecture

**JAPA 330: Advanced Reading and Speaking I.** 3 credits.
Designed for students to develop conversational proficiency and reading skills. Students work toward a mastery of linguistic and sociolinguistic rules by incorporating reading and speaking abilities through class discussions, reports, and presentations. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Japanese

**Recommended Prerequisite:** JAPA 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**JAPA 331: Advanced Reading and Speaking II.** 3 credits.
Designed for students to develop conversational proficiency and reading skills. Students continue to develop mastery of linguistic and sociolinguistic rules by incorporating reading and speaking abilities through class discussions, reports and presentations. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Japanese

**Recommended Prerequisite:** JAPA 330, appropriate placement score, or permission of instructor.
Schedule Type: Lecture

**JAPA 340: Topics in Japanese Literature.** 3 credits.
Study of selected topics in Japanese literature in English translation. Content varies. Notes: May be repeated when topic is different with permission of department. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Literature (p. 135)

Specialized Designation: Taught in English, Non-Western Culture

Recommended Prerequisite: ENGH 101 or equivalent, or permission of instructor.

Schedule Type: Lecture

**JAPA 350: Readings in Japanese Culture.** 3 credits.
An integrated content-based Japanese course designed to advance students’ oral and writing skills, as well as their critical understanding of Japanese culture and mythology. Introduces a variety of genres, such as rakugo (traditional comical story-telling), shinwa (myths), and mukashi-banashi (folk legends). Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Japanese

Recommended Prerequisite: JAPA 250, appropriate placement score, or permission of department.

Schedule Type: Lecture

**JAPA 360: Topics in Japanese Popular Culture.** 3 credits.
In-depth look at anime and manga in order to arrive at a deeper understanding and appreciation of the cultures and histories that generated these art forms, as well as how they continue to shape international entertainment media and fan subcultures. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in English

Schedule Type: Lecture

**JAPA 370: Video Games and Japan.** 3 credits.
Examines video games as digital works of art, literature, and social engagement within the context of contemporary transnational mediascape. Includes study of the history and development of Japanese video games, as well as the markets and cultures surrounding them. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture

400 Level Courses

**JAPA 440: Integrated Study of Japanese Language and Society I.** 3 credits.
Integrated approach to study of Japanese language and society through grammar review, vocabulary and kanji development, intensive practice in spoken and written Japanese, and sociological and cultural readings and analysis. Includes class discussion, oral and written reports, and out-of-class direct interactions with native speakers. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Japanese

Recommended Prerequisite: JAPA 331, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

**JAPA 441: Integrated Study of Japanese Language and Society II.** 3 credits.
Integrated approach to study of Japanese language and society through grammar review, vocabulary and kanji development, intensive practice in spoken and written Japanese, and sociological and cultural readings and analysis. Includes class discussion, oral and written reports, and out-of-class direct interactions with native speakers. More emphasis on actual use of Japanese language. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Japanese

Recommended Prerequisite: JAPA 440, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

Kinesiology (KINE)

100 Level Courses

**KINE 100: Introduction to Kinesiology.** 3 credits.
Provides overview of the field of kinesiology in the form of an introductory course. Exposes students to the history of the field, and its emphasis on evidence based knowledge. Explains policies and procedures for the major. Explorers career options. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

200 Level Courses

**KINE 200: Introduction to Personal Training.** 3 credits.
Provides students with basic knowledge and skills associated with exercise training methods, lifting techniques, and health-related fitness testing procedures. Selection of developmentally appropriate exercises emphasized. Participation in fitness tests required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 124C, 125C, ATEP 300C and KINE 310C).
C Requires minimum grade of C.

Schedule Type: Lecture

**KINE 249: An Analysis of Boxing.** 3 credits.
Provides study of the sport of boxing from cultural, historical, physical, and scientific perspectives. Well-known writings from literature on boxing as well as boxing training methods, and program design will be addressed. Physical participation will include basic boxing skills, conditioning, and fitness testing of participants. All students must purchase hand wraps, heavy bag gloves, mouthpieces, and jump ropes. Boxing and/or wrestling shoes are strongly recommended. Notes: All students must purchase hand wraps, heavy bag gloves, mouthpieces, and jump ropes. Boxing and/or wrestling shoes are strongly recommended. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: ENGH 100 or ENGH 101.

Schedule Type: Lecture
KINE 250: Endurance Sport Program Design. 3 credits. Provides students with knowledge necessary to train another individual safely and effectively for endurance sports. Emphasis will be placed on running; however, cycling and swimming will be covered. Topics covered include: functional, physiology, psychological aspects of endurance competitions, basic nutritional requirements, injury reduction, training techniques, safety, race management, and history of endurance sports. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: BIOL 124, BIOL 125, ATEP 300, KINE 200.

Schedule Type: Lecture

300 Level Courses
KINE 310: Exercise Physiology I. 3 credits. Introduces students to the physiologic, neuroendocrine, and biochemical changes of the human body that are associated with exercise and work. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 124C and 125C).
C Requires minimum grade of C.

Schedule Type: Lecture

KINE 320: Principles of Human Nutrition. 3 credits. Assesses dietary habits and patterns in relation to nutrient requirements across the age spectrum and for a variety of populations. Emphasizes weight control, diet in relation to physical activity, and current nutritional controversies. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (BIOL 124C and 125C).
C Requires minimum grade of C.

Schedule Type: Lecture

KINE 330: Seminar in Kinesiology. 3 credits. Prepares students for the fieldwork experience in KINE 341: Kinesiology Internship I. Topics covered include: professionalism, review of evidence-based position papers, and discussion of contemporary issues in kinesiology. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to HEAL 430.

Recommended Prerequisite: Junior standing (60 credit hours)

Registration Restrictions:
Required Prerequisites: KINE 100C, 200C and 370C.
C Requires minimum grade of C.

Schedule Type: Seminar

KINE 341: Kinesiology Internship I. 3 credits. Provides a paid or voluntary supervised professional experience in an approved exercise science professional setting under the supervision of a practicum University Supervisor and Agency Supervisor. Current CPR, AED, and First Aid Certification required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (KINE 200C, 310C, 330C, 350C and 370C).
C Requires minimum grade of C.

Schedule Type: Internship

KINE 350: Exercise Prescription and Programming. 3 credits.
Provides students with an opportunity to develop an understanding of the assessment and evaluation process used in cardio-respiratory training and anaerobic conditioning for healthy, athletic, and symptomatic populations. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (KINE 200C, 310C, 370C and ATEP 300C).
C Requires minimum grade of C.

Schedule Type: Lecture

KINE 360: Strength Training: Concepts and Applications. 3 credits. Provides students with an opportunity to develop an in-depth understanding of the principles of strength training and conditioning, including: anatomical and physiological considerations, lifting techniques, equipment selection, program development/evaluation, and weightlifting safety; thus enabling them to teach and train client. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 364.

Registration Restrictions:
Required Prerequisites: (BIOL 124C, 125C and KINE 310C) and ATEP 300C.
C Requires minimum grade of C.

Schedule Type: Lecture

KINE 370: Exercise Testing and Evaluation. 3 credits. Provides students with an opportunity to develop a understanding of the assessment and evaluation process during exercise in the determination of physical fitness. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 365.

Registration Restrictions:
Required Prerequisites: (BIOL 124C, 125C and KINE 310C) and ATEP 300C.
C Requires minimum grade of C.

Schedule Type: Lecture

KINE 380: Exercise Prescription and Programming for Special Populations. 3 credits. Provides the study of the pathophysiology of common diseases and conditions with concentration in the design and implementation of exercise programs. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: KINE 200C, 310C, 330C, 350C and 370C.
C Requires minimum grade of C.

Schedule Type: Lecture

400 Level Courses
KINE 400: Biomechanics. 3 credits. Focuses on kinetic and kinematic concepts and how they apply to the quantitative assessment of human movement. Analyzes human movement and the functional dynamics of tissue such as muscle or bone. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: BIOL 124C, 125C, KINE 360C and ATEP 300C.
C Requires minimum grade of C.
KINE 410: Exercise Physiology II. 3 credits.
Provides study in the advanced theory of exercise physiology. Knowledge related to the physiologic, neuroendocrine, and biochemical changes of the human body associated with both a single bout of exercise and chronic exercise training will be addressed. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: BIOL 124 C, 125 C and KINE 310 C.
C Requires minimum grade of C.

Schedule Type: Lecture

KINE 420: Sport and Exercise Nutrition. 3 credits.
Explores the fundamental biochemical and physiological rationale for optimal nutrient intake for health, physical fitness, and athletic performance. Specific attention is focused upon the relationship nutrition has with exercise, physical fitness, health, and athletic performance. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (KINE 310 C and 320 C).
C Requires minimum grade of C.

Schedule Type: Lecture

KINE 441: Kinesiology Internship II. 3 credits.
Provides a supervised professional experience in two separate approved kinesiology professional settings under the supervision of both a University Supervisor and an Agency Supervisor with emphasis placed upon exercise programming and implementation for both clinical (site 1) and performance (site 2) populations. Current CPR, AED, and First Aid Certification required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (KINE 330 C, 341 C, 400 C, 410 C, 420 C and 441 C).
C Requires minimum grade of C.

Schedule Type: Internship

KORE 110: Elementary Korean. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to KORE 101, KORE 102.

Schedule Type: Lecture

KORE 201: Intermediate Korean I. 3 credits.
Continuation of basic Korean listening, speaking, reading, and writing skills. Online and lab work required. Notes: Students may not receive credit for KORE 201 and KORE 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to KORE 210.

Recommended Prerequisite: KORE 102, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

KORE 202: Intermediate Korean II. 3 credits.
Continuation of KORE 201. Online and lab work required. Notes: Students may not receive credit for KORE 202 and KORE 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to KORE 210.

Recommended Prerequisite: KORE 201, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

KORE 210: Intermediate Korean. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Korean-speaking regions. Notes:
Students may not receive credit for KORE 210 and KORE 201 or 202. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to KORE 201, KORE 202.

**Recommended Prerequisite:** KORE 110 or appropriate placement score.

**Schedule Type:** Lecture

**KORE 250:** Gateway to Advanced Korean. 3 credits.
Develops advanced-intermediate level reading, writing, listening, and speaking skills through a comparative analysis of Korean cultural products and practices and a critical analysis of the influence of globalization and East Asian regional dynamics. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** KORE 210, appropriate placement score; or permission of instructor.

**Schedule Type:** Lecture

**300 Level Courses**

**KORE 305:** Business Korean. 3 credits.
Develops intermediate- to high-level Korean reading, writing, listening and speaking skills while increasing culture awareness in Korean business settings through authentic materials and hands-on projects with people in the Korean business community. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Korean

**Recommended Prerequisite:** KORE 250; appropriate placement score; or permission of instructor.

**Schedule Type:** Lecture

**KORE 310:** Classical Korean Literature. 3 credits.
Develops students' advanced-intermediate Korean language skills and cultural awareness through an extensive overview of classical Korean literature. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** KORE 250, placement score, or permission of instructor.

**Schedule Type:** Lecture

**KORE 320:** Modern Korean Literature in Translation. 3 credits.
Explores twentieth and twenty-first century Korean literary works through the critical and comparative analysis of Korean cultural products, practices and perspectives of the past and the present. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Mason Core:** Literature (p. 135)

**Recommended Prerequisite:** ENGH 101; appropriate placement score; or permission of instructor.

**Schedule Type:** Lecture

**KORE 321:** Korean Proficiency through Visual Culture. 3 credits.
Develops intermediate-high level Korean reading, writing, listening, and speaking skills while increasing understanding of Korean culture through authentic Korean visual culture such as films, TV dramas, commercials, and music videos. Students who complete the course will gain an understanding of local and global Korean visual culture as well as acquire upper level Korean linguistic proficiency. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Taught in Korean

**Recommended Prerequisite:** KORE 250; placement score, or permission of instructor.

**Schedule Type:** Lecture

**KORE 330:** Advanced Korean Language and Culture. 3 credits.
Develops advanced level Korean language skills and cultural awareness in interpersonal, interpretive and presentational modes of communication. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Korean

**Recommended Prerequisite:** KORE 250; Appropriate Placement Score; or Permission of Instructor.

**Schedule Type:** Lecture

**Latin (LATN)**

**100 Level Courses**

**LATN 101:** Elementary Latin. 3 credits.
Introduction including basic grammar, vocabulary, and development of reading skills, and introduction to Roman civilization. Notes: Must be taken in sequence. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Schedule Type:** Lecture

**LATN 102:** Elementary Latin. 3 credits.
Introduction including basic grammar, vocabulary, and development of reading skills, and introduction to Roman civilization. Notes: Must be taken in sequence. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** LATN 101.

**Schedule Type:** Lecture

**200 Level Courses**

**LATN 201:** Intermediate Latin I. 3 credits.
Intensive review of elementary grammar. Introduces more advanced grammatical constructions and patterns of usage, continued development of reading proficiency, and vocabulary and readings in Latin
literature. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to LATN 209.

Recommended Prerequisite: LATN 102 or equivalent.

Schedule Type: Lecture

LATN 202: Intermediate Latin II. 3 credits.
Study of advanced grammatical constructions, vocabulary, and patterns of usage. Reading of selections from Roman authors of late Republic and early Empire, and study of cultural and political backgrounds. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to LATN 209.

Recommended Prerequisite: LATN 201 or equivalent.

Schedule Type: Lecture

300 Level Courses
LATN 351: Roman Prose Literature. 3 credits.
Introduces major work of prose, themes, and literary qualities. Emphasizes interpretation and stylistic analysis. Concentrates on one complete work; topics, authors vary. Notes: Readings in Latin. May be repeated when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: LATN 202 or equivalent.

Schedule Type: Lecture

LATN 352: Roman Poetry. 3 credits.
Introduces major work of poetry and themes, meters, and poetic techniques. Emphasizes interpretation, metrical and stylistic analysis, and poet's role in society. Topics and authors vary. Notes: Readings in Latin. May be repeated when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: LATN 202 or equivalent.

Schedule Type: Lecture

400 Level Courses
LATN 451: Studies in Roman Literature. 3 credits.
Focuses on a single Latin author or literary genre. Approaches subject from variety of interpretive perspectives, and uses secondary literature as well as primary texts. Topics and authors vary. Notes: Readings in Latin. May be repeated when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: LATN 351/352 or equivalent or permission of instructor.

Schedule Type: Lecture

LATN 452: Studies in Roman Literature. 3 credits.
Focuses on a single Latin author or literary genre. Approaches subject from variety of interpretive perspectives, and uses secondary literature as well as primary texts. Topics and authors vary. Notes: Readings in Latin. May be repeated when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: LATN 351, 352 or equivalent or permission of instructor.

Schedule Type: Lecture

Latin American Studies (LAS)

300 Level Courses
LAS 300: Latin American Studies: Interdisciplinary Perspectives. 3 credits.
Interdisciplinary introduction to Latin American Studies. Examines the region's history, culture, and societies, as well as the different approaches, methodologies, and concepts related to the study of Latin America. Focuses on the experiences that shaped Latin America as a region, how the region impacts and is impacted by globalization, and on Latino/as in the United States. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

400 Level Courses
LAS 490: Internship. 1-6 credits.
Approved work-study programs in cooperation with specific organizations including area museums, NGOs, and local, state and federal agencies. Notes: Credit determined by program. Offered by Humanities & Social Sciences (p. 295). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Open to Latin American Studies majors only with permission of program Director.

Schedule Type: Internship

LAS 491: Directed Reading for Honors in Latin American Studies. 3 credits.
Directed readings on specialized topic in Latin American Studies. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

Recommended Prerequisite: Admission to the Latin American Studies honors program.

Schedule Type: Independent Study

LAS 498: Study Abroad. 1-6 credits.
Study abroad. Notes: May be repeated with permission of department. Offered by Humanities & Social Sciences (p. 295). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Independent Study

LAS 499: Research Seminar in Latin American Studies. 3 credits.
Research on specialized topic in Latin American Studies culminating in substantial paper and oral presentation. Students expected to integrate knowledge and skills acquired in Mason Core courses. Notes: Must receive passing grade to graduate with a BA in Latin American studies. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: 90 credits

Schedule Type: Seminar
Linguistics (LING)

300 Level Courses

LING 306: General Linguistics. 3 credits.
Overview of grammatical structure of English including world classes, phrases, and complex sentences. Analyzes English grammar using modern syntactic theory. Students engage in language description through problem solving. Offered by English (p. 350). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture, Recitation

LING 307: English Grammar. 3 credits.

Schedule Type: Lecture, Recitation

400 Level Courses

LING 450: Introduction to Sociolinguistics. 3 credits.
Overview of the study of language variation and change. Topics to be covered include the interaction between language and social factors (age, sex, social class), dialects of English, speech communities, language contact, and language and gender. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 306.

Schedule Type: Lecture

LING 480: First Language Acquisition. 3 credits.
Examines first language acquisition from a linguistic perspective. Covers the development of a first phonology, syntax, and semantics. Methodology in studying child language is discussed. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 306.

Schedule Type: Lecture

LING 485: Semantics and Pragmatics. 3 credits.
Developments in theoretical linguistics that explore how language form is related to meaning and context. Topics include reference, lexical semantics, logic, quantification, truth conditions and sentential meaning, presuppositions, and speech acts. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 306.

Schedule Type: Lecture

LING 486: Syntax I. 3 credits.
Nature and form of syntactic theory, and examination and analysis of the properties of several major natural language syntactic structures. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 306.

Schedule Type: Lecture

LING 490: Generative Phonology. 3 credits.
Sound systems of English and other languages from perspectives of phonological theory. Topics include articulatory phonetics, distinctive features, nature of phonological representations, rhythm and stress, and phonological universals and constraints. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 306.

Schedule Type: Lecture

LING 499: Independent Study. 1-3 credits.
Intensive study of particular theoretical problem in linguistics conducted by student in close consultation with instructor. Student produces substantial piece of written work on research findings. Notes: May be repeated with permission of instructor. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: LING 326 and 3 other LING credits and permission of instructor.

Schedule Type: Independent Study

500 Level Courses

LING 507: Field Work in Applied Linguistics. 3 credits.
Field work providing working experience in language-teaching program or educational research organization. Notes: Contact the department one semester prior to enrollment. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: LING 326, 520, 521, or 582.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

LING 520: Introduction to Linguistics. 3 credits.
Introduces terminology and methodology of modern linguistic science, and detailed structural analysis of English phonology, morphology, and syntax. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Theories and basic principles of teaching a second language, especially as they relate to English language. Introduces students to methods of teaching English to speakers of other languages. Offered by English (p. 350). May not be repeated for credit.
Recommended Prerequisite: LING 306, 520, 690, or 786.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

LING 522: Modern English Grammar. 3 credits.
Overview of structure of modern English beginning with word classes and ending with analyses of complex sentences. Most topics introduced as problems of language description; in solving them, principles of syntactic argumentation are demonstrated. Students learn to tap intuitions about English to analyze grammatical structure. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: One linguistics course or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

LING 523: English Phonetics. 3 credits.
In-depth description and analysis of sound system processes of modern English. Topics include segmental phonetics, syllable structure, connected speech, and prosodic phenomena. Also addresses implications for language instruction. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

LING 525: Practicum in ESL. 3 credits.
Involves preparation and presentation of lessons to adult English as second language (ESL) learners under guidance of mentor teacher and practicum professor. Field experience consists of observation and teaching in assigned ESL classroom. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 521.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

LING 580: First Language Acquisition. 3 credits.
Examines first language acquisition from a linguistic perspective. Covers the development of a first phonology, syntax, and semantics. Methodology in studying child language is discussed. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 520 or one of the following: LING 690, 786, 785 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

LING 581: Psycholinguistics. 3 credits.
Study of mental and psychological aspects of human language, including aphasia, association, autism, language acquisition, verbal concept formation, and perception. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 520, 690, or 786; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

LING 582: Second Language Acquisition. 3 credits.
Examines second language (L2) acquisition from linguistic perspective. Compares first and second language acquisition. Explores factors contributing to L2 variation, including linguistic universals, transfer, age, input, and affective considerations. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 306, 520, 690, or 786; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

600 Level Courses
LING 650: Introduction to Sociolinguistics. 3 credits.
An overview of the study of language variation and change. Topics to be covered include the interaction between language and social factors (age, sex, social class), dialects of English, speech communities, language contact, and language and gender. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 520, 523, or 690.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
LING 686: Special Topics in Linguistics. 3 credits.
Detailed advanced study of selected area of linguistics. Notes: Content varies. May be repeated for credit with permission of department. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
LING 690: Generative Phonology. 3 credits.
Sound systems of English and other languages from the perspective of phonological theory. Topics include articulatory phonetics, distinctive features, nature of phonological representations and processes, rule ordering, abstractness, role of external evidence, and nonlinear phonology. Offered by English (p. 350). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
LING 691: Theories of Language. 3 credits.
Seminar in linguistic metatheory. Examines wide range of theories about language and linguistic theory, including those of Saussure, Bloomfield, Chomsky, and others. Readings from original sources. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 520, 690, or 786; or permission of instructor.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
LING 692: Phonology II. 3 credits.
Recent trends in phonological theory. Topics include stress assignment, tone spreading, and vowel harmony, from within nonlinear framework. Discusses segmental structure and underspecification. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 690.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
LING 770: Research Methods. 3 credits.
Conceptualizing and conducting second language research, including process of developing research questions, gathering data, obtaining permission from institutional review board, choosing data collection measures, and coding linguistic and nonlinguistic data. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 690 or LING 785 or LING 786, and LING 582, or permission of the instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
LING 782: Second Language Acquisition II. 3 credits.
Advanced course in second-language acquisition theory. Detailed analysis of internal and external constraints. Variation addressed from linguistic, psychological, and environmental perspectives. Offered by English (p. 350). May not be repeated for credit.

Recommended Prerequisite: LING 582 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
LING 785: Semantics and Pragmatics. 3 credits.
Developments in theoretical linguistics that explore how language form relates to meaning and context. Topics include reference, lexical semantics, logic, quantification, truth conditions and sentential meaning.
presuppositions, and speech acts. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** LING 520, 690, or 786; or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**LING 786: Syntax I.** 3 credits.
Nature and form of syntactic theory. Examines and analyzes properties of several major natural language syntactic structures. Offered by English (p. 350). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**LING 787: Syntax II.** 3 credits.
Theoretical treatment of syntactic phenomena that have emerged as standard problems for syntactic analysis. Problems include binding, extraction, and quantification. Extensive reading in primary theoretical literature. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** LING 786.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**LING 788: Semantics and Pragmatics II.** 3 credits.
Advanced course in semantic and pragmatic theory. Study of meaning under truth-conditional, model-theoretic framework explored and related to syntax and pragmatics. Offered by English (p. 350). May not be repeated for credit.

**Recommended Prerequisite:** LING 785 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**LING 798: Directed Reading and Research.** 1-3 credits.
Reading, research, and writing on specific project under direction of departmental member. Notes: Open only to students who have completed at least 18 credits of LING courses. Prior approval by faculty member required. Written report required. May be repeated with permission of director. Offered by English (p. 350). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 18 credits of linguistics courses.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

**LING 799: Thesis.** 1-6 credits.
Students who take LING 798 to develop thesis topic and then elect thesis option receive 3 credits after completing thesis. Students who do not take LING 798, or who take it to work on project unrelated to thesis, receive up to 6 credits after completing thesis. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** Open only to students who have completed at least 18 credits of LING courses.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Thesis

**LING 886: Advanced Syntax Seminar.** 3 credits.
Advanced course in current syntactic theory. Notes: Topics vary. Offered by English (p. 350). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** LING 786, LING 787, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**LING 890: Advanced Phonology Seminar.** 3 credits.
Advanced topics seminar in current phonological theory. Notes: Topics vary. Offered by English (p. 350). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** LING 692 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**LING 897: Independent study.** 3 credits.
Independent reading on a topic agreed on by student and faculty member. Offered by English (p. 350). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** PhD rank or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

**LING 898:** Advanced Qualifying Seminar. 3 credits.
Work on PhD qualifying paper. Offered by English (p. 350). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Completion of 33 credits of core courses in linguistics.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

### 900 Level Courses

**LING 998:** Doctoral Dissertation Proposal. 1-6 credits.
Work on research proposal that forms basis for the doctoral dissertation. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** Advancement to candidacy.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**LING 999:** Doctoral Dissertation. 1-12 credits.
Doctoral dissertation research and writing under direction of student's dissertation committee. Offered by English (p. 350). May be repeated within the degree.

**Recommended Prerequisite:** LING 998.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

### MBA--Interdisciplinary (MBA)

#### 600 Level Courses

**MBA 603:** Managerial Economics and Decisions of the Firm. 3 credits.
Provides fundamental understanding of applying microeconomic concepts to managerial decision making. Explores principles of microeconomic theory, including market supply and demand, production and cost functions, industry structure, and product and resource pricing. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 612:** Managing Costs and Evaluating Performance. 1.5-3 credits.
Examines impact of cost and cost allocation on performance and evaluation. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 613:** Financial Reporting and Decision Making. 3 credits.
Foundation course focusing on economics and analysis of business transactions and related financial reporting issues. Topics include introduction to accounting framework used in financial reporting; and analysis of financial statements, economic events and their impact on financial reports, and impact of accounting methods on financial reports. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 623:** Marketing Management. 3 credits.
Develops market-based knowledge and skills for effective marketing decision making, strategy design, implementation, and evaluation in wide variety of institutional and competitive situations. Addresses the importance of companies being market-driven and customer-focused. Emphasis on case studies, team work, and projects. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
MBA 633: Statistics for Business Decision Making. 3 credits. Uses statistical methods as analytical tools for understanding and solving business problems and supporting business decision making. Includes descriptive statistics, sampling, inferencing and regression. Extensive use of applied business scenarios to illustrate concepts and computer software for data analysis. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 638: Operations Management. 3 credits. Focuses on design, planning, and control activities to produce and deliver goods and services in modern organizations. Introduces wide range of operations management decisions, such as operations strategy, process analysis and design, capacity planning, supply chain management, total quality management, and project management. Uses quantitative modeling, case studies, and computer software to analyze and solve operations management problems. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 643: Managerial Finance. 3 credits. Introduces theory and practice of finance within corporations. Topics include intertemporal choice, valuation, capital budgeting and structure, working capital management, and risk and return analysis. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 653: Organizational Behavior. 3 credits. Emphasizes development of conceptual tools for understanding and analyzing individual and group behavior in organizations and organizational processes. Considerable focus on developing relevant skills for working in groups and teams. Lectures, discussions, case analyses, and class exercises. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 652: Management of Information Technology. 1.5-3 credits. The strategic, economic and managerial aspects of managing an organization’s IT assets are covered. The business value of IT is understood and assessed in context of its impact on the organization’s structure and strategy. The course includes discussion on major issues pertaining management of IT infrastructure. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting or Business Administration.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 678: Strategic Management. 3 credits. Capstone course focusing on strategy development at business unit and corporate level. Cases, readings, and project format familiarize students with strategic management function and help them develop analytical, organizational, and managerial skills to analyze complex business situations. Provides opportunities to integrate knowledge gained in prior course work. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non Degree.

Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
700 Level Courses

MBA 701: Business Valuation. 3 credits.
Develops framework for business analysis and valuation using financial statement data. Analyzes management decisions such as equity valuation, creditworthiness, merger valuation, corporate financial structure, and management communication strategy. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to ACCT 701.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 702: Corporate Financial Policy. 3 credits.
Applies theories and methods of corporate financial management to series of complex cases. Topics include capital projects as real options, cost of capital and capital structure, firm valuation, project finance, and merger and acquisition analysis. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA core or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 703: Financial Markets. 3 credits.
Explores relationship among financial markets including global equity markets, U.S. Treasury securities, and exchange-traded and over-the-counter financial derivative instruments such as futures, options, swaps, and asset-backed securities. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA core or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 704: Investment Analysis. 3 credits.
Focuses on analyzing equity securities and debt instruments given implications of efficient market hypothesis and modern capital market theory. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA core or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 705: Futures, Options and Other Derivatives. 3 credits.
This course focuses on the mechanics of derivatives markets, with a strong emphasis on identifying and managing risks in financial products. Topics include: rationale behind the major pricing models and their application to derivatives securities, arbitrage and pricing, hedging, common trading strategies with options, and the fundamental concepts of risk measures and risk management. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Completion of MBA core or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Business Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Enrollment limited to students in a Master of Business Admin degree.

Schedule Type: Lecture

MBA 706: Taxes and Business Strategy. 3 credits.
Provides framework for making managerial decisions in global tax environment. Examines business decisions such as location of facilities, employee compensation, mergers and acquisitions, capital and asset structure, and business form. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to ACCT 708.

Recommended Prerequisite: Completion of MBA core or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 709: Risk and Portfolio Management.** 3 credits.
This course is focused on asset allocation and portfolio construction, with a strong emphasis on measuring performance and managing risk. Topics include: the rationale behind the most commonly used performance and risk measures and models for portfolio construction, stress testing, scenario analysis, derivative securities, trading strategies, and hedging impact those risk measures and models, and the consequences of those interactions. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Business Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Enrollment limited to students in a Master of Business Admin degree.

**Schedule Type:** Lecture

**MBA 711: Entrepreneurship.** 3 credits.
Considers fundamental aspects of entrepreneurship and process of new venture creation. Draws on broad range of business disciplines including management, marketing, finance, and accounting to develop evaluation and execution skills. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 712: Project Management.** 3 credits.
Focuses on designing, planning, monitoring, and controlling projects. Involves practical examination of how projects should be managed from start to finish, including specific emphasis on how to avoid common pitfalls. Includes hands-on experience with a common project management software package. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 713: Managing Human Capital.** 3 credits.
Effective management of human capital drives values for the firm and, in today’s business environment, is a source of competitive advantage.

Course prepares managers and entrepreneurs to leverage human capital by aligning practices with strategic objectives. Course provides systems perspective noting interrelationships between practices designed to attract, retain, & motivate human capital. Opportunities provided for personal skill-building on topics; interviewing, providing performance feedback, rewards, career development and termination. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 714: Managing Growth of Small Businesses.** 3 credits.
Focuses on unique challenges faced by small and entrepreneurial firms that seek long-term growth. Builds on concepts and knowledge of creating start-up company, and introduces processes and strategies required to become significant player in industry segment. Designed for students interested in understanding opportunities and problems in their own businesses, employment in small or entrepreneurial businesses, or exploring corporate entrepreneurship within large firms. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA or MSA core requirements or permission of the program director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 715: Advanced Project and Program Management.** 3 credits.
Examines advanced topics in project and program management with specific attention to issues and skills that managers needs to effectively manage multiple projects and programs. Topics include project selection, multiple project resource allocation, and organization of project office. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
Focuses on the globalization of business activities, the strategic challenges faced by companies in global competition, and how companies strategically respond to these new competitive challenges. Offered by School of Business (p. 846). May be repeated within the degree for a maximum of 3 credits.

**Recommended Prerequisite:** Completion of MBA core requirements.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MBA 717: *International Finance.* 3 credits.
Advanced analysis of managing firm’s international financial operations. Topics include currency risk, political risk, returns and funding of international projects, international markets and accounting, and cost of capital. Lecture, discussion, readings, and cases. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA or MSA core requirements or permission of the program director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MBA 718: *International Marketing.* 3 credits.
Addresses marketing process for products and services within major international markets. Topics include marketing mix strategies using standardization, localization, or globalization approaches. Emphasizes the introduction of service innovations and new products in the global market. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA or MSA core requirements or permission of the program director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MBA 720: *Marketing Analytics.* 3 credits.
Marketing analytics is a systematic approach to harnessing data/information to drive effective marketing decision making. The objective of this course is to equip you with tools required to address fundamental marketing decision problems using a data-driven approach. It will train students to view the marketing processes and relationships systematically and analytically. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to GBUS 720.

**Recommended Prerequisite:** MBA 738 or equivalent.

**Registration Restrictions:**
Enrollment is limited to students with a major in Business Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Enrollment limited to students in a Master of Business Admin degree.

**Schedule Type:** Lecture

MBA 721: *Marketing Research.* 3 credits.
Develops skills to plan and implement effective marketing research studies. Topics include research design, data collection, statistical analysis, and use of database systems. Offers perspective on how managers can use market data to develop successful product or service strategies. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to GBUS 721.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MBA 722: *Consumer Behavior.* 3 credits.
An integrated analysis of internal and external influences on consumer decision making, purchase, and consumption behaviors with attention to marketing strategy implications. Emphasizes demographics, lifestyle, situation, perception, learning, and attitude formation and change, focusing on customer segmentation, satisfaction, loyalty, and product-person relationships. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MBA 723: *Supply Chain Management.* 3 credits.
Examines logistics of supply chain systems, including inventory management, distribution channels, and information systems. Emphasizes strategic alliances and international issues. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.
**MBA 724: Marketing Communications.** 3 credits.
Examines all forms of communication and sources of brand or company contacts as potential message channels in building relationship with customers. Focuses on integrated planning process for all communication elements, including consumer and trade advertising, public relations, direct and database marketing, promotions, and sales presentations to achieve synergy in communicating with various constituencies. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of the MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 725: Leadership.** 3 credits.
Overview of major conceptualizations of leadership and motivation in organizations. Integrates theory, research, and applications. Students apply principles of leadership and motivation to their own work situations and case evaluation. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 726: Negotiations.** 3 credits.
Focuses on theory, processes, and practice of negotiation within and across organizations, including attention to ethical issues. Explores systematic ways to increase quality of negotiated agreements, including methods of preparation, effective communication, and various strategies to increase power. Format includes negotiation exercises, lecture, and discussion. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA core.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 727: Management Consulting.** 3 credits.
Management Consulting is a practice-based course designed to provide a fundamental background in consulting, both from the perspective of the outside management consultant, and the inside (in-house) corporate consultant. Students will examine best practices in consulting to address complex organizational challenges and opportunities within a medium-to-large sized corporate setting. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Business Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Enrollment limited to students in a Master of Business Admin degree.

**Schedule Type:** Lecture

**MBA 730: Management of Technology and Innovation Processes.** 3 credits.
Students will develop a strong conceptual foundation for managing technological innovation. It introduces frameworks for analyzing how firms can create, commercialize and capture value from products and services. Topics covered comprise the formulation of innovation strategies, the process of developing new products and services, and how to create and manage an innovative organization to drive revenue growth. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Admission to the MBA program or permission of the program director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting or Business Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MBA 731: Business Application and Life Cycle Management.** 3 credits.
Studies methods and tools for analyzing and designing business information systems with emphasis on business processes. Topics include data modeling, process modeling, interaction analysis, and user interface. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Completion of MBA or MSA core requirements or permission of the program director.

**Registration Restrictions:**
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

MBA 732: Knowledge Management. 3 credits.
Examines firms that use knowledge management principles and approaches: intellectual capital, human capital, customer capital, tacit and explicit knowledge, new role of chief knowledge officer, leveraging of knowledge management. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA core or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 734: Electronic Commerce and E-Business. 3 credits.
Examines how e-commerce and e-business affect digital economy. Discusses, compares business models, strategies for e-commerce. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA core or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 737: Information Technology Governance and Policy. 3 credits.
Considers specific objectives of IT governance and policy, frameworks that help chart roadmap for this function, and tools and techniques used in specific areas of IT governance. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA or MSA core requirements or permission of the program director.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 739: Advanced Data Mining for Business Analytics. 3 credits.
This course covers business analytics using advanced data mining methods for the purposes of developing predictive models and forecasting. The course will develop concept of feature selection to identify what dimensions to best use for constructing decision making models. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Grade of B or higher in MBA 738 or equivalent.

Registration Restrictions:
Enrollment is limited to students with a major in Business Administration.

Enrollment is limited to students in a Master of Business Admin degree.

Schedule Type: Lecture

MBA 742: Corporate Governance and Ethics. 3 credits.
Focuses on developing understanding of corporate governance issues and ethical decision-making. Topics include examination of internal and external and international governance issues, and ethical analysis in current business environment. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to ACCT 742.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 744: Fraud Examination. 3 credits.
Introduces strategies and techniques for fraud prevention and detection. Focuses on financial fraud such as bribery, contract rigging and kickbacks, embezzlement, fraudulent financial reporting, payroll fraud, and misappropriation of inventory and other assets. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to ACCT 636, ACCT 744, GBUS 744.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 745: International Financial Reporting. 3 credits.
Examines accounting from an international perspective, including the study of various functional areas of accounting across countries and the reporting requirements encountered by companies engaged in international trade and making foreign direct investments. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to GBUS 745, GSOM 745.

Recommended Prerequisite: Completion of MBA or MSA core requirements, or permission of program director.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting or Business Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 746: Real Estate Analysis and Valuation. 3 credits.
Overview of real estate assets, markets, and decisions. Emphasizes development of analytical techniques and information required for implementation. Includes legal, economic, and public policy perspectives. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to GBUS 746, GSOM 746.

Recommended Prerequisite: Completion of MBA or MSA core requirements or permission of the program director.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting or Business Administration.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 747: Real Estate Finance. 3 credits.
Examines financing of residential and income-producing real estate from perspectives of both suppliers and users of funds. Focuses on financing alternatives, primary and secondary markets, and decision implications of available arrangements. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to GBUS 747, GSOM 747.

Recommended Prerequisite: Completion of MBA or MSA core requirements or permission of the program director.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting or Business Administration.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 748: Real Estate Investment. 3 credits.
Develops frameworks for analyzing decisions about investing in real estate assets. Focuses on acquisition and analysis of information required to evaluate potential performance of assets. Applications of theories and techniques through case studies. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to GBUS 748, GSOM 748.

Recommended Prerequisite: Completion of MBA or MSA core requirements or permission of the program director.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting or Business Administration.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 752: Turning Ideas into Successful Companies. 3 credits.
An advanced course in entrepreneurship focused on discovery and development of an achievable business concept. The centerpiece of the course is development of the formal business plan and associated presentation materials. Students are assigned to teams and must hypothesize a new business, research and test their hypothesis, and develop a comprehensive written business plan. The plan must be for an actual business that the students intend to start upon the successful completion of the course. Technology-based projects are encouraged, but not required. Because the course is cross-listed with IT&E and the School of Business, most teams will include both engineering and business students. Weekly presentations of the team’s progress are required. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA or MSA core requirements or permission of the program director.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting, Business Administration or Business Admin - Fast Track.

Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MBA 795: Global Business Perspectives. 3 credits.
Applies MBA core courses to global business enterprise through site visits to facilities located outside the United States. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Completion of MBA or MSA core requirements or permission of the program director.

Registration Restrictions:
Enrollment is limited to students with a major in Accounting or Business Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Management (MGMT)

300 Level Courses

MGMT 301: People and Organizations. 3 credits.
Explores how individuals behave in the workplace, and how group and organizational structures affect behavior. Builds managerial skills required for working with and through others to reach organizational goals. Topics include individual differences, groups and teams, managing conflict, organizational ethics, culture, diversity, influence, leadership, and motivational theories and techniques. The course format provides opportunities to discuss and apply concepts. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in MGMT 301. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information about this, see the "Termination from the Major" section under Academic Policies Notes: Students cannot receive credit for both MGMT 301 and MGMT 313. This course will not meet School of Business requirements for students with a catalog year before Fall 2015. Offered by School of Business (p. 846). May not be repeated for credit.

Schedule Type: Lecture, Recitation

Recommended Prerequisite: Sophomore standing. MGMT 301 uses a blended course delivery. Lectures are taught via the internet and posted on-line and viewed by logging into the course website. Students must also register for a required 1 hour and 15 minute recitation section that will meet once a week on campus. A live presentation meeting may be scheduled the first week of classes and will be published on the course web site.

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture, Recitation

MGMT 303: Principles of Management. 3 credits.
Examines managerial work under range of business models and rapidly changing business conditions. Managerial functions and activities including planning, organizing, balancing conflicting demands, leading and controlling are examined in depth and in context of current organizational examples. Discuss variety of pressures contemporary managers face; clients and competitors, leaders above and reportees, organizational demands and personal goals. Notes: Students cannot receive credit for both MGMT 301 and MGMT 303. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in MGMT 303. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. May not be repeated for credit.

Schedule Type: Lecture, Recitation

Recommended Prerequisite: BUS 103 and BUS 200.

Registration Restrictions:
Required Prerequisites: (ACCT 203 \( ^C \), U203, 204 \( ^C \) or U204) and (BUS 100 \( ^C \), SOM 100 \( ^C \) or BUS U100) and (MATH 108 \( ^C \), U108, 113 \( ^C \), U113, 114 \( ^C \), U114, HNRT 225 \( ^C \) or U225).

Non-Degree level students may not enroll.

Schedule Type: Lecture, Recitation

MGMT 312: Principles and Practices of Management. 3 credits.
Builds on fundamental theories and concepts learned in MGMT 301 by examining the nature of managerial work under a range of business models and under rapidly changing business conditions. Managerial functions and activities such as planning, strategizing, organizing, controlling, and directing are examined in depth and in the context of current organizational examples and scenarios. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MGMT 301 \( ^C \) or L301.

Non-Degree level students may not enroll.

Schedule Type: Lecture

MGMT 313: Organizational Behavior. 3 credits.
Course expands management knowledge through defined focus on organizational behavior (OB). OB is field of study aimed at predicting, explaining, understanding and changing human behavior as it's reflected
in organizations. Science of OB is interdisciplinary in nature and draws from psychology, sociology, social psychology, and group dynamics. Course explores dynamics between individual and organization through this behavioral science lens. Notes: Students cannot receive credit for both MGMT 301 and MGMT 313. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MGMT 301.

**Specialized Designation:** Writing Intensive in the Major

**Registration Restrictions:**
- **Required Prerequisites:** MGMT 303, L303 or 303T.
- Requires minimum grade of C.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MGMT 321: Introduction to Human Resource Management.** 3 credits. The field of human resource management examines what can or should be done to make workers more productive and satisfied. The course builds on MGMT 301 by introducing key concepts and techniques that managers need to attract, retain, develop, compensate, and motivate quality talent. Also emphasizes legal and ethical considerations in human resource management. Offered by School of Business (p. 846). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Registration Restrictions:**
- **Required Prerequisites:** MGMT 301, L301, 303 or L303.
- Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**400 Level Courses**

**MGMT 412: Diversity in Organizations.** 3 credits. Builds on MGMT 303 by emphasizing intrapersonal, interpersonal, organizational, and societal phenomena relevant to issues of diversity. Examines phenomena and processes in general and with regard to specific dimensions such as gender, race, and ability. Designed to increase students’ knowledge of diversity in organizations, understanding of others’ perspectives, and ability to work well with people who differ from themselves. Offered by School of Business (p. 846). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Registration Restrictions:**
- **Required Prerequisites:** MGMT 301, L301, 303 or L303.
- Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MGMT 413: Organizational Development and Management Consulting.** 3 credits. Introduces theory and practice of organization development. Assumes some basic knowledge of organizational behavior, and addresses how to use knowledge about organizations to change them. Focuses on ways of understanding organizations with attention to theoretical underpinnings of field and diagnostic models, and processes for entering organizations. Later sessions focus on contracting, data collection, organizational diagnosis, data feedback, and change technologies. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
- **Required Prerequisites:** MGMT 301, L301, 303 or L303.
- Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture


**Registration Restrictions:**
- **Required Prerequisites:** (MGMT 301, L301, L303 or 303T) and (MGMT 321T).
- Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MGMT 431: The Legal Environment for Employee and Labor Relations.** 3 credits. Examines the legal aspects of employee and labor relations from a managerial perspective. Topics include the employment at will doctrine; wrongful discharge; federal and state employment discrimination legislation; and regulation of employee welfare. Includes lectures, cases, readings. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSU 401.

**Registration Restrictions:**
- **Required Prerequisites:** BULE 302, L302, 303 or L303.
- Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture
MGMT 441: International Strategy. 3 credits.
Course focuses on seven inter-related pillars underpinning international strategy and these areas are: global environment and marketplace, global competitiveness and manufacturing including role of USA, global macroeconomics and financial structure, global management approaches and management of transnational firms, new forces that shape global strategy, and globalization lessons learned and its limitations. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MGMT 301C, 303C, L301, L303, 301T or 303T.
C Requires minimum grade of C.
Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MGMT 451: Introduction to Entrepreneurship. 3 credits.
Provides students an introduction to key concepts, methods, and frameworks of innovation and entrepreneurship. The experiential component of the course will be supplemented by readings, written work and presentations, and classroom discussion. The course will explore and explain the importance of entrepreneurs, and their firms in addition to allowing students to experiment with various entrepreneurial concepts and activities. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSU 405.

Registration Restrictions:
Required Prerequisites: MGMT 301C, L301, 303C or L303.
C Requires minimum grade of C.
Students with a class of Freshman or Sophomore may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MGMT 452: Experiential Entrepreneurship. 3 credits.
Provides students opportunity to experience entrepreneurship at advanced level through hands on development of a new firm, product or service. Students identify an innovative opportunity to work on or will work with local startup or organization developing innovative new product or service. Focuses on opportunity recognition and execution and introduces students to day to day experience of innovators and entrepreneurs. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MGMT 451C, MBUS 304C, IT 495C or MGMT L451.
C Requires minimum grade of C.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MGMT 453: Starting a Business. 3 credits.
Examines the paths to small business ownership, including starting an enterprise or purchasing an existing business. Focus will be on franchising and licensing, as well as family-run enterprises. Students will gain a broad understanding of location choice, facilities and layout, in addition to the legal issues associated with small business creation.

Harvesting and exiting options will also be explored. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MGMT 301C, L301C, 303C, L303C, MBUS 304C or IT 495C.
C Requires minimum grade of C.

Schedule Type: Lecture

MGMT 454: Social Impact and Entrepreneurship. 3 credits.
This course takes a business-oriented multidisciplinary case study approach to exploring the growing field of social innovation and enterprise: that is, the course investigates the historical context of social entrepreneurship, methods and models of social enterprises, marketing social innovation, limits of market-based models, skills needed to tackle wicked problems, and quantitative methods for assessing and measuring impact. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MGMT 301C, 303C or MBUS 304C.
C Requires minimum grade of C.

Schedule Type: Lecture

MGMT 461: Cross Cultural and Global Management. 3 credits.
Explores theory and practice of managing culturally diverse organizations in domestic and international contexts. Topics include management customs and practices in different world regions, cross-cultural communication and learning, and the developing culturally and internationally sophisticated employees and managers. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MGMT 301C, L301, 303C or L303.
C Requires minimum grade of C.
Students with a class of Freshman or Sophomore may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MGMT 462: Honors Seminar in Management (Topic Varies). 3 credits.
Topic and format vary. In-depth study of topic of interest to managers and organizations. Notes: Enrollment limited and competitive. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Invitation of professor.

Registration Restrictions:
Students with a class of Freshman or Sophomore may not enroll.
Non-Degree level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MGMT 463: Negotiations in Organizations. 3 credits.
Focuses on theory, processes, and practice of negotiation within and across organizations, including attention to ethical issues. Explores systematic ways to increase quality of negotiated agreements, including methods of preparation and use of rational assumption, bidding and
decision criteria. Format includes negotiation exercises, lecture, and
discussion. Offered by School of Business (p. 846). May not be repeated
for credit.

Registration Restrictions:
Required Prerequisites: MGMT 301\(^C\), L301, 303\(^C\) or L303.
\(^C\) Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MGMT 464: Teamwork and Interpersonal Skills. 3 credits.
Focuses on intensive development of high professional-level skill set
for collaboration and leadership in contemporary environments. Builds
on content introduced in MGMT 301, 312. Attention to developing
personal leadership capabilities, collaborating in traditional and virtual
environments, improving group processes, project management,
tolerating ambiguity, improving communication, creative problem solving,
time management, coaching, and empowering employees. Offered by
School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MGMT 301\(^C\), L301, 303\(^C\) or L303.
\(^C\) Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Independent Study

Management of Information Systems (MIS)

100 Level Courses

MIS 102: Spreadsheet Applications for Business. 1 credit.
Hands-on course using popular spreadsheet package. Business
examples used to teach fundamentals of spreadsheets and their use in
business applications. Offered by School of Business (p. 846). May not be
repeated for credit.

Schedule Type: Laboratory

300 Level Courses

MIS 301: Introduction to Business Information Systems. 3 credits.
Introduces fundamentals of hardware, software, and networking.
Emphasizes role of technology in improving contemporary business
processes and competitive advantage. Includes basic relational
concepts, hands-on experience in building business database
applications and decision support using spreadsheet software.
School of Business students will not be permitted to make more than
three attempts to achieve a C or higher in MIS 301. Those who do
not successfully complete this course within three attempts will be
terminated from their major and will not be eligible to receive a degree
from the School of Business. For more information about this, see the
"Termination from the Major" section under Academic Policies
Notes: Projects required. Students cannot receive credit for both MIS 301
and MIS 303. Offered by School of Business (p. 846). Limited to three
attempts. Equivalent to MIS 303.

Registration Restrictions:
Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.
**MIS 302: Introduction to Programming for Business Applications.** 3 credits. 
Introduces principles of designing and implementing program data structures and algorithms to solve business problems using structured programming techniques. Students become familiar with program development life cycle using standard programming language such as Visual BASIC.NET supported by a modern Integrated Development Environment (IDE). Students complete assignments involving development of real-life business application. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Students with a class of Freshman may not enroll.

**Schedule Type:** Lecture

**MIS 303: Introduction to Business Information Systems.** 3 credits. 
Introduces fundamentals of hardware, software, and networking. Emphasizes role of technology in improving contemporary business processes and competitive advantage. Includes basic relational concepts, hands-on experience in building business database applications and decision support using spreadsheet software. Notes: Students cannot receive credit for both MIS 301 and MIS 303. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in MIS 303. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information about this, see the "Termination from the Major" section under Academic Policies. Offered by School of Business (p. 846). Limited to three attempts. Equivalent to MIS 301.

**Mason Core:** Information Technology: With Ethics (p. 135)

**Registration Restrictions:**
Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MIS 310: Database Management Systems.** 3 credits. 
Introduces principles of designing and manipulating relational databases with a focus on business applications. Theoretical database concepts and hands-on experience with a relational package. Term project requiring implementation of a substantial business database application. Notes: School of Business students may not receive credit for both MIS 310 and IT 214. Requires hands-on implementation using software package. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisites: (MIS 301C or L301) or MIS 303C or L303. C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

**MIS 320: Networks and Security.** 3 credits. 
Introduces students to fundamentals of networking technologies and their role in businesses. Emphasis is on understanding the business implications of different networking technologies and solutions. Students learn to identify and understand the business requirements, and bring together the different technological components to design the required communication solutions. Also focuses on the types of security threats to the business network infrastructure, and approach to tackling such threats through business practices combined with appropriate technological solutions. Notes: The course also includes lab work and exercises. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisites: (MIS 301C or L301) or MIS 303C or L303. C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

**Schedule Type:** Lecture

**MIS 330: Systems Analysis and Design.** 3 credits. 
Understanding systems analysis and design methods is a necessary skill for contemporary business analysts, managers, software engineers and system users. Provides students with the foundations for effectively using modern systems analysis and design tools and methodologies for developing modern software and applications. Topics include systems planning and feasibility analysis, requirements analysis, economics, systems design and project management. Notes: Requires team project. Offered by School of Business (p. 846). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Registration Restrictions:**
Required Prerequisite: (MIS 310C). C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

**Schedule Type:** Lecture

**MIS 410: Advanced Database Systems.** 3 credits. 
Covers advanced database development and administration topics including triggers, stored procedures, indexes, performance tuning, and security. Students will use a state-of-the-art industrial strength database management system as a tool to familiarize themselves with database concepts. Students will conduct exercises on business reporting using databases and front-end applications. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: MIS 310C.
Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Schedule Type: Lecture

MIS 412: E-Business Systems Development. 3 credits.
Introduces students to the development of web-based information systems for E-business. Students learn to develop web-based database applications for eCommerce using ASP.NET. Also covers Web 2.0 technologies and contemporary business trends and issues related to web application development. Emphasizes technologies, methods, and application development tools. Notes: Requires team project and computer lab. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MIS 301C or L301) or MIS 303C or L303.
C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MIS 415: Information Systems Audit and Control. 3 credits.
Covers IT governance, controls, auditing applications, systems development, and operations. It examines trends and define recent advances in technology that impact IT controls and audits - including cloud computing, web-based applications, and server visualizations. It covers IT strategy, business value of IT, as well as controls for IT projects, outsourcing, contracts, cloud computing, etc. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MIS 301C, L301C, 303C or L303C.
C Requires minimum grade of C.

Schedule Type: Lecture

MIS 420: Information Security and Assurance. 3 credits.
Covers technical concepts, and managerial and policy topics in information and cyber security. Lectures, reading, in-class presentations, hands-on exercises, and examinations ensure that students have sufficient technical awareness and managerial competence related to information security and assurance. Examines the nature of threats and vulnerabilities, cryptography, software vulnerabilities, managing risk, and security controls. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: MIS 320C.
C Requires minimum grade of C.

Schedule Type: Lecture

MIS 430: Data Warehousing. 3 credits.
Deals with the challenges faced by businesses in managing large amounts of data and making meaningful use of this data for informed decision making. Introduces students to data warehousing fundamentals, practices, and technologies; and their application to solving business problems. Specific emphasis is on designing of data warehouse to meet the business requirements and hands-on learning of the design principles through implementation on commercially used data warehouse technologies. Also introduces students to OLAP solutions and data mining approaches to supporting business decision making. Notes: Term project required. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: MIS 310C or L310.
C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MIS 431: Data Mining for Business Applications. 3 credits.
This course covers data mining methods and tools for business analytics to improve managerial decision making. The objective is to understand data mining methods and their suitability for decision making in a variety of business domains. The students will learn how to apply appropriate analytical tools to gain useful insights from real-life datasets. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MIS 301C, L301C, 303C or L303C) and (BUS 310C, OM 210C or 211C).
C Requires minimum grade of C.

Non-Degree level students may not enroll.

Schedule Type: Lecture

Topic and format vary. In-depth study of a topic in the area of information technology management. Enrollment limited and competitive. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Degree status in ISOM (or DMIS) major, permission of department.

Registration Restrictions:
Students with a class of Freshman, Junior or Sophomore may not enroll.

Non-Degree or Washington Consortium level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Seminar

MIS 491: Seminar in Management Information Systems. 3 credits.
Analyzes selected topics that highlight latest developments in information resource management field, including contemporary research findings and case studies of information systems in business and other organizations. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Required Prerequisites: (MIS 301C or L301) or MIS 303C or L303.
C Requires minimum grade of C.
Management of Secure Information Systems (MSEC)

500 Level Courses

Provides an overview of the introductory topics in cyber security, which will be the basis for the other security-related in the MSIS. Topics include basic concepts on CIA (confidentiality, integrity, and availability), risk management, disaster recovery, access control, basic cryptography and software application vulnerabilities. Notes: 4 class sessions will be 3.5 hours long. 1 class session will be 2 hours and 20 minutes long. (5 classes; 16 hours and 20 minutes total) Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: Admission to MSEC program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Provides the practices and methods currently used by information security professionals to manage and operate the secure IT infrastructures in the enterprise industry and in the US Federal Sector. It covers tools and knowledge required to design, execute, and/or evaluate the INFOSEC standards and procedures required of government and industry. The topic includes security operation center (SOC), network security, malware countermeasures, operational systems security, risk analysis and incident response practices. Notes: 4 class sessions will be 3.5 hours long. 1 class session will be 2 hours and 20 minutes long. (5 classes; 16 hours and 20 minutes total) Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: MSEC 510.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSEC 520: Networking Principles. 2 credits.
Introduction to the principles guiding the design and operation of modern communication networks; using the structure provided by layered service models, this course explores systematically the architecture and protocols of large, decentralized networks. Topics include medium access control in local area networks, switching, routing, and addressing, reliable and secure transport, flow and congestion control. Throughout, examples are drawn from the suite of Internet protocols. Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: Admission to MSEC program.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

MSEC 620: Networking Security. 2 credits.
Provides a comprehensive introduction to network security concepts and problems and the mechanisms and tools to secure networks. Focuses on the Internet; discusses the threats to and from the Internet and examines existing Internet security techniques and protocols and their limitations. Topics include secret key and public key cryptography, Hash algorithms, authentication, IPSEC/VPN, IPSEC key exchange, SSL/TLS, firewall, anonymous communication, and VoIP security. Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: MSEC 510 and 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
MSEC 630: Secure Information System Governance, Regulation, and Compliance. 2 credits.
Provides insight into secure information system governance, regulations, and compliance including noteworthy legislation, regulations, and compliance issues as well as commonalities and significant differences between departments and agencies within the Federal Executive Branch (FEB). The course is presented as formal lectures complemented by group discussion. Each topic is addressed as part of the larger Secure Information System structure. Notes: 4 class sessions will be 3.5 hours long. 1 class session will be 2 hours and 20 minutes. (5 total class sessions; 16 hours and 20 minutes total). Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: MSEC 510

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSEC 641: Enterprise Security Threats. 1 credit.
Provides a broad exposition of emerging cyber-security threats for large-scale enterprises: Denial of Service (DoS), insider attacks, remote exploitation. It covers defenses that may mitigate or curtail some aspects of these emerging security threats. Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: MSEC 511.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSEC 642: Enterprise Security Technologies. 2 credits.
Provides an overview of enterprise security tools used in advanced security IT departments of enterprises today. In addition to understanding the tools, their capabilities, and their gaps, students participate in hands-on laboratory exercises with enterprise security tools. Notes: 4 class sessions will be 3.5 hours long. 1 class session will be 2 hours and 20 minutes long. (5 class sessions; 16 hours 20 minutes total) Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: MSEC 511.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MSEC 650: Seminar: Enterprise Security Case Studies. 1 credit.
Provides an exposition of large enterprise security systems including operational requirements, threat model, security analysis, economic analysis, and defense posture options that expose the operational and economic trade-offs when architecting Enterprise security. Offered by Volgenau School of Engineering (p. 953). May not be repeated for credit.

Recommended Prerequisite: MSEC 641.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

MSEC 696: Directed Studies Management of Secure Information Systems. 1-3 credits.
Approval by faculty member and program director required prior to registration. Studies specialized topics in business not otherwise available in the curriculum. Offered by Volgenau School of Engineering (p. 953). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Admission to the MSIS program or permission of the program director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

MSEC 697: Special Topics in Management of Secure Information Systems. 1-3 credits.
Sections established as necessary to focus on various topical issues that emerge in practice of management of secure information systems. Offered by Volgenau School of Engineering (p. 953). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Admission to the MSIS program or permission of the program director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
700 Level Courses

MSEC 710: Global Residency. 1-4 credits.
Students spend a week in an international residency. Emphasis is on how other nations deal with management of secure information system, the management of those systems, and related public policy issues. Corporate site visits are combined with presentations by professors from universities outside the United States and relevant practitioners. Students are required to write a paper summarizing their observations and attend pre-residency preparatory sessions. Offered by Volgenau School of Engineering (p. 953). May be repeated within the degree for a maximum of 4 credits. Equivalent to TECM 757.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
MSEC 720: Capstone Project in Management of Secure Information Systems. 1-3 credits.
Teams undertake a strategic evaluation and plan for the management of secure information systems. They develop plans that include technical, organizational, and policy aspects. A report is produced and presented to the entire cohort for discussion. Offered by Volgenau School of Engineering (p. 953). May be repeated within the degree for a maximum of 3 credits. Equivalent to TECM 737.

Recommended Prerequisite: Admission to Executive MS in Management of Secure Information Systems.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar
Marketing (MKTG)

300 Level Courses

MKTG 301: Principles of Marketing. 3 credits.
Examines marketing principles and practices for analyzing, creating, delivering, capturing, and communicating value to customers. Focuses on managing customer relationships using market-driven strategies, particularly segmentation, targeting, and positioning. The role of customer satisfaction in achieving organizational objectives and ethical decision making in a global economy are also emphasized. Students with the terminated from BU major attribute may not enroll. Students with a class of Freshman may not enroll.

Schedule Type: Lecture
MKTG 302: Sales Management. 3 credits.
Familiarizes students with marketing-sales interfaces including sales force role and capabilities, personal selling strategies, organizational relationships, and responsibilities of sales managers including training, motivating, and evaluating sales force. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Students with a class of Freshman may not enroll.

Schedule Type: Lecture
MKTG 303: Principles of Marketing. 3 credits.
Examines marketing principles and practices for analyzing, creating, delivering, capturing, and communicating value to customers. Focuses on managing customer relationships using market-driven strategies, particularly segmentation, targeting, and positioning. The role of customer satisfaction in achieving organizational objectives and ethical decision making in a global economy are also emphasized. Notes: Students cannot receive credit for both MKTG 301 and MKTG 303. Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture
MKTG 311: Consumer Behavior. 3 credits.
Marketing strategy implications of internal and external influences on consumer decision making, purchase, and consumption behaviors. Emphasizes demographics, lifestyle, situation, perception, learning, and attitude formation and change, focusing on customer segmentation,
satisfaction and loyalty. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** (MKTG 301\(^C\) or L301) or MKTG 303\(^C\) or L303.

\(^C\) Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MKTG 313: Advertising and Marketing Communications.** 3 credits.

Examines development of integrated communications programs, including advertising, sales promotion, public relations, direct marketing, and other communication tools. Focuses on setting communications objectives and budgets, media planning, creative strategy, execution, and evaluation. Provides skills for analyzing the strengths, weaknesses and synergies of marketing communication tools. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** (MKTG 301\(^C\) or L301) or MKTG 303\(^C\) or L303.

\(^C\) Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MKTG 315: Digital Marketing.** 3 credits.

Explores impact of Digital and Internet technology on marketing strategy and practice. Topics include online advertising campaigns (focusing on search marketing), web site usability and content, and the use of social and interactive media to build customer relationships and foster brand loyalty. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** (MKTG 301\(^C\) or L301) or MKTG 303\(^C\) or L303.

\(^C\) Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MKTG 351: Marketing Research.** 3 credits.

Presents the concepts and techniques underlying the marketing research process and their role in managerial decision making. Focuses on skills required to conduct a marketing research project: qualitative and quantitative research designs, survey methodology, instrument creation, sampling procedures, data collection, data analysis, and reporting of findings. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** (BUS 310\(^C\), L310\(^C\), OM 210\(^C\) or 211\(^C\)) and (MKTG 301\(^C\), L301, 303\(^C\) or L303).

\(^C\) Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**MKTG 352: Marketing Analytics for New Product Development.** 3 credits.

In today's technology-enabled world, organizations collect lot of information as a part of their business operations and pool it with data acquired from outside sources. Marketing analytics is a systematic approach to harnessing this data/information to drive effective marketing decision making. Students will learn to analyze historical data, market research data, and competitive information for making strategic marketing decisions. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** (MKTG 301\(^C\), L301, 303\(^C\), L303\(^C\) or MBUS 303\(^C\)) and (BUS 310\(^C\) or STAT 350\(^C\)).

\(^C\) Requires minimum grade of C.
Registration Restrictions:

Required Prerequisites: MKTG 301C, 303C, L301C, L303C or MBUS 303C.

C Requires minimum grade of C.

Schedule Type: Lecture

MKTG 353: New Product Development. 3 credits.
This course focuses on all aspects of the new product and new service development process, from insight and inspiration through design and product launch. The course also explores current topics and best practices in innovation management, such as open innovation, managing creativity in organizations, and product design, and rapid prototyping. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:

Required Prerequisites: MKTG 301C, 303C, L301C, L303C or MBUS 303C.

C Requires minimum grade of C.

Schedule Type: Lecture

400 Level Courses

MKTG 407: Global Marketing. 3 credits.
Multidisciplinary approach to global and international marketing from viewpoint of business management. Examines major marketing issues affecting companies operating in a global environment. Students achieve understanding of economic, political, and cultural differences among nations as they affect marketing opportunities and operations, and develop skills to identify and evaluate global and international marketing opportunities. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:

Required Prerequisites: (MKTG 301C or L301) or MKTG 303C or L303.

C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MKTG 455: Ethnic and Multicultural Marketing. 3 credits.
Ethnic and Multicultural Marketing examines the critical marketing issues and opportunities that have arisen with the changing U.S. demographics. The focus is domestic markets. The growth in minority populations indicates a need for specialized approaches for the entire marketing mix. Segmentation can be powerful when considering non-mainstream markets if the marketer understands and capitalizes on the different approaches cultural and ethnic groups use as consumers. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:

Required Prerequisites: (MKTG 301C or L301) or MKTG 303C or L303.

C Requires minimum grade of C.

Students with a class of Non Degree may not enroll.

Schedule Type: Lecture

MKTG 462: Honors Seminar in Marketing (Topic Varies). 3 credits.
Topic and format vary. In-depth study of topic of interest to managers and organizations. Notes: Enrollment limited and competitive. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Degree status in MKTG major; senior standing; permission of department.

Registration Restrictions:

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Seminar

MKTG 471: Marketing Management. 3 credits.
Emphasizes managerial aspects of marketing, including developing marketing strategies and plans, and integrating specific elements of marketing process. Emphasizes case analysis. Offered by School of Business (p. 846). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:

Required Prerequisites: (MKTG 312C or L312) and (MKTG 351C or L351).

C Requires minimum grade of C.

Students with a class of Freshman, Junior or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MKTG 481: RS: Marketing in the Nonprofit Sector. 3 credits.
Examines the unique challenges of applying marketing principles and practices to not-for-profit groups such as human service and philanthropic organizations, museums, health and wellness advocates, educational institutions, industry associations and government. Emphasis on case studies, team work, and projects. Offered by School of Business (p. 846). May not be repeated for credit.

Specialized Designation: Research/Scholarship Intensive

Registration Restrictions:

Required Prerequisites: (MKTG 301C or L301) or MKTG 303C or L303.

C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Seminar

MKTG 491: Seminar in Marketing. 3 credits.
In-depth treatment in seminar format of contemporary topics in marketing. Culminates in preparation of substantial paper and oral presentation. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:

Required Prerequisites: (MKTG 301C or L301) or MKTG 303C or L303.

C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

MKTG 499: Independent Study. 1-3 credits.
Primary research proposal in marketing area. Requires prior approval from instructor and associate dean for undergraduate programs. Offered
by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** 90 hours and a minimum of 24 hours of business courses including principles of marketing, finance, and management.

**Registration Restrictions:**
Students with a class of Freshman or Sophomore may not enroll.
Non-Degree or Washington Consortium level students may not enroll.
Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Independent Study

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### Master's in New Professional Studies (MNPE)

#### 700 Level Courses

**MNPE 700:** *The New Professionalism: Theory and Practice.* 3 credits. Explores the philosophical and pedagogical assumptions of teachers as individuals and professionals. Critiques educational issues such as accountability, institutional structures, and professional roles engage teachers to be more just and responsive in their relationships with students, families, and colleagues. Provides a deeper understanding of a teacher’s participatory and ethical role in a democracy, which includes questioning the status quo. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MNPE 702:** *The New Professional as a Reflective Practitioner.* 3 credits. Explores the central questions of epistemology to encourage depth of understanding of the assumptions and issues of education. Uses reflection to consider how personal and professional identities are influenced by intentions and commitments to learning and teaching. Provides an understanding of the processes of critical inquiry, dialogue, reflection, and action. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MNPE 703:** *Technology and Learning in the New Professions.* 3 credits. Supports effective technology integration for teaching and learning by constructive knowledge not just of content, technology and pedagogy, but also of their mutually reinforcing relationships. Develops repertoire of technology-mediated learning approaches with appropriate context specific strategies and representations to support learning. Includes concurrent critique of technology and includes equal access to information, critical web literacy, and privacy issues. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
Schedule Type: Lecture

MATH 108: Introductory Calculus with Business Applications. 3 credits. Functions, limits, derivative, and integral. Applications of differentiation and integration. Notes: Call Mathematical Sciences Department at 703-993-1460 for details. Students who have received credit for MATH 113 or 114 may not receive credit for this course. Offered by Mathematics (p. 707). May not be repeated for credit.

Mason Core: Quantitative Reasoning (p. 135)

Registration Restrictions:
Required Prerequisite: minimum score of 13 in 'Math Placement Algebra I'.

Schedule Type: Lecture

MATH 110: Introductory Probability. 3 credits. Elementary set theory, probability, and statistics. Offered by Mathematics (p. 707). May not be repeated for credit.

Mason Core: Quantitative Reasoning (p. 135)

Schedule Type: Lecture

MATH 111: Linear Mathematical Modeling. 3 credits. Matrix algebra, systems of linear equations, Markov chains, difference equations, and data fitting. Offered by Mathematics (p. 707). May not be repeated for credit.

Mason Core: Quantitative Reasoning (p. 135)

Schedule Type: Lecture

MATH 112: Discrete Mathematics for IT. 3 credits. Introduces ideas of discrete mathematics including mathematical induction, sets, logic, graphs, trees, basic counting arguments, and discrete probability. Students who have received credit for MATH 125 may not receive credit for this course. Notes: Intended for IT students; does not count toward a major or minor in mathematics. Offered by Mathematics (p. 707). May not be repeated for credit.

Mason Core: Quantitative Reasoning (p. 135)

Schedule Type: Lecture

MATH 113: Analytic Geometry and Calculus I. 4 credits. Functions, limits, the derivative, maximum and minimum problems, the integral, and transcendental functions. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 116, MSU 109.

Mason Core: Quantitative Reasoning (p. 135)

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Required Prerequisite: (MATH 113 or U113) or (MATH 123 and 124).

Schedule Type: Lecture, Recitation


Schedule Type: Lecture, Recitation

MATH 115: Analytic Geometry and Calculus I (Honors). 4 credits. More challenging version of MATH 113. Functions, limits, the derivative, maximum and minimum problems, the integral, and transcendental functions. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 114.

Registration Restrictions:
Required Prerequisites: (MATH 115 or 113).

Schedule Type: Lecture, Recitation


Registration Restrictions:
Required Prerequisites: (MATH 116 or 115).

Schedule Type: Lecture

MATH 123: Calculus with Algebra/Trigonometry, Part A. 3 credits. Math 123, with 124, is a two semester sequence for students with limited math background who desire careers in the sciences. In two semesters, students progress from algebra through the basic calculus covered in Math 113. Math 123 integrates the beginnings of calculus through the derivative with relevant precalculus algebra and trigonometry. Notes: Students who successfully complete Math 123-124 are considered the same as having successfully completed MATH 113 and can sign up for Math 114, Calculus II. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 113.

Registration Restrictions:
Required Prerequisites: (minimum score of 13 in 'Math Placement Algebra I' and minimum score of 07 in 'Math Placement Algebra II') or (MATH 105 or MATH 104).

Schedule Type: Lecture

MATH 124: Calculus with Algebra/Trigonometry, Part B. 3 credits. Math 123, with 124, is a two semester sequence for students with limited math background who desire careers in the sciences. In two semesters, students progress from algebra through the basic calculus covered in Math 113. Math 124 will review basic differentiation and applications and then proceed to cover integration including transcendental functions. Notes: Students who successfully complete Math 123-124 are
considered the same as having successfully completed MATH 113 and can sign up for Math 114, Calculus II. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 113.

**Mason Core:** Quantitative Reasoning (p. 135)

**Registration Restrictions:**
Required Prerequisite: MATH 123\(^C\).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**MATH 125: Discrete Mathematics I.** 3 credits.
Introduces ideas of discrete mathematics and combinatorial proof techniques including mathematical induction, sets, graphs, trees, recursion, and enumeration. Offered by Mathematics (p. 707). May not be repeated for credit.

**Mason Core:** Quantitative Reasoning (p. 135)

**Registration Restrictions:**
Required Prerequisites: minimum score of 13 in ‘Math Placement Algebra I’, MATH 105\(^C\), 106\(^C\) or 113\(^C\).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**200 Level Courses**

**MATH 203: Linear Algebra.** 3 credits.
Systems of linear equations, linear independence, linear transformations, inverse of a matrix, determinants, vector spaces, eigenvalues, eigenvectors, and orthogonalization. Offered by Mathematics (p. 707). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisites: (MATH 114\(^C\), 114T or 116\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**MATH 213: Analytic Geometry and Calculus III.** 3 credits.
Partial differentiation, multiple integrals, line and surface integrals, and three-dimensional analytic geometry. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 215.

**Registration Restrictions:**
Required Prerequisites: (MATH 114\(^C\), 114T or 116\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**MATH 214: Elementary Differential Equations.** 3 credits.
First-order ODEs, higher-order ODEs, Laplace transforms, linear systems, nonlinear systems, numerical approximations, and modeling. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 216.

**Registration Restrictions:**
Required Prerequisites: (MATH 213\(^C\), 213T or 215\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture, Recitation

**MATH 215: Analytic Geometry and Calculus III (Honors).** 3 credits.
Vectors and vectorvalued functions, partial differentiation, multiple integrals, line integrals, surface integrals, and transformation of coordinates. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 213.

**Registration Restrictions:**
Required Prerequisites: (MATH 114\(^C\) or 116\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**MATH 216: Theory of Differential Equations.** 3 credits.

**Registration Restrictions:**
Required Prerequisites: (MATH 203\(^C\) or U203) and (MATH 213\(^C\), U213, 215\(^C\) or U215).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**MATH 271: Mathematics for the Elementary School Teachers I.** 3 credits.
Concepts and theories underlying elementary school mathematics including problem solving, patterns, sequences, set theory, numeration, number sense, operations and properties of integers, whole, rational, irrational and real numbers, number theory, ratio, proportion, percent and mathematical systems. Notes: Does not count toward major in mathematics. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** Grade of C or better in 3 credits of college math.

**Schedule Type:** Lecture

**MATH 272: Mathematics for the Elementary School Teachers II.** 3 credits.
Continuation of MATH 271. Concepts and theories underlying elementary school mathematics including functions, algebra, geometry, statistics, and probability. Notes: Intended for school educators; does not count toward major in mathematics. Offered by Mathematics (p. 707). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: (MATH 271\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture

**MATH 290: Introduction to Advanced Mathematics.** 3 credits.
Introduction to proofs and the language of mathematics. Topics include induction, equivalence relations, cardinality and basic properties of the real numbers. Designated as a writing intensive course for mathematics majors. Notes: Primarily intended for mathematics majors. Offered by Mathematics (p. 707). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry, Writing Intensive in the Major

**Registration Restrictions:**
Required Prerequisites: (MATH 114\(^C\), 114T or 116\(^C\)).
\(^C\) Requires minimum grade of C.

**Schedule Type:** Lecture
300 Level Courses

MATH 301: Number Theory. 3 credits.
Prime numbers, factorization, congruences, and Diophantine equations. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: Completion of 6 hours of MATH.

Schedule Type: Lecture

MATH 302: Foundations of Geometry. 3 credits.
Fundamental concepts of incidence. Axioms of Euclidean geometry and the resulting theory, and axioms and development of non-Euclidean and projective geometry. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: Completion of 6 hours of MATH.

Schedule Type: Lecture

MATH 307: Mathematical Modeling. 3 credits.
Focuses on the development and analysis of mathematical models that make qualitative and quantitative predictions. Students will address particular situations while learning general modeling strategies. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 203C) and (MATH 214C or 216C). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 312: Geometry. 3 credits.
Two and three dimensional analytic geometry, complex geometry, projective geometry, conics and quadric surfaces, spherical geometry, quaternions, Euclidean and non-Euclidean geometry. This course meets the requirement for secondary school teacher certification. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 114C or 116C). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 313: Introduction to Applied Analysis. 3 credits.
Vector differential calculus, vector integral calculus, and complex analysis. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 213C, 213T or 215C). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 314: Introduction to Applied Mathematics. 3 credits.

Registration Restrictions:
Required Prerequisites: (MATH 214C, U214, 216C or U216). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 315: Advanced Calculus I. 3 credits.
Number system, functions, sequences, limits, continuity, differentiation, integration, transcendental functions, and infinite series. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 213C or 215C) and MATH 290C. C Requires minimum grade of C.

Schedule Type: Lecture

MATH 316: Advanced Calculus II. 3 credits.
 Sequences of functions, Taylor series, vectors, functions of several variables, implicit functions, multiple integrals, and surface integrals. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 213C or 215C) and (MATH 290C). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 321: Abstract Algebra. 3 credits.
Theory of groups, rings, fields. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 213C or 215C) and (MATH 290C). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 322: Advanced Linear Algebra. 3 credits.
Abstract vector spaces, linear independence, bases, linear transformations, matrix algebra, inner product, and special topics. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 203C or U203) and (MATH 290C or U290). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 325: Discrete Mathematics II. 3 credits.
Advanced counting, binomial identities, generating functions, advanced recurrence, inclusion-exclusion, and network flows. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 125C or 125T). C Requires minimum grade of C.

Schedule Type: Lecture

MATH 351: Probability. 3 credits.
Random variables, probability functions, special distributions, and limit theorems. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to STAT 344.

Registration Restrictions:
Required Prerequisites: (MATH 213C, 215C or 215T). C Requires minimum grade of C.

Schedule Type: Lecture
MATH 352: Statistics. 3 credits.
Estimation, decision theory, testing hypothesis, correlation, linear models, and design. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 351\(^C\) or L351).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

400 Level Courses

MATH 400: History of Math (Topic Varies). 3 credits.
Explores internal controversies and dynamics of mathematics in larger intellectual and social settings. Topics vary but might include differential equations devised for mechanics and astronomy by Euler, Lagrange, and Laplace; foundation of mathematical analysis from Cauchy to Weierstrass; algebras of Galois and Boole; or creation of non-Euclidean geometry and Cantor's transfinite sets. Notes: Credits may not be used toward "upper division" math hours required of math majors. Offered by Mathematics (p. 707). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Registration Restrictions:
Required Prerequisites: (MATH 290\(^C\) or 290T).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

MATH 401: Mathematics through 3D Printing. 3 credits.
Incorporates new mathematics from a large variety of fields into the design and creation of 3D printed models, as well as the written and oral communication of these mathematical ideas. Topics vary but might include regular and quasiregular tilings, Platonic and Archimedean solids and their duality, orientable and non-orientable surfaces, fractals, chaotic attractors, Riemann surfaces, and data visualization. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 290 and at least 3 credits of Mathematics above MATH 300.

Schedule Type: Lecture

MATH 405: Honors Thesis in Mathematics I. 3 credits.
A project, which is intended to result in a thesis, is to be chosen and completed under the guidance of a full-time faculty member. An oral presentation is required for MATH 405. Offered by Mathematics (p. 707). May not be repeated for credit.

Specialized Designation: Research Associated

Recommended Prerequisite: MATH 315, three additional credits of MATH above the 300 level (excluding MATH 400) and admission to the Honors Program in Mathematics.

Schedule Type: Independent Study

MATH 406: RS: Honors Thesis in Mathematics II. 3 credits.
A project, which is intended to result in a thesis, is to be chosen and completed under the guidance of a full-time faculty member. Oral and written presentations are required in MATH 406. Offered by Mathematics (p. 707). May not be repeated for credit.

Specialized Designation: Research/Scholarship Intensive

Registration Restrictions:
Required Prerequisite: (MATH 405\(^C\)).
\(^C\) Requires minimum grade of C.

Schedule Type: Independent Study

MATH 411: Functions of a Complex Variable. 3 credits.
Analytic functions, contour integration, residues, and applications to such topics as integral transforms, generalized functions, and boundary value problems. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 214\(^C\) or 214T) or (MATH 216\(^C\) or 216T).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

MATH 413: Modern Applied Mathematics I. 3 credits.

Registration Restrictions:
Required Prerequisites: (MATH 203\(^C\) or 203T) and (MATH 214\(^C\) or 214T) or (MATH 216\(^C\) or 216T).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

MATH 414: Modern Applied Mathematics II. 3 credits.
Continuation of MATH 413, which involves synthesis of pure mathematics and computational mathematics. Fourier analysis and its role in applied mathematics developed (differential equations and approximations). Discrete aspects emphasized in computational models. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: (MATH 413\(^C\)).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

MATH 431: Topology. 3 credits.
Metric spaces, topological spaces, compactness, and connectedness. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: (MATH 315\(^C\)).
\(^C\) Requires minimum grade of C.

Schedule Type: Lecture

MATH 441: Deterministic Operations Research. 3 credits.
Survey of deterministic methods for solving real-world decision problems. Programming model and simplex method of solution, duality and sensitivity analysis, transportation and assignment problems, shortest path and maximal flow problems, project networks including PERT and CPM, introduction to integer and nonlinear programming, dynamic programming, and game theory. Emphasizes modeling and problem solving. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to OR 441.

Registration Restrictions:
Required Prerequisites: (MATH 203\textsuperscript{C} or 203T).\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

MATH 442: Stochastic Operations Research. 3 credits.

Registration Restrictions:
Required Prerequisite: (MATH 351\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

MATH 446: Numerical Analysis I. 3 credits.
Significant figures, round-off errors, iterative methods of solution of nonlinear equations of a single variable, solutions of linear systems, iterative techniques in matrix algebra, interpolation and polynomial approximation. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to OR 481.

Registration Restrictions:
Required Prerequisites: (MATH 203\textsuperscript{C} or 203T) and (CS 112\textsuperscript{C} or 112T). \textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

MATH 447: Numerical Analysis II. 3 credits.

Registration Restrictions:
Required Prerequisites: (MATH 214\textsuperscript{C}, 214T, 216\textsuperscript{C} or 216T) and (MATH 446\textsuperscript{C}). \textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

MATH 453: Advanced Mathematical Statistics. 3 credits.
Maximum likelihood tests, sufficiency, most powerful tests, distributions of quadratic forms, topics from nonparametric statistics, Bayesian statistics and linear models. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: MATH 352\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

MATH 478: Introduction to Partial Differential Equations with Numerical Methods. 3 credits.
Introduces basic facts about partial differential equations, including elliptic equations, parabolic equations and hyperbolic equations. Methods of solution, characteristics, initial/boundary-value problems, and numerical approximation techniques. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 203\textsuperscript{C} or 203T) and (MATH 214\textsuperscript{C} or 214T) or (MATH 216\textsuperscript{C} or 216T).
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

MATH 491: Reading and Problems. 1-3 credits.
For mathematical sciences majors only. Independent study in math. Notes: Must be arranged with instructor before registering. Offered by Mathematics (p. 707). May be repeated within the term.

Recommended Corequisite: For mathematical science majors only.

Schedule Type: Independent Study

MATH 493: Topics in Applicable Mathematics. 3 credits.
Topics that have been successfully used in applications of mathematics. Notes: Subject determined by instructor. Offered by Mathematics (p. 707). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: 6 credits of MATH at or above the 310 level.

Schedule Type: Lecture

MATH 494: Topics in Pure Mathematics. 3 credits.
Topics of pure math not covered in other courses. Topics might include Galois theory, cardinal and ordinal arithmetic, measure theory, mathematical logic, and differential geometry. Notes: Subject determined by instructor. Offered by Mathematics (p. 707). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: 6 hours of MATH at or above the 310 level.

Schedule Type: Seminar

500 Level Courses

MATH 551: Regression and Time Series. 3 credits.
Mathematics of regression, exponential smoothing, time series, and forecasting. Material included in this course constitutes Society of Actuaries Validation by Educational Experience (VEE) for applied statistics and corresponds to part of Casualty Actuary Society Exam 3. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 352, STAT 652, SOA exam P, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 554: Financial Mathematics. 3 credits.
Simple and compound interest, annuities, present and future value, yield rates, capital budgeting, amortization schedules, mortgages, bonds. Material corresponds to the Society of Actuaries Exam: Financial
Mathematics (FM). Not appropriate for graduate science and engineering majors not considering actuarial or financial career. Cannot be counted toward MS or PhD degree in mathematics. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 113.

**Recommended Corequisite:** MATH 114.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**MATH 555: Actuarial Modeling I.** 3 credits.
Two-semester sequence covering portions of the material corresponding to the Society of Actuaries Exam M, Casualty Actuarial Society Exam 3, and Joint Board Exam EA1. The remaining material for these exams is covered in MATH 551 and 653. Topics include survival distribution and life tables, life insurance, life annuities, net premiums, net premium reserves, multiple life and multiple decrement models, pensions, insurance models including expense, and nonforfeiture benefits and cash values. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 554 and either MATH 351 or STAT 344.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**MATH 556: Actuarial Modeling II.** 3 credits.
Two-semester sequence covering portions of the material corresponding to the Society of Actuaries Exam M, Casualty Actuarial Society Exam 3, and Joint Board Exam EA1. The remaining material for these exams is covered in MATH 551 and 653. Topics include survival distribution and life tables, life insurance, life annuities, net premiums, net premium reserves, multiple life and multiple decrement models, pensions, insurance models including expense, and nonforfeiture benefits and cash values. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 554 and either MATH 351 or STAT 344.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**MATH 600: Special Topics in Mathematics.** 1-6 credits.
Mathematical workshops, special courses, or other projects. Offered by Mathematics (p. 707). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**MATH 601: Analysis I for Teachers.** 3 credits.
Develops continuous ideas of calculus with particular emphasis on concepts as opposed to computational aspects of calculus. Specific topics include decimal representation of real numbers, sequences, series, and limits; differentiation to find speed, slopes of curves, and tangents; integration to find volumes and distances and area under curves. Optimization problems including maximization of area and volume, and modeling of these concepts. Graphing techniques supported by theory of calculus and graphing utilities such as TI-83 calculator or computer software such as Maple. Notes: Background in mathematics desirable but not necessary. Some topics from college algebra will be reviewed in class, but thorough understanding of high school algebra and trigonometry expected. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Corequisite:** Open only to inservice math teachers at the middle or secondary level, or by permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 602: Analysis II for Teachers. 3 credits.**
Develops continuous ideas of calculus with particular emphasis on concepts as opposed to computational aspects of calculus. Specific topics include decimal representation of real numbers, sequences, series, and limits; differentiation to find speed, slopes of curves, and tangents; integration to find volumes and distances and area under curves. Optimization problems including maximization of area and volume, and modeling of these concepts. Graphing techniques supported by theory of calculus and graphing utilities such as TI-83 calculator or computer software such as Maple. Notes: Background in mathematics desirable but not necessary. Some topics from college algebra will be reviewed in class, but thorough understanding of high school algebra and trigonometry expected. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Corequisite:** Open only to inservice math teachers at the middle or secondary level, or by Permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 604: Geometry for Teachers. 3 credits.**
Covers standard topics from Euclidean geometry, and includes discussion of non-Euclidean geometries. Emphasizes informal and explorative approach to geometry, and makes use of geometry sketchpad. Other topics include geometric constructions, and role of proof in geometry. Notes: Background in mathematics desirable but not necessary. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Corequisite:** Open only to inservice math teachers at the middle or secondary level, or by permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 605: Discrete/Finite Mathematics for Teachers. 3 credits.**
Thorough understanding of high school algebra assumed. Discusses finite mathematics in juxtaposition to continuous ideas of calculus. Topics may consist of elementary counting and combinatorics including recursion and difference equations and their analogy to calculus; thorough discussion of probability and central measures of statistics; and graph theory and its connection to geometry. Notes: Background in mathematics desirable but not necessary. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Corequisite:** Open only to inservice math teachers at the middle or secondary level, or by permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 607: Algebraic Structure for Teachers. 3 credits.**
Expands on customary operations on integers and rationals to discuss systems that mimic these operations. Emphasizes multiplicative and additive inverses and their corresponding identities as they occur in other systems. Topics might include permutation groups, rigid transformations, groups of symmetry of the plane and connection to geometry, and matrices treated as linear transformations and connections to solutions of systems of equations. Notes: Background in mathematics desirable but not necessary. Thorough understanding of high school algebra assumed. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Corequisite:** Open only to inservice math teachers at the middle or secondary level, or by permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 608: Problem Solving in Mathematics. 3 credits.**
Introduces variety of challenging mathematical problems appropriate for middle school student to analyze, and solving problems using mathematics learned in previous courses. Also asks students to search for such problems and orally present solutions. Notes: Background in mathematics or science desirable but not necessary. Assumes exposure to most of topics covered in MATH 601, 604, 605, and 607. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Corequisite:** Open only to inservice math teachers at the middle or secondary level, or by Permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 610: Number Systems and Number Theory for K-8 Teachers. 3 credits.**
This course covers the topics: ways of representing numbers, relationships between numbers, number systems, the meanings of
operations and how they relate to one another, and computation within
the number system as a foundation for algebra. It also includes episodes
in history and development of the number system, and will examine the
developmental sequence and learning trajectory as children learn this
material. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 611: Geometry and Measurement for K-8 Teachers. 3 credits.
The course explores the foundations of informal measurement and
geometry in one, two, and three dimensions. The van Hiele model
for geometric learning is used as a framework for how children build
their understanding of length, area, volume, angles, and geometric
relationships. Visualization, spatial reasoning, and geometric modeling
are stressed. As appropriate, transformational geometry, congruence,
similarity, and geometric constructions will be discussed. Offered by
Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 612: Probability and Statistics for K-8 Teachers. 3 credits.
An introduction to probability, descriptive statistics, and data analysis.
Topics studied will include the exploration of randomness, data
representation, modeling. Descriptive statistics will include measures of
central tendency, dispersion, distributions, and regression. The analysis
of experiments requiring hypothesizing, experimental design and data
gathering will also be discussed. Offered by Mathematics (p. 707). May not
be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 613: Algebra and Functions for K-8 Teachers. 3 credits.
The course will examine representing and analyzing mathematical
situations and structures using generalization and algebraic symbols
and reasoning. Attention will be given to the transition from arithmetic
to algebra, working with quantitative change, and the description of
and prediction of change. Offered by Mathematics (p. 707). May not be
repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 614: Rational Numbers and Proportional Reasoning for K-8 Teachers.
3 credits.
This course will cover the basic number strands in fractions and rational
numbers, decimals and percents, and ratios and proportions in the school
curriculum. Instruction will cover interpretations, computations, and
estimation with a coordinated program of activities that develop both
rational number concepts and skills and proportional reasoning. Offered
by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 619: Topics in Mathematical Logic. 3 credits.
Special topics in foundations of mathematics not included in regular
mathematics curriculum. May be repeated for credit. Offered by
Mathematics (p. 707). May be repeated within the term for a maximum 12
credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 621: Algebra I. 3 credits.
Groups, linear algebra, and matrix groups. Offered by Mathematics
(p. 707). May not be repeated for credit.

Recommended Prerequisite: Familiarity with basic properties of groups
and rings or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
MATH 624: Euclidean Geometry. 3 credits.
Euclidean space, geometry of k-dimensional planes, the affine structure of Euclidean space, rigid motions and similarities, paralleloptopes and volumes, convex polytopes, quadric surfaces, and additional topics by instructor's choice. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 315 and MATH 322, or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 625: Numerical Linear Algebra. 3 credits.
Theory and development of numerical algorithms for solving variety of matrix problems: linear systems, least squares problems, eigenvalue problems, and singular value decomposition. Direct and iterative method, analysis of sensitivity to rounding errors, and applications. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to CSI 740.

Recommended Prerequisite: Computer literacy, including some programming experience.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 629: Topics in Algebra. 3 credits.
Special topics in pure and applied algebra not covered in regular algebra. May be repeated for credit when topic varies. Offered by Mathematics (p. 707). May not be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: MATH 315 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 631: Topology I: Topology of Metric Spaces. 3 credits.
Covers definition and basic examples of metric spaces, open and closed sets, subspaces and finite products, sequences and convergence, compactness and separability, continuous functions, uniform continuity, metric space C(X) and uniform convergence, and homotopy. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 315 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 639: Topics in Geometry and Topology. 3 credits.
Special topics in geometry and topology not covered in regular geometry and topology sequence. May be repeated for credit when topic varies. Offered by Mathematics (p. 707). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: MATH 315 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 641: Combinatorics and Graph Theory. 3 credits.
Covers enumerative combinatorics, including partially ordered sets; Moebius inversion and generating functions; and major topics in graph theory such as graph coloring, Ramsey theory, and matching. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 321 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 644: Convex and Discrete Geometry. 3 credits.
Basic properties of Euclidean space, convex sets and convex cones, convex hulls, extremal structure of convex sets, support and separation properties, polyhedra and polytopes, special classes of convex sets, Helly-type theorems, selected problems of discrete geometry. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 315 and MATH 322, or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
MATH 649: Topics in Combinatorics. 3 credits.
Special topics in combinatorics not covered in regular combinatorics sequence. May be repeated for credit. Offered by Mathematics (p. 707). May be repeated within the term for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 653: Construction and Evaluation of Actuarial Models I. 3 credits.
Economics of insurance, individual risk models for short term, collective risk models for single period, collective risk models over an extended period, and applications of risk theory. Material included in this course corresponds to portions of the Society of Actuaries Exam M and Casualty Actuary Society Exam 3. The remaining material for these exams is covered in MATH 551, 555, and 556. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 351 or STAT 644 required. MATH 555 recommended but not required.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 654: Construction and Evaluation of Actuarial Models II. 3 credits.
Nature and properties of survival and loss models, methods of estimates from complete and incomplete data, tabular and parametric models, and practical issues in survival model estimation. Material included in this course corresponds to most of the Society of Actuaries Exam C and Casualty Actuary Society Exam 4. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 556 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 655: Pension Valuation. 3 credits.
Basic mathematics used in pension actuarial work without regard to pension law. Material included in this course corresponds to all of the Joint Board Exam EA-2A and portions of the Society of Actuaries Exam 8. This course cannot be counted toward the MS or PhD degree in mathematics. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 556, SOA Exam EA-1, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 661: Complex Analysis I. 3 credits.
Toplogy of complex numbers, holomorphic functions, series, complex integration. Meromorphic, multivalued, and elliptic functions. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 671: Fourier Analysis. 3 credits.
Study of fundamental ideas in Fourier analysis. Topics include orthonormal systems, Fourier series, continuous and discrete Fourier transform theory, generalized functions, and introduction to spectral analysis. Uses applications to physical sciences, linear systems theory, and signal processing to integrate topics. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 673: Dynamical Systems. 3 credits.
Contemporary topics in nonlinear dynamical systems illustrated in mathematical models from physics, ecology, and population dynamics. Traditional qualitative analysis of difference and differential equations provides background for understanding chaotic behavior when it occurs in these models. Topics include stability theory, fractals, Lyapunov exponents, and chaotic attractors. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to MATH 661.

Recommended Prerequisite: Elementary courses in linear algebra and differential equations.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 674: *Stochastic Differential Equations.* 3 credits.
Introduces stochastic calculus and differential equations. Includes Wiener process, Ito and Stratonovich integrals, Ito formula, martingales, diffusions, and applications, including financial applications. Simulations and numerical approximations of solutions. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 214 and 351.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 675: *Linear Analysis.* 3 credits.
Metric spaces, normed linear spaces, completeness, compactness, continuous (bounded) linear transformations, Banach spaces, Hilbert spaces, and orthogonal series. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 315 and MATH 322, or equivalent.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 677: *Ordinary Differential Equations.* 3 credits.
Qualitative and quantitative theory of ordinary differential equations. Phase portrait analysis of linear and nonlinear systems, including classification of stable and unstable equilibrium states and periodic orbits. Poincaré-Bendixon theorem, Lyapunov stability and Lyapunov functions, and bifurcation theory. Optional topics include averaging and perturbation methods, numerical solution techniques, and chaos. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 214 or equivalent.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 678: *Partial Differential Equations.* 3 credits.
Physical examples, characteristics, boundary value problems, integral transforms, and other topics, such as variational, perturbation, and asymptotic methods. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: Elementary differential equations course.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 679: *Topical in Analysis and Potential Theory.* 3 credits.
Special topics not covered in regular analysis or potential theory sequence. May be repeated for credit when topic varies. Offered by Mathematics (p. 707). May be repeated within the term for a maximum 12 credits.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 680: *Industrial Mathematics.* 3 credits.
Takes examples from industry and goes through complete solution process: formulation of mathematical model of problem; solution, possibly by numerical approximation; and interpretation and presentation of results. Emphasizes working in groups, relating mathematics to concrete situations, and communication and presentation skills. Offered by Mathematics (p. 707). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 683: *Modern Optimization Theory.* 3 credits.
Introduces basic mathematical ideas and methods for solving linear and nonlinear programming problems, with emphasis on mathematical aspects of optimization theory. Reviews classical topics of linear programming, and covers recent developments in linear programming, including interior point method. Considers basic results in nonlinear
programming, including very recent developments in this field. Offered by Mathematics (p. 707). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 685:** *Numerical Analysis*. 3 credits.
Computational techniques for solving problems arising in science and engineering. Includes theoretical development as well as implementation, efficiency, and accuracy issues in using algorithms and interpreting results. Specific topics include linear and nonlinear systems of equations, polynomial interpolation, numerical integration, and introduction to numerical solution of differential equations. Offered by Mathematics (p. 707). May not be repeated for credit. Equivalent to CSI 690, CSI 700, OR 682.

**Recommended Prerequisite:** Computer literacy, including some programming experience.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 686:** *Numerical Solutions of Differential Equations*. 3 credits.
Finite difference methods for initial value problems, two-point boundary value problems, Poisson equation, heat equation, and first-order partial differential equations. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 214 and MATH 446 or 685.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 687:** *Variational Methods*. 3 credits.
Weak formulation of partial differential equations, energy principles, Galerkin approximations, and finite element methods. Includes review and development of necessary analysis. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 446 or 685, and elementary differential equations course.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 689:** *Topics in Applied and Computational Mathematics*. 3 credits.
Special topics in applied and computational mathematics not covered in the regular applied and computational mathematics sequence. May be repeated for credit when topic varies. Offered by Mathematics (p. 707). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 697:** *Independent Reading and Research*. 1-6 credits.
In areas of importance, but with insufficient demand to justify a regular course, students may undertake a course of study under the supervision of a consenting faculty member. Written statement of the content of the course and a tentative reading list is normally submitted as part of the request for approval. Literature review, project report, or other written product is normally required. May be repeated for credit. Offered by Mathematics (p. 707). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**700 Level Courses**

**MATH 721:** *Algebra II*. 3 credits.
Rings, fields, and Galois theory. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 621.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 722:** *Algebraic Topology*. 3 credits.
Covers simplices and simplicial complexes, cycles and boundaries, simplicial homology, homological algebra, homotopy and the fundamental group, cohomology. Offered by Mathematics (p. 707). May not be repeated for credit.
Recommended Prerequisite: MATH 621 and MATH 631 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 723: Combinatorial Structures. 3 credits.
Studies structural properties of objects encountered in pure and applied combinatorics. Topics include partially ordered sets, codes, designs, matroids, buildings, symmetrical structures, permutation groups, and face lattices of polytopes. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 321 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 724: Commutative Algebra. 3 credits.
Study of commutative rings and their ideals, and of modules over commutative rings and their homological properties. More specific topics include Noetherian rings, primary decomposition, completions, graded rings and dimension theory with applications to algebraic geometry. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 621.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 732: Topology II: Set-Theoretic Topology. 3 credits.
Topics include review of basic set theory (including cardinal numbers products of sets, the Axiom of Choice), definition of topological spaces, bases for topological spaces, forming new topological spaces by taking subspace, quotients, and products, separation properties (Hausdorff, regular, Tychonoff, and normal spaces) compactness, the Lindelof property, separability, connectedness, continuity and homeomorphism, manifolds. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 631 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 740: Differential Topology. 3 credits.
Differential forms, manifolds, smooth maps, vector fields, the Euler characteristic, integration on manifolds, and de Rham cohomology. Notes: MATH 740 will be an elective course acceptable (but not required) for the PhD Degree in the Mathematical Sciences offered by the Department of Mathematical Sciences. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 621 and MATH 631, or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 762: Complex Analysis II. 3 credits.
Harmonic functions, generalizations of the maximum principle, entire and meromorphic functions, analytic continuation, and the Riemann mapping theorem. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 661.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 763: Functions of Several Complex Variables. 3 credits.
Covers the important results for analytic functions in several variables, including analyticity in several variables and the differences between the theory of one and the theory of several complex variables. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 661 and MATH 762 or an equivalent preparation in one complex variable.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 772: Wavelet Theory. 3 credits.
Study of the theory and computational aspects of wavelets and the wavelet transform. Emphasizes computational aspects of wavelets, defining the Fast Wavelet Transform in one and two dimensions. Developing the appropriate numerical algorithms. Includes developing the theory of wavelet bases on the real line, discussing multiresolution analysis, splines, time-frequency localization, and wavelet packets. Offered by Mathematics (p. 707). May not be repeated for credit.

Recommended Prerequisite: MATH 315 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MATH 776: Measure and Integration. 3 credits.
Lebesgue measure and integration. Theory of Lp spaces with p between one and infinity on the real line. Theory of linear operators on Banach spaces, including the Hahn-Banach theorem, open mapping theorem,
closed graph theorem and the uniform boundedness principle. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 675.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 781:** *Advanced Methods in Applied Mathematics.* 3 credits. Bifurcation theory and perturbation methods for solutions in ordinary and partial differential equations. This course will develop and apply these mathematical tools in current scientific fields, such as biology, materials science, or financial mathematics. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 677 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 784:** *Nonlinear Functional Analysis.* 3 credits. Techniques in nonlinear functional analysis with applications. Contraction mapping principle, Frechet and higher derivatives, the implicit function theorem, Lyapunov-Schmidt method, and bifurcation theory. Finite and infinite dimensional degree theory with applications in partial differential equations. Notes: Different backgrounds may be appropriate, but generally, a student is expected to be an upper level graduate student who has already taken Linear Analysis. Since the applications given in the course are for differential equations, some familiarity with differential equations is extremely useful. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** MATH 675 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MATH 795:** *Graduate Seminar.* 1 credit. Mandatory for all PhD students. Weekly seminar graded on presentations and attendance. Faculty presentations on potential thesis topics and presentations by students. Offered by Mathematics (p. 707). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Enrolled in the PhD program in Mathematics.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**MATH 799:** *MS Thesis.* 1-6 credits. Original or compilatory work evaluated by committee of three faculty members. Offered by Mathematics (p. 707). May be repeated within the degree.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

### 800 Level Courses

**MATH 800:** *Studies for the Doctor of Philosophy in Education.* 1-6 credits. Program of studies designed by student's discipline director and approved by student's doctoral committee, which brings the student to participate in current research of discipline director and results in paper reporting the original contributions of student. Enrollment may be repeated. Offered by Mathematics (p. 707). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Ph.D. in Education program to study in mathematical sciences.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

### 900 Level Courses

**MATH 998:** *Doctoral Dissertation Proposal.* 1-9 credits. Work on research proposal that forms basis for doctoral dissertation. May be repeated for credit. No more than 24 credit hours of 998 and 999 may be applied to doctoral degree requirements. Offered by Mathematics (p. 707). May be repeated within the degree.

**Recommended Prerequisite:** Successful completion of qualifying exam.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**MATH 999:** *Doctoral Dissertation.* 1-12 credits. Formal record of commitment to doctoral dissertation research under the direction of a faculty member. May be repeated for credit. No more than 24 credit hours of 998 and 999 may be applied to doctoral degree requirements. Offered by Mathematics (p. 707). May be repeated within the degree.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.
Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Mechanical Engineering (ME)

100 Level Courses
ME 151: Practicum in Engineering, 2 credits.
This course provides students with experiences in algorithmic thinking, visualization and communications. An essential component of this course is preparation of students for the National Academy of Engineering Grand Challenge Scholars Program. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Schedule Type: Laboratory

200 Level Courses
ME 211: Statics. 3 credits.
An initial course in applied vector mechanics with emphasis on static equilibrium. Topics include forces, moments, couples, equivalent force-couple systems, centroids, distributed forces, and Coulomb friction. The application of the free body diagram in the analysis of static equilibrium of frames, machines and trusses is stressed. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: PHYS 160\(^C\) and 161\(^C\).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 212: Solid Mechanics. 3 credits.
A first course in mechanics of deformable bodies with emphasis on the engineering approach to the responses of these bodies to various types of loadings. Topics include stress-strain relationships, stress-strain analysis, stress and strain transformation (Mohr’s circle), load-deflection, bending, torsion, buckling, and thermal effects. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Recommended Corequisite: MATH 214.

Registration Restrictions:
Required Prerequisite: ME 211\(^C\).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 231: Thermodynamics. 3 credits.
A basic thermodynamics course in which the first and second laws of thermodynamics are studied primarily from the classical macroscopic viewpoint and applied to both closed and open systems. Working substances include perfect gases, real gases and vapors in addition to solids and liquids. Offered by Mechanical Engineering (p. 1057). Limited to two attempts. Equivalent to ENGR 307.

Registration Restrictions:
Required Prerequisite: MATH 113\(^C\).
\(^C\) Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 231: Dynamics. 3 credits.
A course in classical vector dynamics. Topics include vector algebra and calculus, kinematics and kinetics of particles and rigid bodies, as well as energy and momentum methods. Extensive problem solving involving particle and rigid body motion is required. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Recommended Corequisite: MATH 214.

Registration Restrictions:
Required Prerequisite: ME 211\(^C\).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 311: Mechanical Experimentation I. 1 credit.
Experimental measurements in solid mechanics and materials science. Involves technical report writing. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Recommended Corequisite: ME 313.

Registration Restrictions:
Required Prerequisite: ME 212\(^C\).
\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

ME 313: Material Science. 3 credits.
An introductory course in physical and mechanical properties of engineering design materials, ceramics and plastics, their structures, use in engineering applications and failure phenomena. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CHEM 211\(^C\) or 251\(^C\).
\(^C\) Requires minimum grade of C.

Enrollment is limited to students with a major in Mechanical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 321: Mechanical Experimentation II. 1 credit.

Recommended Corequisite: ME 323.
ME 322: Fluid Mechanics. 3 credits.
An introductory course in fluid dynamics stressing both the integral and differential forms of the conservation laws of fluid flow. Engineering applications are made to hydrostatics and to ideal and real fluid flows. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

ME 323: Heat Transfer. 3 credits.
Study of thermal radiation, steady and transient conduction, laminar and turbulent convection, internal and external flow, boundary layers and empirical correlations. Applications address fins, nuclear reactor cooling, heat exchangers and interactive computing. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

ME 341: Design of Mechanical Elements. 3 credits.
Fundamentals of mechanical design. Introduction to the fundamentals of static and fatigue failure theories, design of basic machine elements such as fasteners, bearings, gearing and shafts. Builds on the fundamentals of design introduced in earlier courses by introducing the concepts of customer requirements, specification development, reverse engineering, functional decomposition, and design for manufacturing. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

ME 342: Design of Thermal Systems. 3 credits.
A study of equipment which operates on principles of thermodynamics and fluid mechanics is used to reinforce analyses and design of gas and vapor power cycles, refrigeration and air conditioning, propulsion systems, combustion, energy conversion and compressible flow. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

ME 351: Analytical Methods in Engineering. 3 credits.
Survey of advanced mathematics topics needed in the study of engineering. Topics include vector differential and integral calculus, matrix analysis, partial differential equations, complex variables, numerical methods, data analysis using statistics and probability theory. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

ME 352: Entrepreneurship in Engineering. 3 credits.
Introduces students to the concept of entrepreneurship and how to translate technical skill sets to commercial success. Topics include creating a business plan, pitching ideas, risk mitigation, and selecting investment alternatives. Emerging technology related to Mechanical Engineering will be analyzed in this context. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

ME 431: Systems Dynamics. 3 credits.
A first course which deals with the mathematical modeling of dynamic systems and response analysis of these systems. Topics include state variable and transfer functions, mathematical analysis of systems response, and the use of computational tools for modeling, design, and
ME 432: Control Engineering. 4 credits.
Introduces fundamentals of feedback and modern control theory. Topics include analysis of mechanical and thermal systems by root locus and frequency response techniques. Use of sensors and transducers in control systems, data acquisition and analysis. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: ME 351C.  
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Mechanical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 443: Mechanical Design I. 3 credits.
The first course in a two-semester capstone design sequence. Topics include the engineering design process, project management, codes and standards, engineering ethics, and computer-aided design. Students form design teams, select a capstone design project and progress through the proposal and preliminary design stages of the project. The capstone design project continues in ME 444. Offered by Mechanical Engineering (p. 1057). Limited to two attempts. Equivalent to ME 360.

Registration Restrictions:
Required Prerequisite: ME 323C.  
C Requires minimum grade of C.

Enrollment is limited to students with a major in Mechanical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 444: Mechanical Design II. 3 credits.
The second of the two-semester capstone design course sequence. Students continue with concept selection, detail design, prototyping and evaluation of their major design projects. Formal presentations and reports are prepared to review and document the designs. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Mason Core: Capstone (p. 135)

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Required Prerequisite: (ME 443C).  
C Requires minimum grade of C.

Enrollment is limited to students with a major in Mechanical Engineering. Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 453: Developing the Societal Engineer. 2 credits.
A course which highlights, through speakers, discussions and workshops, the professional responsibility of a being mechanical engineer. Additional topics that will be covered include ethical issues, current events and trends in the profession. Engineering case studies will be explored. Offered by Mechanical Engineering (p. 1057). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: ME 443C.  
C Requires minimum grade of C.

Enrollment is limited to students with a major in Mechanical Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

ME 498: Independent Study in Mechanical Engineering. 3 credits.
Directed self-study of topics of special interest. Offered by Mechanical Engineering (p. 1057). May be repeated within the term for a maximum 6 credits.

Schedule Type: Independent Study

ME 499: Special Topics in Mechanical Engineering. 4 credits.
Topics of special interest to undergraduates. Notes: May be repeated for credit when topic is different. Offered by Mechanical Engineering (p. 1057). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Senior Plus or Senior.

Enrollment is limited to students with a major, minor, or concentration in Mechanical Engineering.

Schedule Type: Lecture

500 Level Courses

ME 521: Energy Transfer. 3 credits.
Study of thermal fluid sciences related to energy systems. Provides foundations in thermodynamics, mass transfer, fluid mechanics, and heat transfer in steady systems. Covers modelling and analysis of engineering devices such as pumps, heat exchangers, turbines, and airfoils which constitute energy systems. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
**ME 531: Energy Transmission.** 3 credits.
Introduces analysis of local and national electrical grids used for power transmission and develops understanding of economic constraints on energy systems. Students will model energy transmission systems with dynamic loads ensuring energy security and optimal performance. Advanced topics such as forecasting for renewable energy integration, smart grid implementation, and utilization of emerging energy storage technology are covered. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.

**Recommended Prerequisite:** ME 521.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**ME 541: Power Generation.** 3 credits.
Study of traditional and advanced power generation technology. Builds upon conservation principles of mass, energy, and momentum to analyze, model and optimize energy systems based on physical principles. Specific attention will be paid to site specific conditions for generation. Advanced cycles will be covered which utilize fossil fuel, renewable, and nuclear energy. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.

**Recommended Prerequisite:** ME 521.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**ME 542: Energy Utilization.** 3 credits.
Covers energy utilization by end users. Technology and system integration are covered for applications such as combined heat power units and transportation. Students will use energy audit techniques to identify and minimize energy losses from the demand side. Investment, payback, and subsidies for purchasing energy system updates will be evaluated. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.

**Recommended Prerequisite:** ME 521.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

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**ME 621: Foundations of Fluid Mechanics.** 3 credits.
Derivation of the fundamental equations of fluid mechanics, including the Navier-Stokes equations, conservation of mass, and the vorticity transport equations. Vector and Cartesian tensor notation are used throughout. Equations of motion are applied to incompressible viscous and inviscid flows. Some aspects of turbulence are discussed. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.

**Recommended Prerequisite:** Introductory graduate level course in advanced strength of materials or theory of elasticity, or consent of the instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**ME 714: Fracture Mechanics.** 3 credits.
Investigation of linear elastic and elastic-plastic fracture mechanics. Topics include: theory of elasticity and plasticity, energy and stress approach to fracture mechanics, methods to determine the stress intensity factor, fracture mechanics testing, fatigue crack growth. Develop a basic understanding of how crack-like defects impact performance in structures and learn how to select materials to ensure damage tolerance. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.

**Recommended Prerequisite:** Introductory graduate level course in advanced strength of materials or theory of elasticity, or consent of the instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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**ME 715: Impact Dynamics.** 3 credits.
Includes advanced dynamics of impact, impact biomechanics, as well as vehicle crashworthiness standards and accident data analysis. Students will learn about FMVSS and NCAP crash tests. FARS and NASS real world accident databases, and methods to analyze crash and accident data. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.
Recommended Prerequisite: ME 231, ME 212 or equivalent courses.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

ME 722: Introduction to Turbulence. 3 credits.
Introduces beginning graduate students to the theory of turbulence. The theory of homogeneous-isotropic turbulence is introduced, followed by a discussion of sheared and wall-bounded turbulence. Some aspects of coherent structures in turbulence will be introduced as well as models used in computing turbulence. Specially designed projects are intended to enable students to apply what they have learned to different flow situations. Offered by Mechanical Engineering (p. 1057). May not be repeated for credit.

Recommended Prerequisite: ME 621.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

Medical Laboratory Science (MLAB)

200 Level Courses

MLAB 200: Introduction to Medical Laboratory Science. 1 credit.
Introduction to the profession of Medical Laboratory Science. Offered by Biology (p. 617). May not be repeated for credit. Equivalent to MTCH 200.

Schedule Type: Lecture

300 Level Courses

MLAB 300: Science Writing. 2 credits.
Intensive practice in biological science writing. Science Writing will fulfill the university's writing intensive requirement as well as prepare Medical Laboratory Science students for the types of writing that they will encounter in the industry including, but not limited to: writing, resumes, grants, cover letters, etc. Offered by Biology (p. 617). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

400 Level Courses

MLAB 401: Orientation to the Problems and Practices of the Clinical Laboratory. 1-2 credits.
Orientation to clinical lab; specimen collection and record keeping; management principles and problems; educational theories as they apply to the teaching of clinical laboratory procedures; and quality control principles. Notes: Not offered on campus. Offered by Biology (p. 617). May be repeated within the term. Equivalent to MTCH 401.

Recommended Prerequisite: Completion of requirements for BS with major in medical technology except for 30 credits of professional study, and admission to school of medical technology approved by National Accrediting Agency for Clinical Laboratories.

Schedule Type: Internship

MLAB 402: Clinical Hematology and Coagulation. 2-3 credits.
Morphology of blood cells in health and disease; theories of hematopoiesis and coagulation; techniques for measurement of hematologic parameters; and hematologic pathologies and their lab evaluation. Notes: Not offered on campus. Offered by Biology (p. 617). May be repeated within the term. Equivalent to MTCH 402.

Recommended Prerequisite: Completion of requirements for BS with major in medical technology except for 30 credits of professional study, and admission to school of medical technology approved by National Accrediting Agency for Clinical Laboratories.

Schedule Type: Internship

MLAB 403: Clinical Microscopy. 1-3 credits.
Methods for the routine examination of urine, feces, and certain other body fluids, especially the microscopic identification of normal and pathologic components. Includes a study of the kidney and theories of microscopy. Notes: Not offered on campus. Offered by Biology (p. 617). May be repeated within the term. Equivalent to MTCH 403.

Recommended Prerequisite: Completion of requirements for BS with major in medical technology except for 30 credits of professional study, and admission to school of medical technology approved by National Accrediting Agency for Clinical Laboratories.

Schedule Type: Independent Study

MLAB 404: Serology and Immunohematology. 1-7 credits.
Clinical lab procedures involving antigen-antibody reactions, and theoretical bases of such procedures. Includes both diagnostic and blood bank techniques. Notes: Not offered on campus. Offered by Biology (p. 617). May be repeated within the term. Equivalent to MTCH 404.

Recommended Prerequisite: Completion of requirements for BS with major in medical technology except for 30 credits of professional study, and admission to school of medical technology approved by National Accrediting Agency for Clinical Laboratories.

Schedule Type: Internship

MLAB 405: Clinical Microbiology. 1-8 credits.
Biology and pathology of bacteria, rickettsia, fungi, parasites, and viruses of clinical importance and their culture and identification. Notes: Not offered on campus. Offered by Biology (p. 617). May be repeated within the term. Equivalent to MTCH 405.

Recommended Prerequisite: Completion of requirements for BS with major in medical technology except for 30 credits of professional study, and admission to school of medical technology approved by National Accrediting Agency for Clinical Laboratories.

Schedule Type: Internship

MLAB 406: Clinical Chemistry. 1-10 credits.
Chemical reactions and procedures used in clinical determinations on blood, urine, and cerebral spinal fluid. Includes manual, automated methods of chemical analyses. Notes: Not offered on campus. Offered
by Biology (p. 617). May be repeated within the term. Equivalent to MTCH 406.

**Recommended Prerequisite:** Completion of requirements for BS with major in medical technology except for 30 credits of professional study, and admission to school of medical technology approved by National Accrediting Agency for Clinical Laboratories.

**Schedule Type:** Internship

**MLAB 407:** *Clinical Molecular Biology*. 1.15 credit.
Course presents advanced methods in nucleic acid testing to human medico-legal, forensic, and pathology applications. Topics include but are not limited to: Polymorphisms, Paternity Testing, Single Nucleotide Polymorphisms, Bone Marrow Engraftment, Mitochondrial DNA Polymorphisms and Disorders, Chromosomal Abnormalities, Single Gene Disorders, Lysosomal Storage Disorders, Cystic Fibrosis, and Quality Assurance in the Molecular Biology laboratory. Offered by Biology (p. 617). May be repeated within the degree.

**Recommended Prerequisite:** Complete of requirements for BS with a major in Medical Laboratory Science except for the 30 credits professional study.

**Schedule Type:** Laboratory

### Middle East and Islamic Studies (MEIS)

#### 500 Level Courses

**MEIS 500:** *Critical Issues and Debates in Middle East and Islamic Studies*. 3 credits.
Introduces the interdisciplinary study of the Middle East and the Islamic world through an examination of recent seminal works and debates in the field representing the disciplinary perspectives of history, religious studies, political science, and sociology. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Middle East Islamic Studies.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

**Schedule Type:** Seminar

#### 700 Level Courses

**MEIS 794:** *Graduate Internship in Middle East and Islamic Studies*. 3 credits.
Internship credit for completion of Middle East and/or Islamic studies related work at an approved government, nonprofit, or private institution. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Recommended Prerequisite:** MEIS 500, HIST 575, RELI 644.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**MEIS 796:** *Directed Readings in Middle East and Islamic Studies*. 3 credits.
Directed readings in the field of Middle East and Islamic Studies. Offered by Humanities & Social Sciences (p. 295). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** MEIS 500, RELI 644, HIST 575.

**Registration Restrictions:**
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**MEIS 798:** *Research Project in Middle East and Islamic Studies*. 3 credits.
Research project related to Middle East and Islamic studies taken under supervision of faculty adviser. Offered by Humanities & Social Sciences (p. 295). May not be repeated for credit.

**Recommended Prerequisite:** Completion of 21 credit hours toward MA in Middle East and Islamic Studies degree; satisfactory completion of a research methods course approved as a core course for the MA MEIS.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**MEIS 799:** *Thesis Research and Writing in Middle East and Islamic Studies*. 1-6 credits.
Original research and thesis writing for students in the Middle East and Islamic Studies MA program. Offered by Humanities & Social Sciences (p. 295). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Completion of MEIS 500, HIST 535, GOVT 731, GOVT 733, RELI 644, and 27 credit hours toward MA in MEIS degree; permission of MEIS director.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

### Military Science (MLSC)

#### 100 Level Courses

**MLSC 100:** *Introduction to Army/ROTC*. 1 credit.
Introduces leadership values and ethics; responsibilities of officership; the organization, customs, and traditions of the U.S. Army; time management; and physical well-being. Includes a laboratory in applied leadership, common military tasks, and physical fitness. Offered by Military Science (p. 105). May not be repeated for credit.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Laboratory, Lecture

**MLSC 102:** *Leadership Skills II*. 1 credit.
Introduces leadership principles, dimensions, styles, and assessment, among other varied topics. Includes a laboratory in applied leadership,
common military tasks, and physical fitness. Offered by Military Science (p. 105). May not be repeated for credit. Equivalent to MLSC 101.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Laboratory, Lecture

### 200 Level Courses

**MLSC 200: Self/Team Development.** 1 credit.
Covers leadership skills, such as values and ethics. Also teaches how to influence, how to communicate, how and when to make decisions, how to engage in creative problem solving, and how to plan and organize. Includes a laboratory in applied leadership, common military tasks, and physical fitness. Offered by Military Science (p. 105). May not be repeated for credit.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** MLSC 100 & 200 level completion or military credit exemption.

**Schedule Type:** Laboratory, Lecture

**MLSC 202: Leadership Skills IV.** 1 credit.
Builds on the leadership skills developed in Leadership Skills III with additional emphasis on communication, team building, and team leadership. Includes a laboratory in applied leadership, common military tasks, and physical fitness. Offered by Military Science (p. 105). May not be repeated for credit. Equivalent to MLSC 201.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** MLSC 100 level completion/dual enrollment.

**Schedule Type:** Laboratory, Lecture

### 300 Level Courses

**MLSC 300: Applied Leadership I.** 1 credit.
Applied leadership with an introduction to the principles of physical fitness and healthy lifestyle; counseling as means of subordinate development; problem solving; operational analysis, development, and execution; and methods for preparing and presenting instruction. Students are given an introduction to the Leader Development Program that is used to evaluate their leadership performance and provide students with developmental feedback. Some weekend training required. Includes a laboratory in applied leadership, common military tasks, and physical fitness. Offered by Military Science (p. 105). May not be repeated for credit.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** MLSC 100, 101, 200, or veterans status, or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**MLSC 302: Applied Leadership II.** 1 credit.
Applied leadership covering the models of communications (verbal and nonverbal), technology to communicate, how to prepare and conduct formal briefings, an introduction to the Army branches, diversity, and equal opportunity training, ethical decision making, & group cohesion and dysfunction. Some weekend training required. Includes a laboratory in applied leadership, common military tasks, and physical fitness. Notes: Enrollment in MLSC 300 level course is restricted to students who are contracted or are pre-approved by department/Amy ROTC as pending contracting. Offered by Military Science (p. 105). May not be repeated for credit. Equivalent to MLSC 301.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** MLSC 100 & 200 level completion or military credit exemption.

**Schedule Type:** Laboratory, Lecture

### 400 Level Courses

**MLSC 400: Leadership and Management.** 3 credits.
Considered the "transition to lieutenant" phase in which managerial theories are applied to personnel, training, and logistics management situations. Students have command and staff responsibilities for the Mason cadet corps and receive hands-on experience operating as a management team. There are several briefing and writing requirements as well. Includes a laboratory in applied science, common military tasks, and physical fitness. Offered by Military Science (p. 105). May not be repeated for credit.

**Recommended Prerequisite:** MLSC 300 and 301 or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**MLSC 402: Leadership and Ethics.** 3 credits.
Continuing the "transition to lieutenant" phase of ROTC, examines ethics of military environment to include customs, ethical codes & decision making, constraints, and appeals to moral principles. American judicial system is also examined, with emphasis on the Uniform Code of Military Justice. Command and staff responsibilities are assigned to students for hands-on experience operating as a management team for Mason cadet corps. Includes a laboratory in applied leadership, common military tasks, and physical fitness. Offered by Military Science (p. 105). May not be repeated for credit. Equivalent to MLSC 401.

**Recommended Prerequisite:** MLSC 300 & 302.

**Schedule Type:** Laboratory, Lecture

**MLSC 499: Senior Advanced Military Studies.** 0 credits.
Offered by Military Science (p. 105). May be repeated within the degree.

**Schedule Type:** Independent Study

### Minor in Business (MBUS)

#### 300 Level Courses

**MBUS 300: Accounting in a Global Economy.** 3 credits.
Focuses on using basic concepts of accounting and financial management to make investment, credit, and operating decisions for an organization. Emphasizes financial reports to aid planning and control of organizational activities. Notes: May not be taken for credit by School of Business majors. Students who have received credit for both ACCT 203 and FNAN 303 cannot also receive credit for MSOM 300 or MBUS 300. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSOM 300.

**Recommended Prerequisite:** Completion of 30 credits (sophomore standing).

**Registration Restrictions:** Non-Degree level students may not enroll.

**Schedule Type:** Lecture
MBUS 301: Managing People and Organizations in a Global Economy. 3 credits.
Introduces key issues in management, organizational behavior, and human resource management. Special attention to best practices used by effective managers. Notes: May not be taken for credit by School of Business majors. Students cannot receive credit for both MGMT 303 and MBUS 301. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSOM 301.

Recommended Prerequisite: Completion of 30 credits (sophomore standing).

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.

Schedule Type: Lecture

MBUS 302: Managing Information in a Global Economy. 3 credits.
Provides overview of strategic role of information, need for information systems, organizing information, integration of information systems in management processes and decision making, and related discussions in electronic commerce. Students cannot receive credit for both MIS 303 and MBUS 302. Notes: May not be taken for credit by School of Business majors. Students cannot receive credit for both MIS 301 and MBUS 302. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSOM 302.

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.

Schedule Type: Lecture

MBUS 303: Marketing in a Global Economy. 3 credits.
Presents marketing principles, concepts, strategies, and analytical tools used by profit and nonprofit organizations to market ideas, products, and services to selected target groups. Emphasizes how to develop, promote, distribute, and price firm's offerings in dynamic economic, social, political, and global environment. Notes: May not be taken for credit by School of Business majors. Students cannot receive credit for both MKTG 303 and MBUS 303. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSOM 303.

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.

Schedule Type: Lecture

MBUS 304: Entrepreneurship: Starting and Managing a New Enterprise. 3 credits.
Explores behaviors required to successfully launch a new business, tools to identify and evaluate opportunities, and the issues critical to a new firm. Issues include organizational structure, effective marketing strategy, operational logistics, legal issues, financial projections, financing options, and available support structures. Students cannot receive credit for both MKTG 303 and MBUS 303. Notes: May not be taken for credit by School of Business majors. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSOM 304.

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.

Schedule Type: Lecture

MBUS 305: Introduction to International Business. 3 credits.
Multidisciplinary approach to global economy from the viewpoint of managing international business. Introduces various aspects of managing business in a global economy including theories and practices of international trade, investment, and business strategies. Notes: May not be taken for credit by School of Business majors. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSOM 305.

Mason Core: Global Understanding (p. 135)

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.

Schedule Type: Lecture

MBUS 306: Managing Projects and Operations. 3 credits.
Introduces project management and operations management concepts and tools including project planning, scheduling, monitoring, and control; process design, selection and improvement; supply chain management; inventory management; and quality assurance. Students cannot receive credit for both OM 303 and MBUS 306. Notes: May not be taken for credit by School of Business students. Students cannot receive credit for both OM 303 and MBUS 306. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSOM 306.

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.

Schedule Type: Lecture

MBUS 308: Corporate Finance and Investments in a Global Economy. 3 credits.
Presents an introduction to corporate finance and investment topics within an international context and emphasis on time-value of money, interest rates, stock and bond valuation, and the risk/return relationship in financial markets. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Students with a class of Freshman may not enroll.
Non-Degree level students may not enroll.

Schedule Type: Lecture

MBUS 491: Special Topics: Business Minor. 3 credits.
Topics related to a minor in business will vary on the focus of the course and by discipline. Notes: May not be taken for credit by School of Business majors. Offered by School of Business (p. 846). May be
repeated within the degree for a maximum 6 credits. Equivalent to MSOM 491.

Registration Restrictions:
Students with a class of Freshman may [not enroll].
Non-Degree level students may [not enroll].

Schedule Type: Lecture

Music (MUSI)

100 Level Courses

MUSI 100: Fundamentals of Music. 3 credits.
Study of musical notation, interval and triad construction, reading of treble and bass clefs, scale construction, rhythm, elementary sight singing and ear training, and application at keyboard. Notes: Cannot be applied toward degree in music. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

MUSI 101: Introduction to Classical Music. 3 credits.
Introduces art-music tradition of West. Techniques for expanding listening skills developed through study of musical elements, styles, and selected masterworks of musical literature. Notes: Must take only as free elective. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

MUSI 102: Popular Music in America. 3 credits.
Investigates popular music styles and development in the United States with particular emphasis on the past 50 years. Lectures, recordings, and video enhance critical listening skills and examine stylistic and social contexts of popular music. Notes: Music majors may take only as free elective. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

MUSI 103: Musics of the World. 3 credits.
Study and comparison of musical structure and expression in several world cultures, with special attention to social context and function. Studies selected Asian, Middle Eastern, African, and American (Latin, Native, African) cultures. Notes: For non-music majors only. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

MUSI 104: Introduction to Twentieth-Century Music. 3 credits.
Survey of various styles found in 20th-century music. Tonal, atonal, serial, and experimental music. Notes: Music majors may take only as free elective. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

MUSI 105: Introduction to Twentieth-Century Music. 3 credits.
Study of musical notation, interval and triad construction, reading of treble and bass clefs, scale construction, rhythm, elementary sight singing and ear training, and application at keyboard. Notes: Cannot be applied toward degree in music. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

MUSI 106: Fundamentals of Rock, Blues, and Jazz. 3 credits.
Fundamentals of Blues, Rock, and Jazz is designed for students without formal training in music theory. The course focuses on Afro-centric concepts in twentieth-century American musical culture including improvisation, emphasis on rhythm and groove, and use of multiple and integrated tonalities, such as major and minor in the blues. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

MUSI 107: Jazz and Blues in America. 3 credits.
Historical, analytical, and aural survey of jazz from inception to present day. Looks at trends resulting from synthesis of jazz with other musical idioms. Notes: Music majors may take as free elective or part of jazz studies concentration. Offered by School of Music (p. 807). Limited to three attempts.

Mason Core: Arts (p. 135)

Registration Restrictions:
Students with the terminated from MUSI major attribute may [not enroll].

Schedule Type: Lecture

MUSI 113: Aural Skills I. 1 credit.
Students taught to sing a line of music without accompaniment of instrument. Matching tones, major and minor scales, key signatures, intervals, rhythm, treble and bass clefs, and rhythm and melodic dictation. Offered by School of Music (p. 807). Limited to three attempts.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may [not enroll].

Schedule Type: Studio

MUSI 114: Aural Skills II. 1-2 credits.
Continuation of MUSI 113. Alto and tenor clefs, modulation, various modes, and melodic and harmonic dictation. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 113.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may [not enroll].

Schedule Type: Studio
MUSI 115: Theory I. 3 credits.
Music notation, scales, key signatures, intervals, chords, cadences, and figured bass. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: Student must be able to read music, be able to pass a fundamentals of music test (administered during first week of classes), and have some proficiency on a musical instrument or in voice.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 116: Theory II. 3 credits.
First- and second-inversion chords, modulation, nonharmonic tones, figured bass, seventh chords. Analysis of Bach chorales; composition of four-part chorales in 18th-century style. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 115 or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 121: NonMaj PMI: First Instrum. 1-2 credits.
Offered by School of Music (p. 807). May be repeated within the degree for a maximum 4 credits.

Recommended Prerequisite: For non-music majors only. Two-credit level restricted to students with substantial prior private study.

Schedule Type: Private Music Instruction

Offered by School of Music (p. 807). May be repeated within the degree for a maximum 4 credits.

Recommended Corequisite: For non-music majors only. Two credit level restricted to students with substantial prior private study.

Schedule Type: Private Music Instruction

MUSI 171: Keyboard Skills I. 1 credit.
Study of piano keyboard as it relates to various clefs in music. Emphasis on solution of basic stylistic and technical problems. Offered by School of Music (p. 807). Limited to three attempts.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Studio

MUSI 172: Keyboard Skills II. 1 credit.
Study of piano keyboard as it relates to intermediate song and combined in various music forms. Notes: Nonmusic majors must have permission of instructor. Offered by School of Music (p. 807). Limited to three attempts.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Studio

MUSI 200: Music Theater Practicum. 1 credit.
Practicum records successful participation on a minimum 30 hour assignment on a Music-Theater production. It is an opportunity for students to apply classroom learning in a hands-on situation. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 5 credits.

Schedule Type: Studio

MUSI 213: Aural Skills III. 2 credits.
Continuation of Music 114. Emphasizes modulation, chromatic and nontonal melodies, various modes, melodic and harmonic dictation, clefs, and improvisation. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 213, or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 214: Aural Skills IV. 2 credits.
Continuation on MUSI 213 with emphasis on chromatic and nontonal harmonies. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 213 or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 215: Theory III. 3 credits.
Study of four-part chromatic harmony and analysis of 19th-century compositions. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 116 or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 216: Theory IV. 3 credits.
Study of melodic, harmonic, rhythmic, and formal processes in post-tonal music. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 215 or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture
MUSI 221: Applied Music I. 1 credit.
Applied music studies 1. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** Audition or portfolio.

**Schedule Type:** Private Music Instruction

MUSI 222: Applied Music in Keyboard. 1 credit.
Applied music studies in Keyboard. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** Audition.

**Recommended Corequisite:** MUSI 381, 384, or 385.

**Schedule Type:** Private Music Instruction

MUSI 223: Applied Music in Voice. 1 credit.
Applied music studies in Voice. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** Audition.

**Recommended Corequisite:** MUSI 381, 384, or 385.

**Schedule Type:** Private Music Instruction

MUSI 224: Applied Music in Woodwind. 1 credit.
Applied music studies in Woodwind. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits. Equivalent to MUSI 221.

**Recommended Prerequisite:** Audition.

**Schedule Type:** Private Music Instruction

MUSI 225: Applied Music in Brass. 1 credit.
Applied music studies in Brass. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits. Equivalent to MUSI 221.

**Recommended Prerequisite:** Audition.

**Schedule Type:** Private Music Instruction

MUSI 226: Applied Music in String. 1 credit.
Applied music studies in String. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits. Equivalent to MUSI 221.

**Recommended Prerequisite:** Audition.

**Schedule Type:** Private Music Instruction

MUSI 227: Applied Music in Percussion. 1 credit.
Applied music studies in Percussion. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits. Equivalent to MUSI 221.

**Recommended Prerequisite:** Audition.

**Schedule Type:** Private Music Instruction

MUSI 228: Applied Music in Composition. 1 credit.
Applied music studies in Composition. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits. Equivalent to MUSI 221.

**Recommended Prerequisite:** Portfolio of recent compositions.

**Schedule Type:** Private Music Instruction

MUSI 229: Non-Major Applied Music I. 1 credit.
Applied music studies I. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** Audition or portfolio.

**Schedule Type:** Laboratory

MUSI 241: Applied Music II. 2 credits.
Applied music studies 2. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

**Recommended Prerequisite:** Audition or portfolio.

**Schedule Type:** Private Music Instruction

MUSI 242: Applied Music in Keyboard. 2 credits.
Applied music studies in Keyboard. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

**Recommended Prerequisite:** Audition.

**Recommended Corequisite:** MUSI 381, 384, or 385.

**Schedule Type:** Private Music Instruction

Applied music studies in Voice. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

**Recommended Prerequisite:** Audition.

**Recommended Corequisite:** MUSI 381, 384, or 385.

**Schedule Type:** Private Music Instruction

MUSI 244: Applied Music in Woodwind. 2 credits.
Applied music studies in Woodwind. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

**Recommended Prerequisite:** Audition.

**Schedule Type:** Private Music Instruction

MUSI 245: Applied Music in Brass. 2 credits.
Applied music studies in Brass. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

**Recommended Prerequisite:** Audition.

**Schedule Type:** Private Music Instruction

MUSI 246: Applied Music in String. 2 credits.
Applied music studies in String. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

**Recommended Prerequisite:** Audition.

**Schedule Type:** Private Music Instruction

MUSI 247: Applied Music in Percussion. 2 credits.
Applied music studies in Percussion. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

**Recommended Prerequisite:** Audition.
Schedule Type: Private Music Instruction

MUSI 248: Applied Music in Composition. 2 credits.
Applied music studies in Composition. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

Recommended Prerequisite: Portfolio or recent compositions.

Schedule Type: Private Music Instruction

MUSI 249: Non-Major Applied Music II. 2 credits.
Applied music studies II. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 16 credits.

Recommended Prerequisite: Audition or portfolio.

Schedule Type: Laboratory

MUSI 251: Musical/Oral Communication. 3 credits.
Introduces theories, processes, and practices to achieve effective oral communication; connects those principles with expressive musical performance. Explores parallels between grammar, logic, and rhetoric and musical structure, design, and performance. Critically analyzes time, tonality, and texture, applies these concepts in pedagogical contexts related to effective performance, practice habits, communication styles, and identifying/preventing performance-related repetitive overuse injuries. Notes: Requires observing professionals in the field. Offered by School of Music (p. 807). Limited to three attempts.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 252: Popular Music Arranging. 3 credits.
This course explores popular music styles and genres. Using this information to analyze popular music and arrange the music for various ensembles. Offered by School of Music (p. 807). Limited to three attempts.

Specialized Designation: Discovery of Scholarship

Recommended Prerequisite: MUSI 215.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 254: Music and Technology. 3 credits.
Study of technology related to music, including audio synthesis and computer-based hardware and software. Offered by School of Music (p. 807). Limited to three attempts. Equivalent to MUSI 315.

Specialized Designation: Discovery of Scholarship

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 259: Music in Computer Technology. 3 credits.
Overview of ways computer is used in music. Topics include principles of musical instrument digital interface (MIDI); various kinds of synthesis; acoustics and sound processing; and musical composition using the computer. Explores music resources of internet and surveys current multimedia applications in music history, theory, ear training, improvisation, and notation. Offered by School of Music (p. 807). Limited to three attempts. Equivalent to MUSI 415.

Mason Core: Information Technology: With Ethics (p. 135)

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Laboratory, Lecture

MUSI 273: Keyboard Skills III. 1 credit.
Continuation of MUSI 172. Study of techniques of harmonization at the piano keyboard. Notes: Nonmusic majors must have permission of instructor. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 172.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Studio

MUSI 280: Athletic and Ceremonial Ensemble. 1 credit.
Students gain an understanding of American popular and other musics developing personal expression via performance and creative design. Students also learn and develop leadership and management skills. An understanding of the vital role of community outreach and service is gained through first-hand experience. Offered by School of Music (p. 807). May be repeated within the term.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

300 Level Courses

MUSI 300: Recital Attendance. 0 credits.
Students attend 10 student recitals to be selected from departmental and music education recitals, and junior, senior, and graduate recitals. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits.

Schedule Type: Studio

MUSI 301: Music in Motion Pictures. 3 credits.
Intensive study and analysis of using music tracks in motion pictures to introduce the picture, set a scene, create moods, or for musical numbers. From the silent film scores of the 1920s to the present (including electronic music). Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Completion of 30 credits. Music and non-music majors welcome.

Schedule Type: Lecture

MUSI 302: American Musical Theater. 3 credits.
Intensive study of the musical elements in the American musical theater from its European and later African roots to its evolution between the wars into a native form, and its continual assimilation of external
influences such as new forms of jazz and rock to the eclectic form of the present day. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** 30 credit hours or permission of the instructor.

**Schedule Type:** Lecture

**MUSI 303: Topics in Ethnomusicology.** 3 credits.
Advanced study of theory and method in ethnomusicology with specific thematic or geographic focus. Course emphasizes critical thinking, listening, and research in the study of music from around the world. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** MUSI 103, or MUSI 431, or permission of instructor.

**Schedule Type:** Lecture

**MUSI 304: Topics in Musicology.** 3 credits.
Designed for students with no music theory background, the course explores the intersection of music and culture in relation to specific topics. Issues addressed may include race, class, gender, economic context, aesthetics, etc. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** MUSI 379 or permission of instructor.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 311: Jazz Studies.** 3 credits.
Musicianship course integrating jazz improvisation, theory, composition, and arranging. Focuses on concepts unique to our time in style, form, and harmony. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 379 or permission of instructor.

**Recommended Corequisite:** MUSI 103, or MUSI 115

**Schedule Type:** Lecture

**MUSI 315: Music Technology.** 3 credits.
Study of technology related to music, including audio synthesis and computer-based hardware and software. Notes: There is a course fee beyond tuition charges. Offered by School of Music (p. 807). Limited to three attempts. Equivalent to MUSI 254.

**Recommended Prerequisite:** MUSI 100 or MUSI 115

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 316: Topics in Music Technology.** 3 credits.
Selected topics in music technology with an emphasis on musical creativity. Includes consideration of recent developments in areas such as electronic composition, the science of music, recording industry and practices, and music industry. Notes: There is a course fee beyond tuition charges. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits. Equivalent to MUSI 359.

**Recommended Prerequisite:** MUSI 315

**Schedule Type:** Lecture

**MUSI 319: Class Composition and Arranging.** 3 credits.
Students write original compositions for specified instruments, voices, or combinations. They then apply compositional principles to the creative arrangement of existing music of various styles. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 214, 216 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 321: Non-Major PMI.** 1-2 credits.
Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** 4 credits in Non-Major Private Music Instruction or audition for the PMI coordinator.

**Schedule Type:** Private Music Instruction

**MUSI 323: Music Education Recital.** 0 credits.
Recital on major instrument given by student during junior or senior year. Notes: Recital must be at least 25 minutes long. All recitals by arrangement. Students must consult with director of applied music studies to register and schedule dates. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** A minimum of 8 credits in Applied music instruction in major instrument.

**Recommended Corequisite:** Concurrent enrollment in the appropriate 2-credit Applied music course.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Private Music Instruction

**MUSI 324: Junior Recital.** 1 credit.
Public recital by student during junior year. Notes: Junior recital must be at least 25 minutes long. All recitals by arrangement. Students must consult with director of applied music studies to register and schedule dates. Offered by School of Music (p. 807). Limited to three attempts.

**Mason Core:** Capstone (p. 135)

**Recommended Corequisite:** Concurrent enrollment in 2-credit Applied music course.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Private Music Instruction

**MUSI 325: Performance Seminar and Vocal Literature for Singers and Accompanists.** 1-2 credits.
Students assigned vocal literature in Italian, English, German, and French from Baroque to 21st century, and perform in a weekly master class format. Designed for vocal performance and piano and accompanying majors; develops and improves artistic and performance skills, repertoire
preparation and execution, diction, interpretation, style, and overall stage presence. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Schedule Type:** Lecture

**MUSI 326: Performance Seminar and Vocal Literature for Singers and Accompanists II - German and French.** 2 credits.

Students assigned vocal literature in Italian, English, German, and French from Baroque to 21st century, and perform in a weekly master class format. Designed for vocal performance and piano and accompanying majors; develops and improves artistic and performance skills, repertoire preparation and execution, diction, interpretation, style, and overall stage presence. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** MUSI 215 or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 331: Music History in Society I.** 3 credits.

Historical survey of Western music from Greek times through the late Baroque era, with emphasis on specific musical genres and composers who developed them. Musical developments are related to other aspects of society. Instruction conducted by lectures, recordings, and video. Learning process enhanced by reading, listening, writing, and analytical assignments. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 215 or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 332: Music History in Society II.** 3 credits.

Historical survey of Western music from the early Classical era through mid-19th century, with emphasis on specific musical genres and composers who developed them. Musical developments related to other aspects of society. Lectures, recordings, and video. Learning process enhanced by reading, listening, writing, and analytical assignments. Offered by School of Music (p. 807). Limited to three attempts.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** MUSI 216 and 331 or permission of instructor.

**Registration Restrictions:** Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 338: Music History in Society A.** 3 credits.

Historical survey of Western music from the late Renaissance through the Romantic era, with emphasis on specific musical genres and composers who developed them. Musical developments are related to other aspects of society. Instruction conducted by lectures, recordings, and video. Learning process enhanced by reading, listening, writing, and analytical assignments. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 341: Diction for Singers I: Italian Diction and English Diction.** 2 credits.

Increases proficiency in singing in Italian and English by teaching International Phonetic Alphabet (IPA), and strengthens performance of Italian and English art songs and operatic repertoire. Focuses on intensified, systematic study of phonetics as it applies to singing in Italian and English. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Registration Restrictions:** Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 342: Diction for Singers II: German Diction and French Diction.** 2 credits.

Increases proficiency in singing in German and French by teaching International Phonetic Alphabet (IPA), and strengthens performance of German and French art songs and operatic repertoire. Focuses on intensified, systematic study of phonetics as it applies to singing in German and French. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Restricted to MUSI majors and minors. Non majors need permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 351: Keyboard Pedagogy.** 3 credits.

Investigates methods, theories, techniques, and materials to teach keyboard to children and adults in individual and group situations. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 214, 216, 273 and 8 credits in piano, harpsichord, organ or permission of instructor.

**Registration Restrictions:** Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 352: Vocal Pedagogy and Lab.** 3 credits.

Instruction in teaching of voice through systematic study of vocal physiology and its implications for pedagogical methods. Includes theoretical and systematic study of processes, procedures, and practices to develop art of singing. Offers technical, physiological, theoretical, and practical principals of the singing art, with emphasis on the importance...
of vocal health. Offered by School of Music (p. 807). Limited to three attempts. Equivalent to MUSI 552.

**Recommended Prerequisite:** 8 credits Applied Music in Voice, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

MUSI 353: *Instrumental Pedagogy and Literature.* 3 credits.
Instruction in teaching instrumental music techniques for all levels through study of pedagogical methods, standard literature, and musical instruments produced by present-day manufacturers. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Junior standing in instrumental private music instruction or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

MUSI 354: *Electronic Composition.* 3 credits.
This course explores the techniques used in recording music with current software and hardware to edit, modify, and market music. Offered by School of Music (p. 807). Limited to three attempts.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** MUSI 254.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

MUSI 355: *Recording Techniques.* 3 credits.
Explores the techniques used in recording music with current software and hardware to edit, modify, and market music. Offered by School of Music (p. 807). Limited to three attempts.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** MUSI 254.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

MUSI 358: *Music Programming.* 3 credits.
The purpose of the class is to learn basic programming skills and concepts and to apply them directly to musical concepts and ideas. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 254, MUSI 354, and MUSI 355.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

MUSI 359: *Topics in Music Technology.* 3 credits.
Selected topics in music technology with an emphasis on musical creativity. Includes consideration of recent developments in areas such as electronic composition, the science of music, recording industry and practices, and music industry. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits. Equivalent to MUSI 316.

**Recommended Prerequisite:** MUSI 354, MUSI 355.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

MUSI 361: *Class Strings.* 1 credit.
Study of playing and teaching string instruments with emphasis on violin and cello through beginning method book. Study of fingerings and bowing techniques to teach and play viola and bass at beginning levels. Survey of string playing techniques to conduct rehearsals at intermediate-, advanced-, and artist-level ensembles. Notes: Three hours per week studying violin, viola, cello, and bass; one hour per week in laboratory ensemble. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 2 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

MUSI 363: *Class Woodwinds.* 1 credit.
Study of techniques of playing and teaching Woodwind instruments, including flute, clarinet, saxophone, oboe, and bassoon. Survey of instructional materials, and mouthpiece and instrument selection. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 2 credits.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to students with a major in Music.

**Schedule Type:** Studio

MUSI 364: *Class Woodwinds: Oboe and Bassoon.* 1 credit.
Study of techniques of playing oboe and bassoon. Survey of instructional materials, and reed adjustment. Notes: Three hours per week studying oboe and bassoon; one hour per week in laboratory ensemble. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 2 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Music.

**Schedule Type:** Studio

MUSI 365: *Class Brass.* 1 credit.
Study of techniques of playing and teaching trumpet and French horn. Survey of instructional materials, and mouthpiece and instrument selection. Notes: Three hours per week studying trumpet and French horn; one hour per week in laboratory ensemble. Offered by School of
Music (p. 807). May be repeated within the degree for a maximum 2 credits.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 366: Class Percussion.** 1 credit.
Study of techniques of playing and teaching percussion instruments. Survey of instructional materials and instrument selection. Notes: Three hours per week studying percussion instruments; one hour per week in laboratory ensemble. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor. Students must register for studio and lab.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Studio

**MUSI 367: Class Guitar.** 1 credit.
Study of techniques of playing and teaching guitar. Survey of instructional materials and instrument selection. Notes: Three hours per week studying guitar; one hour per week in laboratory ensemble. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Studio

**MUSI 368: Class Voice.** 1 credit.
Study of the human voice in artistic singing. Emphasizes practical application of basic principles. Notes: Three hours per week studying voice; one hour per week in laboratory ensemble. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Studio

**MUSI 370: Laboratory Ensemble.** 0 credits.
This class an extension of the music education techniques and methods classes. Students will meet together once a week to perform on a secondary instrument or voice. In addition, this course provides student conductors with the opportunity to teach and/or rehearse a novice ensemble. A lab fee is assessed for this course. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 0 credits.

**Recommended Prerequisite:** Admission to music major program or permission of instructor.

**Schedule Type:** Laboratory

**MUSI 371: Techniques of Accompanying I.** 1 credit.
Development of accompanying skills through collaboration with solo singers, instrumentalists, and small ensembles. Students perform for each other; observe lectures, demonstrations, and performances by professionals; and participate in master classes. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Restricted to piano majors and minors, or to those with permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Studio

**MUSI 372: Techniques of Accompanying II.** 1 credit.
Development of accompanying skills through collaboration with solo singers, instrumentalists, and small ensembles. Students perform for each other; observe lectures, demonstrations, and performances by professionals; and participate in master classes. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Audition on a keyboard instrument for admission to a music degree program, 4 credits in undergraduate Applied Music instruction on a keyboard instrument, or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Studio

**MUSI 373: Advanced Accompanying and Musicianship Skills.** 3 credits.
Advanced study and techniques for accompanying choirs, vocal soloists, and instrumentalists. Additional instruction in keyboard reduction of orchestral scores for concertos, continuo/figured bass reading, lead-sheet reading, transposition, improvisation, transcription, and “playing by ear.” Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 372 (concurrent enrollment is permitted) or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 379: Jazz Improvisation.** 1 credit.
Study of improvisation techniques and styles, with emphasis on common practice period of jazz. Application on the student’s major instrument or voice to develop creativity and personal expression. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 116 or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Studio

**MUSI 380: Wind Symphony.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Highly selective group of instrumentalists perform works from wind symphony repertoire. Notes: Public concerts required.
Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Audition.

**Schedule Type:** Studio

**MUSI 381: University Chorale.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Performance of works from choral repertoire. Notes: Public concerts required. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Audition.

**Schedule Type:** Studio

**MUSI 382: Piano Ensemble.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Study and performance of original four-hand works for one and two pianos. Notes: Public performances required. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** 4 hours of PMI (Piano) and audition.

**Schedule Type:** Studio

**MUSI 383: Symphonic Band.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Performance of works from band repertoire. Notes: Public concerts required. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Audition.

**Schedule Type:** Studio

**MUSI 384: Symphonic Chorus.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Performance of major works from the choral repertoire. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Audition.

**Schedule Type:** Studio

**MUSI 385: Chamber Singers.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Students explore their levels of artistic development through discovery, interpretation, and performance of choral music for vocal chamber music ensembles from multiple historical periods. Students bring to Mason and surrounding community musical compositions not readily accessible in regular concert repertoire. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Audition.

**Schedule Type:** Studio

**MUSI 387: Symphony Orchestra.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Performance of works from symphony orchestra repertoire. Notes: Public concerts required. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Audition.

**Schedule Type:** Studio

**MUSI 388: Fundamental Techniques of Stagecraft for Opera and Music Theater.** 2 credits.
Study of basic to intermediate stage movement techniques necessary to the performance of opera and music theater roles. Emphasis on acting, improvisation, theater production, musical theater, and operatic role study. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** Admission to the Music major program or permission of instructor.

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 389: Jazz Ensemble.** 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Provides practical experience in various aspects of jazz performance: section work within a large aggregation, combo work, and improvisation. Notes: Public concerts required. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Mason Core:** Arts (p. 135)

**Recommended Prerequisite:** Audition.

**Schedule Type:** Studio

**MUSI 391: Conducting I.** 2 credits.
Study of basic techniques of conducting a musical ensemble. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 214, 216, 273 or permission of instructor

**Registration Restrictions:**
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Studio
MUSI 393: Music Administration and Management. 2 credits.
Prepares students to address aspects of administration and management of music programs in public and private schools. Investigates principles and concepts of management styles and planning. Covers curriculum, budget, student recruitment and retention, external relations of the music unit, and legal issues for music educators. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 116 or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 394: Ethnomusicology Internship. 1-4 credits.
Option A) Professional internship with an organization dedicated to activities related to the field of ethnomusicology; Option B) Teaching internship in an undergraduate ethnomusicology course at Mason, supervised by the minor coordinator. Notes: All internships must be approved and all arrangements made prior to he beginning of the semester in which the internship is to take place. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits.

Recommended Prerequisite: MUSI 103, or MUSI 431; Permission of the Ethnomusicology Minor Coordinator.

Schedule Type: Internship

MUSI 395: Teaching Internship. 1-4 credits.
Internship with a professional individual or organization in teaching. Introduction to teaching or augmentation of teaching skills. Students develop individual contracts defining the learning and competencies to be gained from the experience. Notes: Maximum of 9 internship credits (MUSI 395, 495, 496) can be applied toward a degree. Offered by School of Music (p. 807). May be repeated within the term for a maximum 4 credits.

Recommended Prerequisite: MUSI 251.

Schedule Type: Internship

MUSI 396: Conducting II. 2 credits.
Advanced conducting course emphasizing techniques for instrumental and choral conducting. Refining gestures, full score analysis and interpretation, rehearsal techniques, and changing meters. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 391 or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Studio

400 Level Courses

MUSI 401: Impact of the Arts on Civilization. 3 credits.
Analyzes how genres of art impact us intellectually, emotionally, and subliminally. Broadens aesthetic and historical perspective, exposes students to major strands of contemporary thought, and develops discursive abilities through role-playing in round table discussions. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: 30 credit hours or Permission of Instructor.

Schedule Type: Lecture

MUSI 415: Music in Computer Technology. 3 credits.
Overview of ways computer is used in music. Topics include principles of musical instrument digital interface (MIDI); various kinds of synthesis; acoustics and sound processing; and musical composition using the computer. Explores music resources of Internet and surveys current multimedia applications in music history, theory, ear training, improvisation, and notation. Offered by School of Music (p. 807). May not be repeated for credit. Equivalent to MUSI 259, MUSI 515.

Recommended Prerequisite: MUSI 319 or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Laboratory, Lecture

MUSI 419: Orchestration. 3 credits.
Principles of combining and balancing instruments in orchestral and chamber contexts. Attention to orchestral terminology and general notation as well as timbre, range, clefs, transposition, special effects, and scoring procedures. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 214, 216 and 319, or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 421: Applied Music Ill. 1 credit.
Applied music studies 3. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 8 credits.

Recommended Prerequisite: Audition or portfolio of recent compositions.

Schedule Type: Private Music Instruction

MUSI 424: Senior Recital. 1 credit.
Public recital by student during senior year. Notes: Senior recital must be at least 50 minutes long. All recitals by arrangement. Students must consult with director of applied music studies to register and schedule dates. Offered by School of Music (p. 807). Limited to three attempts.

Mason Core: Capstone (p. 135)

Recommended Corequisite: Concurrent enrollment in 2-credit Applied music course.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Private Music Instruction

MUSI 431: Music History in Society Ill. 3 credits.
Studies contributions to the world of music in selected cultures such as India, Indonesia, China, Japan, Africa, Middle East, and Americas. Emphasizes comparative musical characteristics as well as sociological function. Lectures, recordings, and video. Learning process enhanced by reading, listening, writing, and analytical assignments. Offered by School of Music (p. 807). Limited to three attempts.

Mason Core: Global Understanding (p. 135)
Recommended Prerequisite: MUSI 216, 331, 332, or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 432: Music History in Society IV. 3 credits.
Historical survey of Western music from late 19th century to present, with emphasis on specific musical genres and composers who developed them. Relates musical developments to other aspects of society, and considers interaction between world music. Lectures, recordings, and video. Learning process enhanced by reading, listening, writing, and analytical assignments. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 216, 331, 332, 431, or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 438: Music History in Society B. 3 credits.
Historical survey of Western vernacular and classical music from 1877 to 1945, with emphasis on musical genres, composers, and performers. Musical developments are related to other aspects of society. Instruction conducted by lectures, recordings, and video. Fulfills writing intensive requirement in the BA in music with a concentration in Music Technology. Offered by School of Music (p. 807). Limited to three attempts.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: MUSI 338 or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 439: Music History in Society C. 3 credits.
Historical survey of Western vernacular and classical music from 1877 to 1945, with emphasis on specific musical genres, composers, and performers. Musical developments are related to other aspects of society. Instruction conducted by lectures, recordings, and video. Learning process enhanced by reading, listening, writing, and analytical assignments. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 438, or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 441: Private Music Instruction III. 2-3 credits.
Applied music studies 3. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Audition or portfolio of recent compositions.

Schedule Type: Private Music Instruction

MUSI 442: Applied Music in Keyboard. 2-3 credits.
Applied music studies in Keyboard. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Audition.

Schedule Type: Private Music Instruction

MUSI 443: Applied Music in Voice. 2-3 credits.
Applied music studies in Voice. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Audition.

Recommended Corequisite: MUSI 381, 384, or 385.

Schedule Type: Private Music Instruction

MUSI 444: Applied Music in Woodwind. 2-3 credits.
Applied music studies in Woodwind. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Audition.

Schedule Type: Private Music Instruction

MUSI 445: Applied Music in Brass. 2-3 credits.
Applied music studies in Brass. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Audition.

Schedule Type: Private Music Instruction

MUSI 446: Applied Music in String. 2-3 credits.
Applied music studies in String. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Audition.

Schedule Type: Private Music Instruction

MUSI 447: Applied Music in Percussion. 2-3 credits.
Applied music studies in Percussion. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Audition.

Schedule Type: Private Music Instruction

MUSI 448: Applied Music in Composition. 2-3 credits.
Applied music studies in Composition. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 27 credits.

Recommended Prerequisite: Portfolio of recent compositions.

Schedule Type: Private Music Instruction

MUSI 450: Jazz Improvisation I. 2 credits.
Emphasizes improvisational materials and language developed in common practice period of jazz. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 379 or permission of instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 451:** *Keyboard Pedagogy II.* 3 credits. 
Intensive study of methods, theories, techniques, and materials to teach keyboard to children and adults in individual and group situations. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 351 or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 452:** *Jazz Improvisation II.* 2 credits. 
Emphasis on advanced improvisational techniques and contemporary tunes. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 379 or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 454:** *Jazz Arranging.* 3 credits. 
Transcription, analysis, and scoring for small and large jazz ensembles. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 311 or permission of instructor.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Lecture

**MUSI 455:** *Music as a Healing Art.* 3 credits. 
Study of the relationship between musical vibrations and the natural rhythms of the body. Topics include history of music and healing, theory of sound, cymatics, toning, and performance practice as well as a survey of vibrational healing modalities and related therapies. Considers listening examples as they apply to healing with music. Students sing and play instruments in directed improvisory performance. Offered by School of Music (p. 807). May be repeated within the degree for a maximum of 6 credits.

**Recommended Prerequisite:** Basic proficiency with instrument or voice or permission of instructor.

**Schedule Type:** Lecture

**MUSI 461:** *The Teaching of General Music in the Elementary and Middle School.* 3 credits. 
Studies theory, methods, practice, and materials to teach general music in elementary and middle school. Students spend three hours per week in class and one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in the public schools. Notes: For music majors only. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 114, 216, 273 and acceptance into the Music Education concentration.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**MUSI 463:** *The Teaching of Vocal Music in the Secondary School.* 3 credits. 
Survey of repertoire and methods for teaching high school choral groups, small ensembles, and voice classes. Students spend three hours per week in class, and one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in public schools. Notes: For music majors only. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 214, 216, 273, 391 and acceptance into the Music Education concentration.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**MUSI 464:** *Instrumental Music Methods I.* 3 credits. 
Prepares students to successfully plan, organize, and administer marching band and jazz ensemble programs in secondary public school music curriculum. Students spend three hours per week in class, and one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in public schools. Notes: For music majors only. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 214, 216, 273, and acceptance into the Music Education concentration.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture

**MUSI 465:** *Selected Topics in Music Education.* 1-3 credits. 
Topics of practical interest to prospective and practicing music educators covering pedagogy, performance, and logistics of teaching music in schools, private studios, and communities. Offered by School of Music (p. 807). May be repeated within the degree for a maximum of 6 credits.

**Schedule Type:** Studio

**MUSI 466:** *Instrumental Music Methods II.* 3 credits. 
Prepares students to teach instrumental music in elementary, middle, and secondary schools. Students spend three hours per week in class, and one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in public schools. Notes: For music majors only. Offered by School of Music (p. 807). Limited to three attempts.

**Recommended Prerequisite:** MUSI 214, 216, 273, 391 and acceptance into the Music Education concentration.

**Registration Restrictions:** Students with the terminated from MUSI major attribute may not enroll.

**Schedule Type:** Laboratory, Lecture
MUSI 467: Instrumental Music Methods I: Orchestra. 3 credits.
Prepares students to successfully plan, organize, and administer string classes from the beginning levels through performing ensembles (grades 4-12), and explore teaching materials appropriate for individual and class instruction. Students spend three hours per week in class, and one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in public schools. Notes: For music majors only. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 214, 216, 273, 361 and acceptance into the Music Education concentration.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 477: Music and Consciousness. 3 credits.
A study of the ways music has affected the mind and brain from throughout history to the present. By using principles of entrainment and resonance, the course demonstrates experientially the various methods by which music is used to alter consciousness. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Basic proficiency with an instrument or voice or permission of instructor.

Schedule Type: Lecture

MUSI 485: Chamber Ensembles. 1 credit.
Students develop an understanding of major artistic works, including a consideration of how theoretical and historical insights find expression via performance. Performance of works from chamber music repertoire. Notes: Public performances required. Offered by School of Music (p. 807). May be repeated within the term for a maximum 17 credits.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Audition.

Schedule Type: Studio

MUSI 490: RS: Musical Communication in Context. 3 credits.
Explains nature of musical communication in a variety of contexts, and combines knowledge gained in Mason Core courses with knowledge and skills specific to the major to serve as a capstone course synthesizing both areas. Students address these through essays in the style of a journal or portfolio, substantial paper, and oral presentation of paper before faculty and student panel. Offered by School of Music (p. 807). Limited to three attempts.

Mason Core: Capstone (p. 135)

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: Must be in senior year of the B.A. program in Music and have completed all other Mason Core requirements.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

MUSI 491: Musical Communication in Performance. 1 credit.
Helps student conceive of musical performance as communication in a variety of contexts, and combines knowledge in Mason Core courses with knowledge and skills specific to the major to serve as a capstone course synthesizing both areas. Students consider various aspects of musical communication to prepare senior recital. Students explore social, historical, analytical, and aesthetic aspects of the music they are to perform by composing essays in the style of a journal or portfolio. Students prepare a substantial paper on recital repertoire and present that paper before a faculty and student panel. Offered by School of Music (p. 807). Limited to three attempts.

Mason Core: Capstone (p. 135)

Recommended Prerequisite: Completion of all other Mason Core courses for the BM performance concentration.

Recommended Corequisite: Concurrent enrollment in the appropriate 3-credit PMI course and in MUSI 424.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Seminar

MUSI 492: Selected Topics in Music. 1-3 credits.
Topics of practical interest to students in composition, music history and literature, world music, jazz studies, and performance practices. Offered by School of Music (p. 807). May be repeated within the term.

Recommended Prerequisite: 45 credits or permission of instructor.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Schedule Type: Lecture

MUSI 493: Topics in Music Theory. 3 credits.
Intensive exploration of selected topics in music theory and analysis. Offered by School of Music (p. 807). Limited to three attempts.

Recommended Prerequisite: MUSI 216 or permission of the instructor.

Registration Restrictions:
Students with the terminated from MUSI major attribute may not enroll.

Schedule Type: Lecture

MUSI 495: Internship in Music Education. 6-12 credits.
Full semester of intensive student teaching experience in approved Virginia schools. Offered by School of Music (p. 807). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Recommended Prerequisite: Completion of all other courses required for the B.M. with a concentration in music education.

Registration Restrictions:
Enrollment is limited to students with a major in Music.

Schedule Type: Internship
MUSI 496: Internship. 2-6 credits.
Contact the department one semester before enrollment. Internships are approved work-study programs with specific employers or agencies. Notes: Credit is determined by the department. Maximum 9 internship credits (MUSI 395, 495, 496) can be applied toward degree. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Completion of 90 hours.
Registration Restrictions:
Enrollment is limited to students with a major in Music.

Schedule Type: Internship

MUSI 497: Independent Study. 1-3 credits.
Individual research and study of selected subject in close consultation with instructor. Student may choose from the musicological, ethnomusicological, theoretical, compositional, or educational areas, and produce at least one major written work based on research. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Completion of 90 hours.
Registration Restrictions:
Enrollment is limited to students with a major in Music.

Schedule Type: Independent Study

MUSI 498: Independent Study. 1-3 credits.
Individual research and study of selected subject in close consultation with instructor. Student may choose from the musicological, ethnomusicological, theoretical, compositional, or educational areas, and produce at least one major written work based on research. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Completion of 90 hours.
Registration Restrictions:
Enrollment is limited to students with a major in Music.

Schedule Type: Independent Study

500 Level Courses

MUSI 501: Graduate Theory Review. 3 credits.
Vocabulary and conceptual review of diatonic and chromatic harmony, part writing, form, harmonization, 20th-century techniques. Notes: Does not count toward required credits of a graduate music degree. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Baccalaureate degree in music, graduate placement exam.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

MUSI 515: Music in Computer Technology. 3 credits.
Overview computer use in music. Topics include principles of musical instrument digital interface (MIDI); synthesis; acoustics and sound processing; and musical composition using the computer. Explores music resources of Internet, and surveys multimedia applications in music history, theory, ear training, improvisation, and notation. Offered by School of Music (p. 807). May not be repeated for credit. Equivalent to MUSI 415.

Recommended Prerequisite: Baccalaureate degree in music or permission of instructor.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

MUSI 516: Keyboard Skills. 3 credits.
Enhance keyboard skills for the non-keyboard major, including technique, harmonization, transposition, reading, and accompanying. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Baccalaureate degree in music, graduate placement exam.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Studio

MUSI 517: Score Reading Skills. 3 credits.
Enhance score study and score reading skills for the conductor. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Baccalaureate degree in music, graduate placement exam.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

MUSI 526: Performance Seminar and Vocal Literature for Singers and Accompanists II. 2 credits.

Students assigned art songs or operatic arias in Italian, German, French, and English, from Baroque to 21st century, and perform in weekly master class format. Develops and improves musical and artistic preparation and performance, increases repertoire, and establishes dependable methods for creating consistently high standards of artistic performance. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Baccalaureate degree in music, graduate placement exam.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 541: Diction for Singers I: Italian Diction and English Diction. 2 credits.

Increases proficiency in singing in Italian and English by teaching International Phonetic Alphabet (IPA), and strengthens performance of Italian and English art song and operatic repertoire. Intensified, systematic study of phonetics as it applies to Italian and English. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Graduate status in applied voice or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 542: Diction for Singers II: German Diction and French Diction. 2 credits.

Increases proficiency in singing in German and French by teaching International Phonetic Alphabet (IPA), and strengthens performance of German and French art songs and operatic repertoire. Intensified, systematic study of phonetics as it applies to singing in German and French. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: Graduate status in applied voice or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 551: Keyboard Pedagogy.** 3 credits.
Intensive study of methods, theories, techniques, and materials to teach keyboard to children and adults in individual and group situations. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Graduate status in applied piano or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 552: Vocal Pedagogy and Lab.** 3 credits.
Instruction in teaching voice through systematic study of vocal physiology and its implications for pedagogical methods. Includes theoretical and systematic study of processes, procedures, and practices to develop art of singing. Offers technical, physiological, theoretical, and practical principals of the singing art, with emphasis on vocal health. Offered by School of Music (p. 807). May not be repeated for credit. Equivalent to MUSI 352.

**Recommended Prerequisite:** Graduate status in applied voice or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**MUSI 553: Instrumental Pedagogy and Literature.** 3 credits.
Instruction in teaching of instrumental music techniques for all levels through the study of pedagogical methods, standard literature, and musical instruments produced by present-day manufacturers. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Baccalaureate in music, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 555: Music as a Healing Art.** 3 credits.
Study of the relationship between musical vibrations and the natural rhythms of the body. Topics include history of music and healing, theory of sound, cymatics, tuning, and performance practice as well as a survey of vibrational healing modalities and related therapies. Considers listening examples as they apply to healing with music. Students sing and play instruments in directed improvisatory performance. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Basic proficiency with instrument or voice, and bachelor's degree in music.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 557: Kodaly I.** 3 credits.
In depth study of Kodaly, concentrating in four areas: Methodology, Materials, Solfege, and Conducting Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 557 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 558: Kodaly II.** 3 credits.
Continues to build on and expand Kodaly knowledge and skills in the four areas: Methodology, Materials, Solfege, and Conducting Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 557 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 559: Kodaly III.** 3 credits.
Completion of Kodaly training, finishing Kodaly Methodology, Materials, Solfege, and Conducting Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 558 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 561: Music Curriculum and Instructional Procedures. 3 credits.
This graduate course is designed to prepare students for a job in the elementary or middle school general music classroom. Classes will equip students with the competencies necessary to plan, create, implement, and evaluate a general music curriculum. Current trends, materials, methods, and approaches in music education will be reviewed. Offered by School of Music (p. 807). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 563: Orff Schulwerk I. 3 credits.
Intensive introduction to Orff teaching philosophy with practical and theoretical instruction and immersion in the method itself. Students learn concepts of rhythm, harmony, solfege, modes, improvisation, and pedagogy. Students learn basic performance technique on soprano recorder, and learn to apply movement and dance in their teaching. Offered by School of Music (p. 807). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 564: Orff Schulwerk II. 3 credits.
Continues intensive study of Orff teaching philosophy with practical and theoretical instruction and immersion in the method itself. Teaches further concepts of rhythm and meter including asymmetrical patterns. Reviews pentatonic modes and their transpositions, studies pentachordal and hexachordal scales, and begins intensive work with diatonic modes. Students work with a variety of percussion instruments including body percussion, unpitched instruments, and barred instruments. They sing and play soprano, alto, tenor, and bass recorders. Movement studies continue with intensive study of vocabulary of dance and mime. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: MUSI 563 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 565: Orff Schulwerk III. 3 credits.
Continues intensive study of Orff teaching philosophy to complete certification process in Orff Schulwerk. Students continue intensive work in rhythm, melody, harmony, timbre, form, and pedagogy. Tenor, bass, and soprano recorders introduced. Movement and rhythmic studies concentrate on mixed meters and non-Western source materials and styles. Offered by School of Music (p. 807). May not be repeated for credit.

Recommended Prerequisite: MUSI 563 and 564 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 566: Instrumental Methods for Band. 3 credits.
This course prepares students to teach instrumental music in elementary and secondary schools. Students spend three hours per week in class, and one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in public schools. Offered by School of Music (p. 807). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 567: Instrumental Methods, Strings. 3 credits.
Prepares students to successfully plan, organize, and administer string classes from the beginning levels through performing ensembles (grades 4-12), and to explore teaching materials appropriate for individual and class instruction. Three hours per week spent in class, one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in public schools. Offered by School of Music (p. 807). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
**MUSI 568: Vocal and Choral Methods. 3 credits.**
A Survey course that introduces repertoire and methods for teaching middle and high school choral groups, small ensemble and voice classes. Students spend three hours per week in class, and one hour per week observing and teaching in laboratory ensemble. Students also participate in field observation of music classes in the public schools. Offered by School of Music (p. 807). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**Recommended Prerequisite:** Admission to graduate-level Private Music Instruction in a keyboard instrument or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**MUSI 571: Techniques of Accompanying I. 1 credit.**
Development of accompanying skills through collaboration with solo singers, instrumentalists, and small ensembles. Students perform for each other; observe lectures, demonstrations and performances by professionals; and participate in master classes. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Admission to graduate-level Private Music Instruction in a keyboard instrument or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**MUSI 572: Techniques of Accompanying II. 1 credit.**
Development of accompanying skills through collaboration with solo singers, instrumentalists, and small ensembles. Students perform for each other; observe lectures, demonstrations and performances by professionals; and participate in master classes. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Admission to graduate-level Private Music Instruction in a keyboard instrument or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**MUSI 573: Accompanying and Musicianship III. 3 credits.**
For piano majors or students with significant keyboard skills. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 572.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**MUSI 577: Music and Consciousness. 3 credits.**
A Study of the ways music has affected the mind and brain from throughout history to the present day. By using the principles of entrainment and resonance, it will be demonstrated experientially the various methods by which music is used to alter consciousness. Offered by School of Music (p. 807). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

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**MUSI 592: Topics in Music. 1-6 credits.**
Intensive study of selected topics in performance, composition, or conducting. Individual research, group discussions, and participation in related activities. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** Baccalaureate degree in music.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

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**MUSI 593: Foundations of Music Education. 3 credits.**
This course prepares students to address aspects of administration management of music programs in public and private schools. Various principles and concepts of management styles and planning are investigated. Topics addressed include: curriculum, budget, student recruitment and retention, music facilities, external relations of the music unit and legal issues for music educators. Offered by School of Music (p. 807). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 595: Internship in Music Education.** 6-9 credits.
This course prepares students to successfully plan and implement pedagogical strategies for the effective teaching of instrumental music. Students will also gain experience administering a music program in the elementary and secondary school music curriculum. Students will participate in class teaching modules and field experiences in the public schools. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** 1. Completion of all courses required for the Graduate Certificate in Music Education Licensure for PK-12. 2. Successful completion of the Music Education "Instrumental Proficiency Exam" requirements listed in the Music Education Handbook. 3. Successful completion of the Praxis I Examination (or equivalency), and VCLA (or Praxis I equivalency).

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

### 600 Level Courses

**MUSI 610: Topics in Music Theory.** 3 credits.
Uses music analytical theories to examine repertoire from a given time period or style. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** MUSI 501, 502, and 516 or appropriate score on graduate placement exam.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 611: Analytical Techniques.** 3 credits.
Detailed formal and stylistic examination of music selected from the major style periods. Development of graduate-level analytical skills. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 501, 502, and 516 or appropriate score on graduate placement exam.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 613: Graduate Orchestration.** 3 credits.
Intensive study of instrumentation through analysis and arrangement. Includes contemporary techniques and scoring for large forces. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 501, 502, and 516 or appropriate score on the graduate placement exam.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 614: Music Theory Pedagogy.** 3 credits.
Study of materials and procedures in the teaching of undergraduate-level music theory subjects. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Baccalaureate degree in music, graduate placement exam.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 615: Advanced Jazz Improvisation.** 3 credits.
Advanced techniques and applications of jazz improvisation. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Graduate placement exam or permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 621: Graduate Applied Music.** 1 credit.
Graduate Applied music studies Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.
Recommended Prerequisite: Audition or portfolio.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 622: Applied Music in Keyboard. 1 credit.
Applied music studies in Keyboard. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

Applied music studies in Voice. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 624: Applied Music in Woodwind. 1 credit.
Applied music studies in Woodwind. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 625: Applied Music in Brass. 1 credit.
Applied Music studies in Brass. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 626: Applied Music in String. 1 credit.
Applied Music studies in String. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 627: Applied Music in Percussion. 1 credit.
Applied Music studies in Percussion. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 628: Applied Music in Composition. 1 credit.
Applied Music studies in Composition. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Portfolio of recent compositions.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 629: Applied Music in Conducting. 1 credit.
Applied Music studies in Conducting. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.
Music (MUSI)

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Private Music Instruction

MUSI 630: *Topics in Music History and Literature.* 3 credits.
Examination of a musical style, genre, composer, compositional school, or historical development. Primary and secondary source materials studied in historical and analytical contexts. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** MUSI 532 and 533 or appropriate score on the graduate placement exam.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MUSI 640: *Topics in World Musics.* 3 credits.
Study of musics from selected cultures. Students will study structural, social, and cognitive foundations of the music. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Baccalaureate degree in music, graduate placement exam.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MUSI 650: *Topics in Jazz Studies.* 3 credits.
Study of selected topics in performance, composition, arranging and analysis. May be repeated for up to 9 credits as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Graduate placement exam or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MUSI 651: *Keyboard Pedagogy II.* 3 credits.
Develop effective teaching strategies, business practices, and investigative/diagnostic approaches in repertoire exploration to prepare/improve teaching abilities in independent studio. Examine professional role of independent piano teacher, investigate scope and sequence of repertoire development, explore creative activities and computer use in the studio, develop understanding of technical skill development, examine intermediate/advanced keyboard repertoire, explore various teaching strategies/philosophies. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Keyboard Pedagogy I.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MUSI 652: *Vocal Pedagogy II.* 3 credits.
A continuation of vocal pedagogy I, which focused on teaching voice through the rudimentary and systematic study of vocal physiology and pedagogical methods, and included the process, procedures, development and practice of the art of singing. Pedagogy II provides students the opportunity to apply this information to real life situations through use of four specific scenarios and practical teaching experience. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Vocal Pedagogy I.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MUSI 653: *Instrumental Pedagogy II.* 3 credits.
Prepares students for teaching string techniques of their major instrument for all levels through study of pedagogical methods and standard literature. Develop sound business practices/policies to ensure success in setting up a private studio; become familiar with local/national professional organizations serving the string teaching community; explore teaching abilities through a case study project involving one or more students. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Instrumental Pedagogy I.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 654:** Graduate Conducting. 3 credits.
Classroom study of conducting, including refining gestures, rehearsal leadership, and the communication of musical style. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Baccalaureate degree in music, graduate placement exam.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 660:** Topics in Music Education. 1-6 credits.
Examination of specific areas of concern to music educators. Individual research, group discussions, and participation in related activities. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** Baccalaureate degree in music; graduate placement exam.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 661:** Psychology of Music Teaching and Learning. 3 credits.
Study of the learner’s musical behaviors (affective, cognitive, and psychomotor) in an effort to devise an empirically based teaching method founded on learning principles. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Baccalaureate degree in music; graduate placement exam.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 662:** Introduction to Research in Music. 3 credits.
Development of skills, attitudes, and understanding to conduct and report research in music, including philosophical bases, scope and organization, stylistic practices in writing research reports, study of materials and resources in music and music education, and proper use of library and other research services. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Baccalaureate degree in music or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 663:** Aesthetics of Music Education. 3 credits.
Study of philosophical foundations of contemporary music education, and critical examination of music programs and activities in aesthetic education and efforts by music education establishment to enhance them. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Baccalaureate degree in music or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 664:** Advanced Pedagogy. 3 credits.
Advanced instruction in pedagogy including study of methods, theories, techniques, and materials for teaching children and adult students. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 551, or MUSI 552, or MUSI 553, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
**MUSI 681: Graduate Choral Ensembles.** 1 credit.
Performance of works from the choral repertoire. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**MUSI 682: Wind Symphony.** 1 credit.
Highly selective group of instrumentalists performing works from the wind repertoire. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**MUSI 683: Symphonic Band.** 1 credit.
Performance of works from band repertoire. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**MUSI 685: Graduate Chamber Ensemble.** 1 credit.
Performance of works from chamber music repertoire. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**MUSI 687: Symphony Orchestra.** 1 credit.
Performance of works from orchestral repertoire. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Studio

**MUSI 688: Opera and Musical Theater Ensemble.** 3 credits.
Solo-vocal, performance-oriented ensemble class that presents operatic works or excerpts from them, from Baroque to 21st century, as well as works or excerpts from American musical theater. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**MUSI 689: Jazz Ensemble.** 1 credit.
Provides practical experience in aspects of jazz performance. Participation in section rehearsals and small and large jazz groups. Jazz improvisation expected. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture
**MUSI 690: Graduate Lecture Recital.** 1-3 credits.
Combination of musical performance and scholarly presentation on a well-defined topic. Notes: Public presentation required. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Baccalaureate degree in music, audition.

**Recommended Corequisite:** MUSI 621 (3-credit level).

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**MUSI 695: Teaching Internship.** 2 credits.
Teaching beginner, intermediate, and early advanced students in private or group lessons under faculty supervision. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** MUSI 660.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**MUSI 699: Independent Study.** 1-3 credits.
Individual research and study a concentration available in the master of music. Offered by School of Music (p. 807). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Baccalaureate degree in music and permission of graduate coordinator. Individualized section form required.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**700 Level Courses**

**MUSI 710: Advanced Topics in Music Theory.** 3 credits.
Advanced study of specific styles and repertoire from the perspective of various analytical approaches. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** MUSI 501, 502, and 516 or appropriate score on graduate placement exam.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 712: Composition for Conductors and Performers.** 3 credits.
Advanced study of new music for various media. Notes: This course is not for students in the composition concentration. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Baccalaureate degree in music, graduate placement exam.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 720: Advanced Topics in Applied Music.** 3 credits.
Advanced study of concepts in applied music. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Baccalaureate degree in music, graduate placement exam.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 721: Applied Music.** 2-3 credits.
Applied Music studies. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition or portfolio.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**MUSI 722: Applied Music in Keyboard.** 2-3 credits.
Applied music studies in Keyboard. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Private Music Instruction

**MUSI 723: Applied Music in Voice.** 2-3 credits.
Applied music studies in Voice. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Private Music Instruction
MUSI 723: Applied Music in Voice. 2-3 credits.
Applied music in Voice. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 724: Applied Music in Woodwind. 2-3 credits.
Applied music studies in Woodwind. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 725: Applied Music in Brass. 2-3 credits.
Applied music studies in Brass. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 726: Applied Music in String. 2-3 credits.
Applied music studies in String. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 727: Applied Music in Percussion. 2-3 credits.
Applied music studies in Percussion. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 728: Applied Music in Composition. 2-3 credits.
Applied music studies in Composition. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Portfolio of recent compositions.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 729: Applied Music in Conducting. 2-3 credits.
Applied music studies in Conducting. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

Recommended Prerequisite: Audition.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Private Music Instruction

MUSI 730: Advanced Topics in Music History. 3 credits.
Advanced study of specific genres, composers, or repertoire from a historically analytical perspective. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: MUSI 532 and 533 or appropriate score on the graduate placement exam.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 760: Advanced Topics in Music Education. 3 credits.
Advanced study of selected issues in music education. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Baccalaureate degree in music, graduate placement exam.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

MUSI 770: Advanced Topics in Pedagogy. 3 credits.
Advanced study of a specific topic in the pedagogy of music. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Baccalaureate degree in music, graduate placement exam.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
MUSI 777: *Music and Consciousness* 2. 3 credits.
The scientific mechanisms behind vibrational healing are uncovered showing how energy medicine affects Well-Being in a positive way. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** MUSI 577 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MUSI 780: *Doctoral Research Methods in Music.* 3 credits.
Development of analytical skills to design and create an original contribution to music scholarship at the doctoral level, by making students aware of the varied tools available to them to write a mock dissertation proposal. Offered by School of Music (p. 807). May not be repeated for credit.

**Recommended Prerequisite:** Graduate Placement exam.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

MUSI 790: *Graduate Recital.* 1 credit.
Public performance. Repertoire and performance standards as approved by faculty. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** At least three credits of graduate PMI in the appropriate instrument or voice.

**Recommended Corequisite:** MUSI 700-level PMI (3-credits).

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Private Music Instruction

MUSI 796: *Directed Reading/Research.* 1-3 credits.
Individualized study on a topic approved by faculty. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Baccalaureate degree in music, graduate placement exam.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

MUSI 799: *Thesis.* 1-6 credits.
Supervised research on approved thesis topic. Offered by School of Music (p. 807). May be repeated within the degree.

**Recommended Prerequisite:** Completion of at least 12 hours of graduate study including MUSI 511 and approval of the topic. Students in the music education concentration must also have taken MUSI 562 and successfully passed the comprehensive exit examination.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

### 800 Level Courses

MUSI 800: *Studies for the Doctor of Philosophy in Education.* 1-6 credits.
Program of studies designed by the student's discipline director and approved by student's doctoral committee that brings student to participate in research, performance, or creative activity of discipline director and results in a paper reporting original contributions. Offered by School of Music (p. 807). May be repeated within the degree.

**Recommended Prerequisite:** Open only to PhD Education students admitted to study in music.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

MUSI 810: *Doctoral Seminar in Analysis.* 3 credits.
Seminar study of a specific genre or repertoire from various analytical perspectives. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Graduate placement examination.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

MUSI 821: *Doctoral Private Music Instruction.* 2-3 credits.
Private instruction in performance, conducting, or composition. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition or portfolio.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

MUSI 822: *Doctoral Applied Music in Keyboard.* 2-3 credits.
Doctoral applied music studies in Keyboard. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

Doctoral applied music studies in Voice. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.
**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**MUSI 824:** Doctoral Applied Music in Woodwind. 2-3 credits.
Doctoral applied music studies in Woodwind. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**MUSI 825:** Doctoral Applied Music in Brass. 2-3 credits.
Doctoral applied music studies in Brass. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**MUSI 826:** Doctoral Applied Music in String. 2-3 credits.
Doctoral applied music studies in String. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**MUSI 827:** Doctoral Applied Music in Percussion. 2-3 credits.
Doctoral applied music studies in Percussion. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**MUSI 828:** Doctoral Applied Music in Composition. 2-3 credits.
Doctoral applied music studies in Composition. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Portfolio of recent compositions.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**MUSI 829:** Doctoral Applied Music in Conducting. 2-3 credits.
Doctoral applied music studies in Conducting. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 18 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**MUSI 830:** Doctoral Seminar in Music History. 3 credits.
Seminar study of a specific genre, composer, or repertoire from a historically analytical perspective. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Graduate placement exam.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**MUSI 860:** Doctoral Seminar in Music Education. 3 credits.
Seminar study of a specific issue in music education. Notes: May be repeated as topics change. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Graduate placement exam.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**MUSI 880:** Doctoral Major Ensemble. 1 credit.
Selective ensemble experience for doctoral students in music. Notes: Public concerts are given. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Audition.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Studio

**MUSI 890:** Doctoral Recital. 1 credit.
Public performance. Repertoire and performance standards as approved by faculty. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** At least three credits of MUSI 821 in the appropriate instrument or voice.

**Recommended Corequisite:** MUSI 821 for 3 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Private Music Instruction

**900 Level Courses**

**MUSI 998:** Dissertation Proposal. 1-3 credits.
Preparation of a proposal for a dissertation study in music under the supervision of music faculty members. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to a doctoral program in music, permission of faculty.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**MUSI 999: Dissertation.** 1-12 credits.
Preparation of a dissertation in music under the supervision of music faculty members. Offered by School of Music (p. 807). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.
Enrollment is limited to Graduate level students.

**Nanotechnology and Nanoscience (NANO)**

**500 Level Courses**

**NANO 500: Introduction to Nanomaterials and Interactions.** 3 credits.
Introduction to nanotechnology. Discussion of the Feynman challenge and its relation to modern science. Applications to nanostructures of charges, currents, diamagnetics, paramagnetics, and ferromagnetics. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** BS in any physical science, mathematics, or engineering; or permission of certificate director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NANO 510: Strategies for Nanocharacterization.** 3 credits.
Introduces various nanocharacterization techniques, with a discussion of which techniques are most useful in various applications. Includes gates and bridges, chemical thermodynamics, kinetics, and solid-state reactions. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** NANO 500 or permission of certificate director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NANO 520: Survey of Nanostructures.** 3 credits.
Discusses nanomechanical oscillators and nanoresonators, nanofibers, and conducting polymer nanowires. Nanomechanical beams for reacting ion etching. Electron-beam lithography and photolithography. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** NANO 500 and 510 or permission of certificate director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NANO 530: Nanofabrication.** 3 credits.
Covers pulsed laser deposition, molecular beam epitaxy, controlled vapor deposition, reactive sputtering, and doping and implant isolation. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** NANO 500 and 510, or permission of certificate director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NANO 540: Nanotechnology in Commerce and Government.** 3 credits.
Discusses competitive position of United States and other countries in nanoscience and nanotechnology. Covers business strategies, environmental, and public health aspects of nanotechnology applications. Also introduces students to issues involving legal, economic, social, and political controls over nanotechnology and nanoscience research. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** NANO 500, and admission into graduate certificate program in nanotechnology and nanoscience.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**NANO 610: Nanoelectronics.** 3 credits.
Introduces basic elements of nanoelectronic structures, including quantum layers, quantum wires, and quantum dots. Covers sub-band structure, transport in quantum layers, behavior in the presence of magnetic fields, Coulomb blockades, CMOS nanodevices and
nanoelectronics, and SOI multigate device physics and modeling. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** NANO 500, 510, and 520, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NANO 620:** Computational Modeling in Nanoscience. 3 credits.
Introduction to simulation methods used in nanoscience. Covers computational approaches to modeling molecular and condensed matter at the nanoscale level, including interatomic and molecular potentials, molecular mechanics, molecular dynamics, monte carlo averaging, ensemble distributions, numerical sampling, thermodynamic functions, dynamic structure, and introduction to cellular automata. Offered by Computational & Data Sciences (p. 650). May not be repeated for credit.

**Recommended Prerequisite:** NANO 500, 510, and 520, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Native American and Indigenous Studies (NAIS)**

**200 Level Courses**

**NAIS 201:** Introduction to Native American and Indigenous Studies. 3 credits.
Introduction to the history, social organization, political experience, and artistic expression of indigenous peoples of the western hemisphere, focusing primarily on American Indians, using methods and materials from a number of disciplines. Offered by English (p. 350). May not be repeated for credit.

**Schedule Type:** Lecture

**400 Level Courses**

**NAIS 499:** Independent Study. 3 credits.
Intensive study of a particular area, topic, or critical or theoretical problem related to Native American and Indigenous Studies to be conducted in close consultation with an instructor. At least one substantial, researched piece of written work required. Offered by English (p. 350). May not be repeated for credit.

**Schedule Type:** Independent Study

**Neuroscience (NEUR)**

**300 Level Courses**

**NEUR 327:** Cellular, Neurophysiological, and Pharmacological Neuroscience. 3 credits.
Basic concepts of cellular and molecular level neuroscience, including neuronal functions, cellular anatomy and membrane functions, electrical properties of neurons, and cellular basis of plasticity. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** CHEM 211, PSYC 375 or permission of instructor.

**Schedule Type:** Lecture

**NEUR 335:** Molecular, Developmental, and Systems Neuroscience. 3 credits.
In-depth survey of genetic and embryological development of the brain and introduction to systems neuroscience, including sections on patterning gene expression, generation and migration of neurons, axonal and dendritic outgrowth, and basic neuroanatomy. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 373 (may also be enrolled concurrently), PSYC 376.

**Schedule Type:** Laboratory, Lecture

**400 Level Courses**

**NEUR 405:** RS: Laboratory Methods in Behavioral Neuroscience. 3 credits.
Introduction to experimental methods used in behavioral neuroscience research. Laboratory work includes surgical, histological and behavioral techniques. Proper use and handling of animals, ethical issues, evaluation of neuroscience literature, experimental design and data analysis are addressed. This requires working with laboratory rodents. Offered by Neuroscience (p. 743). May not be repeated for credit. Equivalent to NEUR 395.

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** PSYC 300, BIOL 312 or equivalent. PSYC 372 or PSYC 376 or permission of instructor.

**Schedule Type:** Laboratory

**NEUR 410:** Seminar in Neuroscience. 3 credits.
Advanced seminar on a selected topic in neuroscience. Includes in depth reading and discussion of current research in human and nonhuman animals, with an emphasis on critical evaluation. Notes: Course may be repeated if selected topic is different. Offered by Neuroscience (p. 743). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Lecture
Schedule Type: Lecture

NEUR 427: Developmental Neuroscience. 3 credits.
Selected topics reflecting in specialized areas of neuroscience. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: NEUR 327, NEUR 335 or permission of instructor.

Schedule Type: Lecture

NEUR 480: Biological Bases of Alzheimer's Disease. 3 credits.

Recommended Prerequisite: PSYC 375; PSYC 376; PSYC 375 or equivalent or permission of instructor.

Schedule Type: Lecture

NEUR 592: Special Topics in Neuroscience. 3 credits.
Special topics in neuroscience reflecting specialized areas or new subfields that not covered in fixed-content neuroscience courses. Course may be repeated for credit as needed. Offered by Neuroscience (p. 743). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: NEUR 327, NEUR 335 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

NEUR 600: Chemistry and the Brain. 3 credits.
Fundamentals of general chemistry, atoms, molecules, and reactions, with emphasis on water solutions. Organic compounds and functional groups, biosynthesis and properties, and examples from nervous system. Also includes biopolymers and their roles in cellular and neuronal organization, ionic channels, neurotransmitter receptors, and psychoactive substances. Offered by Neuroscience (p. 743). May not be repeated for credit. Equivalent to PSYC 556.

Recommended Prerequisite: Admission to neuroscience PhD program or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NEUR 601: Developmental Neuroscience. 3 credits.
Introduction to developmental neurobiology with overview of embryological development of the nervous system. Topics include neural induction, patterning/cell fate specification, and neural circuit assembly together with modern molecular methods for exploring neural development. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: Completion of 60 credits, including PSYC 372 or BIOL 213 or BIOL 303.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

**NEUR 602: Cellular Neuroscience.** 3 credits.
Detailed overview of the functioning and interactions of the cellular elements of the central nervous system. Topics include structure and function relationships, the chemical, physical, and electrical basis of neural signaling, local versus long-distance signaling, generation of action potentials, and essentials of synaptic communication. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the PhD program in Neuroscience or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NEUR 603: Mammalian Neuroanatomy.** 3 credits.
Focus on mammalian brain organization and function, emphasizing human neurobiology. Modern experimental and clinical tools explain: gross and microscopic brain organization; functional brain circuits for sensory and motor processing; higher brain organization and function; and development of selected brain areas. The knowledge gained is then used to explain the clinical symptoms occurring after specific brain insults. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** One course in neuroscience (or equivalent biology course), or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NEUR 604: Ethics in Scientific Research.** 1-3 credits.
Reflects on purpose of scientific research and reviews foundational principles for evaluating ethical issues. Offers skills for survival in scientific research through training in moral reasoning and teaching of responsible conduct. Discusses ethical issues in research, and teaches how to apply critical thinking skills to design, execution, and analysis of experiments. Issues include using animals and humans in research, ethical standards in computer community, and research fraud. Currently accepted guidelines for behavior in data ownership, manuscript preparation, and conduct of persons in authority may be presented and discussed in terms of relevant ethical issues. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NEUR 611: Philosophical Foundation of Neuroscience.** 3 credits.
This course presents the joint histories of the nature of thought, the philosophy of science, the construct of self, and the nature of mind. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** Any course in neuroscience or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NEUR 612: Neuroethics.** 3 credits.
Neuroethics explores the implications of developments in basic and clinical neuroscience on social and ethical issues. This course will survey emerging questions raised by recent neuroscientific discoveries on genetic and environmental factors that influence human behavior, decision-making, personality traits, and mental states. Grades will be based on article presentation, class participation, and final written report. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NEUR 621: Synaptic Plasticity.** 3 credits.
Course on activity-dependent modification of functional connectivity in the central nervous system as it relates to development, cognition, and disease. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** NEUR 602.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NEUR 634: Neural Modeling.** 3 credits.
Introduces the objectives, philosophy, and methodology of neuronal modeling. Instructs students in the use of some of the more popular models and techniques.
neural modeling software packages. Students learn the syntax of several software packages, how to create neurons from subcellular components, and how to create networks by connecting neuron models. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** NEUR 602 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NEUR 651: Molecular Neuropharmacology.** 3 credits.
Presents key concepts in cellular and molecular neuropharmacology. Provides an in-depth survey of receptor driven cell function, which includes recent topics in cell structure, membrane function, electrical properties of neurons and intracellular signaling. Enables an introduction to research tools and trends in study of neuronal systems via a reading and an analysis of the primary literature. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** NEUR 602 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NEUR 689: Topics in Neuroscience.** 3 credits.
Selected topics in neuroscience reflecting specialized areas or new subfields not covered in fixed-content neuroscience courses. Offered by Neuroscience (p. 743). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**NEUR 701: Neurophysiology Laboratory.** 3 credits.
Hands-on training in current techniques of modern neurophysiology. Acquaints students with the theoretical basis of each technique and trains the student in the laboratory skills necessary to perform each technique. Includes intracellular and extracellular recording techniques. Notes: Meets once weekly for six hours. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** NEUR 602 and admission to neuroscience PhD program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory

**NEUR 702: Research Methods.** 3 credits.
Trains students in research methodologies for life sciences. Covers the four aspects of biological research projects: experimental design, data collection, data analysis and research ethics. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NEUR 703: Laboratory Rotation and Readings.** 3 credits.
Intensive introduction to a research laboratory in neuroscience. The student will read background material pertinent to the problem under study, learn and practice research methods of the laboratory, and formulate a short final project, which may be a proposal or an actual project, demonstrating some mastery of the techniques and approaches employed. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the PhD program in Neuroscience.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**NEUR 709: Neuroscience Seminars.** 1 credit.
Special seminar series for first year neuroscience PhD students. Detailed overview of neuroscience research at Mason. Each week, a different neuroscience laboratory and principal investigator lectures to students. The lecture includes the neuroscience basics necessary to appreciate the laboratory research theme and mission, and a more practical description of the active research program, possibly including a visit to the laboratory. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Neuroscience PhD program.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NEUR 710: Special Topics in Neuroscience.** 1 credit.
Examines topics in neurosciences, including neurogenetics, neural imaging, and the competing computational and biological approaches to...
Enrollment is limited to Graduate or Non-Degree level students.

Recommended Prerequisite: Admission to the Neuroscience PhD program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NEUR 734: Computational Neurobiology. 3 credits.
Intense review of neurobiology for graduate students interested in studying how nerve cells integrate and transmit signals, and how behavior emerges from integrated actions of populations or circuits of nerve cells. Covers electrical and biochemical properties of single neurons, and electrical and chemical communication between neurons. Emphasizes mathematical descriptions and computational techniques to study and understand neurons and networks of neurons. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: NEUR 602 and MATH 214, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NEUR 735: Computational Neuroscience Systems. 3 credits.
Intensive introduction to systems neuroscience from quantitative perspective. Covers computational techniques used to study function of networks of neurons. Uses spike train statistics, neural encoding, and information theory to investigate behaviors that emerge from integrated actions of networks of neurons. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: NEUR 734 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NEUR 741: Introduction to Neuroimaging. 3 credits.
Introduction to physics and techniques of magnetic resonance imaging (MRI) and their applications to clinical and basic neuroscience. Students learn about the protocols used in the acquisition of images in both structural and functional contexts, and experimental paradigms applied to the exploration of cognition, learning, and development. Students gain experience with creating an experimental design for a study and understanding practical logistics involved in imaging, such as MRI safety and subject screening. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: NEUR 602 or 603, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NEUR 742: Cognitive Neuroscience. 3 credits.
Introduces cognitive neuroscience topics, including aspects of cognitive science covering an array of perceptual, sensory, cognitive, and affective processes. Incorporates studies of brain lesions, brain imaging, and animal and computational models. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: NEUR 602 or NEUR 603 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NEUR 751: Applied Dynamics in Neuroscience. 3 credits.
Covers recent developments in the application of applied dynamics to neuroscience. Emphasizes dynamical system approach to the understanding of neural processes. Topics include neural synchrony and control; formation of waves; oscillations; patterns within neural ensembles; network topology and dynamics of neurons; and decoding and encoding of neural signals. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: CSI 734, PSYC 531, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NEUR 752: Modern Instrumentation in Neuroscience. 3 credits.
Builds on knowledge of how and what things are measured and controlled in modern bioinstrumentation. Topics include fundamental instrumentation; principles of sensing; basic electronics; computer interfaces and data acquisition; signals in biological systems; biopotential and ionic concentration measurements; and optical techniques. Offered by Neuroscience (p. 743). May not be repeated for credit.

Recommended Prerequisite: NEUR 602 or 734, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

800 Level Courses

NEUR 851: Advanced Computation and Brain Dynamics. 3 credits.
In-depth study of open issues and the state-of-the-art in advanced brain dynamics. Using mathematical and physical models, the course covers the neurodynamical aspects of neural nets, receptive fields, ion-channels, intercortical interactions, phase-locking, synchronicity, and the possible
nontrivial role of quantum effects. Offered by Neuroscience (p. 743). May not be repeated for credit.

**Recommended Prerequisite:** CSI 734, PSYC 531.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

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### 900 Level Courses

**NEUR 996: Doctoral Reading and Research.** 3.6 credits.

Reading and research on specific topic in neuroscience under direction of faculty member. Offered by Neuroscience (p. 743). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Admission into the NEUR doctoral program and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Independent Study

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**NEUR 998: Dissertation Proposal.** 1-6 credits.

Covers development of a research proposal under guidance of dissertation director and doctoral committee. Proposal forms the basis for the doctoral dissertation. Notes: No more than a total of 24 credits in NEUR 998 and 999 may be applied toward satisfying doctoral degree requirements. Out of the 24, no more than 12 credits of NEUR 998 may be applied. Offered by Neuroscience (p. 743). May be repeated within the degree.

**Recommended Prerequisite:** Admission to the Neuroscience Ph.D. program.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

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**NEUR 999: Doctoral Dissertation.** 1-12 credits.

Doctoral research performed under the direction of the dissertation director. Notes: No more than a total of 24 credits in NEUR 998 and 999 may be applied toward satisfying doctoral degree requirements. Students must email mhayes5@gmu.edu for permission and CRN to register. Offered by Neuroscience (p. 743). May be repeated within the degree.

**Recommended Prerequisite:** Advancement to candidacy in the Neuroscience Ph.D. program. Students must email mhayes5@gmu.edu for permission and CRN to register.

**Registration Restrictions:**
Enrollment is limited to students with a class of Advanced to Candidacy.

**Schedule Type:** Dissertation

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### Nursing (NURS)

#### 300 Level Courses

**NURS 305: Application of Basic Nursing Techniques.** 1 credit.

To be taken fall semester of accelerated second degree program. Introduces basic nursing technologies, and provides opportunities to apply these skills in simulated technology lab. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Acceptance into accelerated nursing pathway.

**Registration Restrictions:**
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

**Schedule Type:** Laboratory

**NURS 309: Introduction to Basic Nursing Care.** 3 credits.

Enrollment restricted to second-degree students only. Introduces basic fundamentals of nursing care across the life span. Emphasis on nursing process, critical thinking, and foundational technologies and skills required to practice in the health care setting. Notes: Enrollment restricted to second-degree students only. Requires acceptance into the accelerated nursing pathway. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

**Schedule Type:** Lecture

**NURS 310: Application of Basic Nursing Care.** 4 credits.

Application of basic nursing care in acute care settings utilizing the nursing process. Note: Open only to second-degree students. Enrollment is controlled. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

**Schedule Type:** Laboratory

**NURS 312: Basic Nursing Care of Adults.** 4 credits.

Provides the student the opportunity to practice health assessment and fundamental nursing skills with adult medical/surgical clients, including those who are culturally diverse, vulnerable, and experiencing physiological, psychological, and social health problems. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

**Schedule Type:** Laboratory

**NURS 319: Pathophysiological Basis for Nursing Care of Individuals and Small Groups.** 4 credits.

Focuses on pathophysiological, psychological, sociocultural, and risk-reduction factors related to nursing care for clients with psychiatric conditions, as well as for child-bearing women, infants, children, and adolescents with acute health care needs. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Acceptance into accelerated nursing pathway. Enrollment is controlled.

**Registration Restrictions:**
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

**Schedule Type:** Laboratory
Enrollment is limited to students with a major in Nursing.

Schedule Type: Lecture

NURS 330: Nursing Fundamentals. 3 credits.
Introduces nursing process and communication skills as the foundation for beginning health assessment and fundamental nursing care for culturally diverse individuals throughout the life span. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Corequisite: NURS 312.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 334: Nursing as a Health Profession and Discipline. 3 credits.
Introduces nursing as a dynamic and caring health profession, the impact of epidemiology, health promotion, and disease prevention on health status of culturally diverse and vulnerable individuals, families, small groups, and communities throughout life span. Incorporates nursing and critical thinking processes as they apply to the art and science of nursing. Historical perspectives on ethical, legal, political, and social issues are included. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite:
NURS 312, 330, 337, 347, 425.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 336: Concepts in Professional Nursing as a Discipline. 3 credits.
Provides an analysis of the profession and explores nursing philosophies and theories. Explores legal, ethical, political, and technological issues in health care at various nursing levels. Addresses critical thinking and its application to the collaborative nursing process. Utilizes the American Psychological Association formatting style for professional writing within the nursing profession. Notes: Must be admitted to the RN-to-BSN program. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Acceptance into junior standing.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 337: Application of Nursing Fundamental Technologies. 1 credit.
Opportunity to practice health assessment and fundamental nursing technologies while using communication skills with culturally diverse and vulnerable populations in a variety of settings. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Junior standing.

Recommended Corequisite: NURS 312.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 343: Pharmacology. 3 credits.
Covers principles of pharmacokinetics, phamodynamics of selected drug classifications, and nursing responsibilities related to drug administration to individuals throughout life span. Offered by Nursing (p. 280). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 344: Intermediate Nursing Technologies. 1 credit.
Laboratory course to assist students in acquiring therapeutic nursing interventions. Technologies presented are asepsis and wound care, administration of medications including dosage calculations, and management of intravenous therapy. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 312, 330, 337, 347, 425.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 347: Adult Pathophysiology and Nursing Care. 2 credits.
Introduces changing health needs of culturally diverse and vulnerable populations. Focuses on nursing care; and pathophysiological, psychological, sociocultural, and risk reduction implications of frequently experienced health problems in the adult population. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Acceptance into junior standing.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 348: Maternal-Newborn Physiology, Pathophysiology, and Nursing Care. 2 credits.
Introduces normal and abnormal processes with maternal-infant clients including cultural diversity and vulnerable populations. Focuses on normal physiological, pathophysiological, psychological, sociocultural, risk reduction, and nursing care of these clients. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Acceptance into junior standing.

Registration Restrictions:
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture
NURS 349: Pediatric Pathophysiology and Nursing Care. 2 credits.
Focuses on changing health needs of culturally diverse and vulnerable populations. Includes nursing care, pathophysiological, psychological, sociocultural, and risk-reduction implications of frequently experienced health problems in pediatric population. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Acceptance into junior standing.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 350: Application of Nursing Care for Individuals and Small Groups. 4 credits.
Includes five weeks of clinical experience in each specialty area, with focus on obstetric and family nursing, pediatric, and psychiatric mental health nursing. Students may also follow selected clients in clinics or home situations. Clinical consists of two full days per week in acute-care agencies. Notes: Open to accelerated second degree students Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Corequisite: NURS 319, 353 and 419.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 351: Application of Intermediate Nursing Technologies. 1 credit.
Introduces intermediate nursing technologies and provides opportunities to apply these skills in simulated technology lab. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 305, 309, 310, 334, 419 and 425.

Recommended Corequisite: NURS 350.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 358: Health Promotion and Disease Prevention in Maternal/Infant Nursing. 2 credits.
Provides the student an opportunity to perform nursing care to the maternal/infant client, including those who are culturally diverse and vulnerable, and experiencing physiological, psychological, and social health problems in a variety of settings. Contact the department for meeting dates and times. Notes: Enrollment is controlled. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 348. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 359: Health Promotion and Disease Prevention in Pediatric Nursing. 2 credits.
Provides the student an opportunity to perform nursing care to the pediatric client, including those who are culturally diverse and vulnerable, and experiencing physiological, psychological, and social health problems in a variety of settings. Contact department for meeting dates/times. Notes: Enrollment is controlled. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 349. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 388: Problem-Based Clinical Inquiry. 3 credits.
Focuses on analyzing clinical problems and attempts to resolve issues using critical thinking. Students examine the data in the cases, draw inferences, make deductions, identify assumptions, generate interpretations, evaluate weakness and strengths of arguments, and document their findings. Offered by Nursing (p. 280). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

400 Level Courses

NURS 310: Nursing Care of Clients with Pathological Conditions. 3 credits.
Encompasses complex health problems of culturally diverse and vulnerable populations throughout the life span. Focuses on nursing care needs and pathophysiological, psychological, and sociocultural implications of complicated health problems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Completion of all junior year nursing courses.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 410: Nursing Care of Clients with Pathological Conditions II. 3 credits.
Enrollment restricted to second degree students only. Focuses on pathophysiological, psychological, sociocultural, and risk reduction factors related to nursing care of child-bearing women, infants, children, and adolescents experiencing acute health care problems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 305, 309, 310, 319, 334, 425. Note: Open only to Second Degree students.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 425: Comprehensive Health Assessment. 3 credits.
Open only to RNs and LPNs. Introduces systematic health assessment across the life span, and expands that knowledge base to include knowledge and skills necessary to perform comprehensive health assessments with culturally diverse and vulnerable populations. Offered by Nursing (p. 280). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 426: Advanced Clinical Preceptorship. 3 credits.
Opportunity to deliver collaborative nursing care to culturally diverse and vulnerable populations. Notes: Concentrated clinical experiences available in selected institutional settings. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 336, 434.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 427: Advanced Technologies for the Accelerated Pathway. 1 credit.
Advanced technology course developing knowledge base related to acquisition of advanced skills in nursing practice. Refinement of assessment skills associated with selected advanced technologies integrated into this laboratory course. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 434.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 428: Community Health Clinical for the Accelerated Pathway. 2 credits.
Clinical experience with a focus on collaborative nursing care with individuals, families, and large groups in the community. Emphasis on health promotion and disease prevention for well populations, and community-based care for individuals and families with acute and chronic illness. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 426, 440.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 429: Preceptorship for the Accelerated Pathway. 3 credits.
Opportunity to deliver collaborative nursing care to culturally diverse and vulnerable populations. Notes: Concentrated clinical experiences available in selected institutional settings. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 309, 310, 320, 343, 419, 436.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 430: Vulnerable Populations. 3 credits.
Focuses on the care of vulnerable and aging populations. Students will examine health disparities, health literacy, and multicultural issues that impact the delivery of health care. Students will analyze health care policies and health care delivery models that offer potential interventions for the identified needs of these populations. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: RN to BSN students.

Recommended Corequisite: NURS 336.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Internship

NURS 431: Public Health Preceptorship for Nurses. 3 credits.
Expands nursing students' understanding of population-focused health care. Emphasis will be on prevention principles in primary, secondary, and tertiary care of health problems. Students will be exposed to concepts of community, public health, and health policy affecting culturally diverse and vulnerable populations in a selection of community and public health settings. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Completion of all junior year nursing courses or admission to RN to BSN program.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 432: Community Health and Epidemiology. 3 credits.
Addresses population-focused health care. Emphasis is on primary, secondary, and tertiary prevention of health problems. Concepts of community, public health, and health policy affecting culturally diverse and vulnerable populations are examined. Offered by Nursing (p. 280). May be repeated within the degree for a maximum 6 credits. Equivalent to HAP 416.

Recommended Prerequisite: Admission to the Second degree or RN to BSN program.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 433: Vulnerability and Health in the Community. 3 credits.
Focuses on the care of vulnerable and aging populations. Students will examine health disparities, health literacy, and multicultural issues that impact the delivery of health care. Students will analyze health care policies and health care delivery models that offer potential interventions for the identified needs of these populations. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: RN to BSN students.

Recommended Corequisite: NURS 336.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 434: Advanced Clinical Preceptorship. 5 credits.
Opportunity to provide complex, collaborative nursing care to culturally diverse and vulnerable populations. Notes: Concentrated clinicals
available in selected institutional settings. See http:chhs.gmu.edu for information about specific clinical locations. Offered by Nursing (p. 280). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 453: Research in Nursing. 3 credits.
Introductory research course designed to present basic concepts and methods of research. The research process is examined as a foundation for scholarship. Emphasis on critique and use of current nursing and research in clinical practice. Offered by Nursing (p. 280). May be repeated within the degree for a maximum 6 credits. Equivalent to GCH 460.

Specialized Designation: Scholarly Inquiry

Recommended Prerequisite: STAT 250 or equivalent; acceptance into one of BSN nursing pathway.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 455: Advanced Technologies in Nursing. 1 credit.
Opportunity to acquire advanced skills in nursing practice. Refinement of assessment skills associated with selected advanced technologies integrated into this laboratory course. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Corequisite: NURS 451.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 457: Introduction to Nursing Informatics. 3 credits.
This introductory course focuses on the use of computer technology in nursing and healthcare. The student evaluates software applications and assesses the merit of health-related information on the Internet. Students will engage in projects aimed at solving patient care problems in a variety of technologically-enhanced health care settings. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to the RN to BSN program.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 465: Examination and Integration of Professional and Health Care Issues. 3 credits.
Provides students with opportunities to examine issues in health care through reflection on the natural and behavioral sciences, humanities and other prerequisite coursework. Selected topics are examined through reading, writing and discussion. Formal and informal writing on issues is expected. Students receive written self-evaluation as well as formal review by peers and faculty members involved in teaching the course. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to HAP 465.

Mason Core: Synthesis (p. 135)

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Required Mason Core courses (including ENGL 302/ENGH 302).

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 466: Community Health Nursing. 2 credits.
This course addresses population-focused health care. Concepts of public health, epidemiology, environmental health, extended roles in nursing and health policy affecting culturally diverse and vulnerable populations are examined. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Completion of all junior year nursing courses.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

NURS 467: Clinical in Community Health Nursing. 2 credits.
Clinical experience with a focus on collaborative nursing care with individuals, families, and large groups in the community. Emphasis is on health promotion and disease prevention for well populations and community-based care for individuals and families with acute chronic diseases. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Completion of all junior year nursing courses.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

NURS 468: Psychiatric and Mental Health Nursing. 2 credits.
Focuses on the nursing care, pathophysiological and psychological, social-cultural, and risk reduction implications of health problems in the area of mental health and psychiatric nursing. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Completion of all junior year nursing courses.

Registration Restrictions:
Enrollment is limited to students with a major in Nursing.
Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

**NURS 469:** Clinical in Psychiatric and Mental Health Nursing. 2 credits.
Clinical experience with a focus on collaborative nursing care with individuals, families, and large groups in the community. Emphasis is on health promotion and disease prevention for well populations and community-based care for individuals and families with acute chronic diseases. Notes: Open to traditional and LPN students only. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Laboratory

**NURS 488:** Inquiry-Based Clinical Seminar. 2 credits.
Students focus on a selected client they have provided care for during their NURS 451 clinical preceptorship. Students examine the data in the case, draw inferences, make deductions, identify assumptions, and generate interpretations regarding the client's problems. The class will participate as a group in the inquiry process to identify strengths and weaknesses of the arguments presented. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Completion of Junior Level Nursing Courses, NURS 410 and NURS 436.

**Registration Restrictions:**
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Seminar

**NURS 491:** Critical Thinking and Analysis of Test Taking Strategies. 3 credits.
Increases test-taking abilities and improves critical-thinking skills related to nursing situations. Also guides the student to analyze and organize content to assist in decision making about nursing interventions. With faculty supervision, students work independently based on their learning needs. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a major in Nursing.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Lecture

**NURS 499:** Independent Study in Nursing. 1-3 credits.
Provides individual study of a particular problem area in nursing research, theory development, or education under the direction of faculty. Clinical practice may be arranged. Offered by Nursing (p. 280). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Permission of instructor and Assistant Dean for the Undergraduate Program.

**Registration Restrictions:**
Enrollment limited to students with a major in Nursing.

Washington Consortium level students may not enroll.

Enrollment limited to students in a Bach of Science in Nursing degree.

Schedule Type: Independent Study

**500 Level Courses**

**NURS 513:** Advanced Pharmacology in Nursing. 3 credits.
Does not meet requirements for nurse practitioner majors, but may be taken as an elective. Provides knowledge of physiologic responses and pharmacokinetic principles of pharmacologic agents that will undergird the student's learning of advanced pharmacologic concepts. Topics include advanced pharmacokinetic principles, pharmacotherapeutics of single and multiple drug regimens, client education needs, special population needs, and legal requirements for prescriptive authority. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**NURS 514:** Advanced Health Assessment Methods. 1 credit.
Expands on undergraduate skills in systematic health assessment across the life span. Teaches application of advanced health assessment skills in specialty advanced nursing practice setting. Integration of skills and techniques in collecting health assessment data towards appropriate decision making, clinical assessments, and therapeutic interventions in select population emphasized. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate-level health assessment course for degree credit or approved CEU course.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

**NURS 550:** Pathophysiologic Bases for Major Health Deviations of Individuals. 3 credits.
Examines health deviations occurring in people in the United States that require long-term or terminal health care interventions. Deviations are presented within a developmental framework as they influence physiologic integrity at the cellular level. Focus is on man as a whole, open system. Complex health programs from the perspective of maintaining homeodynamics are examined. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 571:** HIV/AIDS: Concepts, Principles, and Interventions. 3 credits. Provides overview of all aspects of HIV disease to include retrospective and current concepts and analyses of the epidemic, global, and societal impact, and cutting-edge research. Examines development of therapeutic tools and skills to educate, reduce risks, control infection, and affect care and healing of client, family, and community; and issues of increasing dilemma for health care professionals. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to GCH 571.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**NURS 605:** Clinical Nurse Educator Academy. 3 credits. Integrates knowledge and skills from clinical practice with new knowledge and skills needed as a clinical nurse educator. Narratives are used to teach essential skills for clinical nurse educators, such as assessment of learning needs, writing of objectives, teaching strategies, clinical simulation, and performance evaluation. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 613:** Advanced Health Assessment. 2 credits. The course expands on undergraduate skills in systematic health assessment across the life span. The student will learn advanced health assessment skills in specialty advanced nursing practice. Integration of skills and techniques in collecting health assessment data towards appropriate decision-making, clinical assessments and therapeutic interventions in select populations is emphasized in this lab and didactic course. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate level Health Assessment course for degree credit

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**NURS 618:** Pathophysiology: Health and Illness. 3 credits. Focuses on the biological and pathophysiological foundations of health problems. Biological changes in selected health problems and health risks, will be used as a framework for critically appraising assessment data and to advance nursing strategies. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 623:** Clinical Concepts in Community-Oriented Primary Care. 3 credits. Theoretical and clinical application of community-oriented primary care concepts with focus on health promotion and disease prevention. Examines scope of practice of advanced practice nurse practitioner. Students work with interdisciplinary groups to improve health indicators for populations. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 665.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 632:** Pathogenesis of Mental Disorders. 3 credits. Explores biological correlates of mental illness, including neuronal function, structure and connectivity, and peripheral alterations in biological functioning that contribute to mental disorders across the lifespan. Reviews genetic heritability and specific theories of etiology and diagnostic classifications. Develops interview and differential diagnostic skills. Notes: Required course in Psychiatric Mental Health Nurse Practitioner (PMHNP) or Clinical Nurse Specialist (PMHCNS) concentrations. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Doctor of Nursing Practice program or with permission of instructor.

**Registration Restrictions:** Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
NURS 633: Individual Psychotherapy. 3 credits.
Explores major approaches to individual psychotherapy such as psychodynamic, humanistic, interpersonal, behavioral, cognitive, dialectical behavioral, brief, crisis, and multicultural therapies as they relate to advanced nursing practice in mental health. Applications of individual psychoterptherapies across the lifespan and among diverse populations are critically examined. Notes: Required course in Psychiatric Mental Health Nurse Practitioner (PMHNP) or Clinical Nurse Specialist (PMHCNS) concentrations. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Doctor of Nursing Practice Program or with permission of instructor; NURS 632.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

NURS 634: Group, Family and Couple Psychotherapy. 1 credit.
Explore the major psychotherapeutic approaches for groups, families, and couples. Emphasis is placed on the application of theories and models of group, family, and couple psychotherapy across the lifespan and among diverse populations. Notes: Required course in Psychiatric Mental Health Nurse Practitioner (PMHNP) or Clinical Nurse Specialist (PMHCNS) concentrations. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Doctor of Nursing Practice Program or with permission of instructor; NURS 632.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

NURS 648: Aging and Health. 3 credits.
Provides an overview of normal aging and explores factors that affect health and well being in older adults; demonstrates strategies for maintaining health and managing chronic illness in older adults; examines common misconceptions about aging and healthcare issues; and explores the process of normal aging and the presentation of common health conditions in older adults. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to HHS 648.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

NURS 665: Theoretical and Ethical Foundations Related to Nursing. 3 credits.
Selected nursing and related discipline theories which impact nursing practice are analyzed and evaluated with special attention given to ethical aspects of practice and ethical decision-making frameworks. Moral dilemmas in the health care profession, with emphasis on patients’ rights, professionals’ obligations to other professionals, issues of social
justice in health care, and methods of moral deliberation are examined. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 680:** *Theoretical Foundations Related to Nursing.* 2 credits.
Examination and evaluation of assumptions, concepts, and propositions inherent in selected nursing and related discipline theories. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 685:** *Advanced Nursing Research Methods.* 3 credits.
Examines principles and methods of research in problem identification, theoretical framework, design, data collection, and analysis. Students develop a nursing research proposal. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the graduate nursing program and a graduate level bivariate statistics course and NURS 680.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 686:** *Projects in Nursing Research.* 2 credits.
Applies knowledge gained in NURS 790 to implement research proposal designed in NURS 790. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 685.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 688:** *Organization of Nursing and Health Care Delivery Systems.* 3 credits.
Provides foundational overview of U.S. nursing and health care delivery systems. Surveys key concepts, frameworks, processes, and structures related to health care delivery organizations. Notes: Lecture, discussion. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 690:** *Independent Study in Nursing.* 1-3 credits.
Studies in-depth a selected area of nursing theory, research, or practice under direction of faculty. Offered by Nursing (p. 280). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Admission to the Graduate Nursing Program and permission of Associate Dean for Academic Programs.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**700 Level Courses**

**NURS 704:** *Nursing Administrative Leadership Academy.* 3 credits.
Uses a leadership competency framework to integrate knowledge, skills, values, and best practices of innovative nursing leadership. Lectures, interactive collaborative discussion, written projects, and leadership self-assessment identify and teach the proficiencies specific to the administrative executive role. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 713:** *Decision Making and Pharmacologic Management in Practice.* 3 credits.
Analyzes clinical cases using student participation in decision-making formulation. Correlates pathophysiology with symptom manifestations across the lifespan, from prenatal to old age, including death. Evaluates family, medical and social history, physical findings, laboratory data and radiographic studies as they contribute to the decision making process. Examine the theoretical basis for selecting pharmacological and non-pharmacological therapies is explored. Offered by Nursing (p. 280). May not be repeated for credit.
Recommended Prerequisite: Admission to MSN or DNP Program Nurse Practitioner Concentration

Recommended Corequisite: NURS 769; NURS 761.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 714: Health Assessment in Clinical Practice. 2 credits.  
Application of advanced health assessment skills for all body systems and clinical decision making with clients across the lifespan. Students will formulate differential diagnoses and use advanced communication techniques to motivate and change health behaviors. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to MSN or DNP Program or permission of instructor.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 715: Nursing Informatics Inquiry. 3 credits.  
This course introduces theoretical and practice components of nursing and healthcare informatics for the graduate level nurse. Computer systems will be analyzed. The systems life cycle will be explored. Health care standards, classification schemes, and the electronic health record (EHR) will be introduced. Students will evaluate informatics as it applies to patient safety, outcomes measurement, complex decision-making, consumer use, and legal and ethical issues. Offered by Nursing (p. 280). May not be repeated for credit.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

NURS 716: Principles of Assessment and Evaluation in Nursing Education. 3 credits.  
Provides opportunities for the informal assessment of learning; formal construction, analysis, and evaluation of tests; and the evaluation of standardized tests. Examines the current research and the legal and ethical principles related to assessment and evaluation in nursing education. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to NURS 556.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 720: Practicum in Family Primary Care Nursing I. 4 credits.  
Performance of beginning-level nurse practitioner clinical decision-making skills in assessment and management of families and individuals across the life span, with emphasis on health maintenance and health promotion. Seminar, lab, and clinical practicum. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 719, 723, 745, 747, and 756.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

NURS 721: Practicum in Assessment and Management of the Developing Family. 8 credits.  
Theoretical and clinical application of health assessment, health maintenance and promotion, anticipatory guidance, diagnosis, and management of common primary health care concerns through clinical decision-making skills focused on childrearing and childbearing families. Seminar, lab, and clinical practicum. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 720.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 722: Practicum in Family Primary Care Nursing II. 8 credits.  
Students perform advanced clinical decision making in the role of family nurse practitioner. Family primary care problems throughout the life span are assessed and managed, particularly families with elderly and medically underserved members. Seminar, lab, and clinical practicum. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 720 and 721.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 724: Health Assessment Practicum. 1 credit.  
Acquisition of advanced health assessment skills for all systems across the lifespan. The student will perform advanced techniques and clinical decision making that is necessary for a comprehensive health assessment in a structured practicum environment. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to MSN or DNP Program or permission of instructor.

Recommended Corequisite: NURS 714.

Registration Restrictions:  
Enrollment is limited to Graduate or Non-Degree level students.  
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship
NURS 725: Hermeneutic Research Methodologies in Health Care. 3 credits. Uses seminar/discussion for in-depth exploration of interpretive phenomenology, philosophical background for hermeneutics, and hermeneutics as method in context of conducting research in health care. Uses readings from philosophers such as Heidegger, Merleau-Ponty, and Gadamer to situate hermeneutical methodologies in philosophy of science. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Graduate level qualitative research course. Concurrent enrollment is also permitted.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Seminar

NURS 726: Perspectives in Nursing Education. 3 credits. Uses seminar approach to provide an overview of nursing education. Provides the foundation for teaching and learning in nursing with emphasis on relevant research. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

NURS 727: Application of Nursing Education Principles to Curriculum and Program Development. 3 credits. Uses seminar and discussion forums to analyze and apply theoretical principles and teaching and learning strategies in planning, developing, and evaluating nursing programs. Examines the overall creative, planned, and collaborative process of program development and evaluation. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

NURS 728: Practicum and Seminar in Nursing Education I. 3 credits. Uses seminar/discussion approach and practicum experience to analyze the role and functions of the nurse educator in the academic classroom. Emphasis is on the application of teaching/learning strategies, legal and ethical issues in nursing education, and role development as a nurse educator. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 714, NURS 761, NURS 769.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Seminar

NURS 729: Practicum and Seminar in Nursing Education II. 3 credits. Uses seminar/discussion approach and practicum experience to analyze the role and functions of the nurse educator in the clinical setting. Application of research-based teaching and evaluation strategies in the clinical setting are emphasized. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 714, NURS 761, NURS 769.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Seminar

NURS 730: Leadership Strategies for the Clinical Nurse Leader. 2 credits. Explores aspects of horizontal and vertical leadership central to clinical nurse leader (CNL) role. Emphasizes quality management and improvement, communication processes, evidenced-based practice initiatives in microsystem, and strategies for efficient use of resources while maintaining safe and effective patient care. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 597 and 685. Concurrent enrollment is also permitted.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

NURS 733: Introduction to Forensic Science. 3 credits. Examines the introductory concepts of forensic science including the various professional roles of forensic scientists and practitioners. This course provides a broad overview of the forensic science profession. Different types of violence, as well as prevention and reduction strategies, are discussed. The forensic professional’s role in policy and legal processes are explored. Forensic research is introduced. Professional certification options are explored. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

NURS 734: Role of the Sexual Assault Nurse Examiner and Interpersonal Violence. 3 credits. Focuses on the incidence and consequences of interpersonal violence across the lifespan. Identifies the role of sexual assault nurse examiner (SANE) as a member of the Sexual Assault Response Team (SART). Examines forensic techniques used to collect evidence. The role of the SANE in the judicial process is explored. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:** Enrollment is limited to Graduate or Non-Degree level students.

**Schedule Type:** Lecture

NURS 735: Crime Lab and Crime Scene Investigation. 3 credits. Examines the components of the crime lab and the crime scene analysis process. Explores the role of the forensic scientist in crime scene investigation. This course covers the initial crime scene response and
initial assessment measures needed to properly collect and handle evidence. Documentation and preservation efforts are reviewed for various types of evidence collected. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NURS 736: Psychological and Legal Aspects of Forensic Science.** 3 credits. Evaluates the psychological and legal aspects of forensic science. Reviews victimology and the role of the forensic professional when dealing with victimized individuals. This course reviews various types of violence and identifies the assessment criteria needed to pursue prosecution. Examines the legal process and the role of the forensic professional in providing testimony in a court of law. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NURS 737: Investigation of Injury and Death.** 3 credits. Explores the role of the forensic scientist in death investigation. Examines death, manners of death, and causes of death, along with the death certification process. The role of the medical office professional and autopsy procedures will be reviewed. DNA evidence and the CODIS system will be analyzed. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NURS 738: Family Primary Care I.** 2 credits. Theoretical application of health assessment, health management/promotion, anticipatory guidance, diagnosis and management of common primary care health concerns through clinical decision making skills focused on childbearing and childbearing families. Seminar, student presentations and lectures. Notes: Required course in Family Nurse Practitioner concentration. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 738, NURS 742.

**Recommended Corequisite:** NURS 744

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NURS 740: Clinical Nurse Specialist Internship.** 3 credits. A continuation of clinical application of theory from NURS 775 to a selected clinical specialty with attention to the health illness continuum of individuals, families, and community. Offered by Nursing (p. 280). May be repeated within the term for a maximum 6 credits.

**Recommended Corequisite:** Contact the department for meeting dates and times.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Internship

**NURS 741: Family Primary Care III.** 3 credits. Theoretical application of assessment, diagnosis and management of primary health care problems which will enable the nurse practitioner student to assume increased responsibility in the delivery of primary care to families and individuals across the life span. Special emphasis is given to the primary care needs of families with elderly and medically underserved members. Seminar, student presentations and lectures. Notes: Required course in Family Nurse Practitioner concentration. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 739, NURS 744.

**Recommended Corequisite:** NURS 749.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NURS 742: Family Primary Care Practicum I.** 2 credits. Demonstrates the ability to function at a beginning level in the role of the nurse practitioner. Performance of advanced skills in assessment and the development of plans for health maintenance and promotion for families with a focus on the adult. Clinical practicum, lab and seminar. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 713, NURS 724, NURS 714, NURS 643.

**Recommended Corequisite:** NURS 738.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**NURS 743: Clinical Psychopharmacology.** 3 credits.
Introduction to psychotropic medications, including neurochemical basis, mode of action and clinical application. Discuss principles of pharmacological medication selection and use based on clinical indicators. Notes: Required course in Psychiatric Mental Health Nurse Practitioner (PMHNP) or Clinical Nurse Specialist (PMHCNS) concentrations. Admission to the Doctor of Nursing Practice program or with permission of instructor. Offered by Nursing (p. 280). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 744: Family Primary Care Practicum II.** 4 credits.
Clinical application of health assessment, health maintenance/promotion, anticipatory guidance, diagnosis and management of common primary health care concerns through clinical decision making skills focused on childrearing and childbearing families. Clinical practicum, seminar, lab. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 738, NURS 742.

**Recommended Corequisite:** NURS 739.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**NURS 746:** Practicum in Adult Primary Care Nursing I. 6 credits.
Demonstration of the ability to function at a beginning level in the role of the nurse practitioner. Performance of advanced skills in assessment and the development of plans for health maintenance and promotion for adults. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 719, 723, 745, 747, and 756.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**NURS 748:** Practicum in Adult Primary Care Nursing II. 8 credits.
Enables nurse practitioner student to assume increased responsibility in the delivery of primary care to adults. Special emphasis on primary care needs of elderly and medically underserved groups. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 746.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**NURS 749: Family Primary Care Practicum III.** 4 credits.
This practicum enables the nurse practitioner student to assume increased responsibility in the delivery of primary care to families. Family primary care problems across the life span are assessed and managed, particularly families with elderly and medically underserved members. Practicum, clinical lab and seminar. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 739, NURS 744.

**Recommended Corequisite:** NURS 741.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**NURS 757:** Nursing Research and Biostatistics I. 3 credits.
Provides a broad framework for understanding and applying commonly used research designs and data analysis techniques in nursing and health care research. Exposed to an overview of qualitative and quantitative research methods integrated with appropriate data analyses techniques. Univariate and bivariate statistical techniques will be used to address research questions or hypothesize as appropriate. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the graduate nursing program, and an undergraduate statistics course.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 758:** Nursing Research and Biostatistics II. 3 credits.
Empirically address practice related problems using complex bivariate and multivariate statistical analysis. Using an established data set as a basis for simulation of the research process, student will identify clinical problems in research traditions to provide evidence for nursing practice. Emphasis is on evaluating the quality of research for its strength as evidence for nursing practice. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 757.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 761:** Pharmacotherapeutics. 3 credits.
Describes the pharmacologic principles and pharmacodynamic actions for all broad categories of agents. Distinguishes between the major drug classes by the pharmacologic properties of drugs on the cellular, organ and whole organism level. Study of indications and contraindications of appropriate therapeutic entities for health deviations based on a
thorough knowledge of drugs and their fate in the human body. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MSN or DNP Program or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 763:** Administrative Theory in Nursing. 3 credits.
Uses administrative theory and management principles and processes as related to roles and functions of the nurse in management in health-related agencies. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Graduate Nursing Program or master’s degree. NURS 680 and Management/Organizational Theory (concurrent enrollment is also permitted).

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 765:** Practicum in Nursing Administration I. 3 credits.
Applies administrative theory and management principles and processes in a selected health-related agency. Roles and functions of the nurse in management are explored. Notes: Lab arranged. One hour of seminar and eight hours of practicum weekly. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Graduate Nursing Program, NURS 680. NURS 763 (concurrent enrollment is also permitted).

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**NURS 766:** Administrative Strategies in Nursing. 3 credits.
Explores roles and functions of the nurse in management as the nurse manager develops patterns of nursing care, articulating nursing education, and nursing service. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 763 and 765.

**Recommended Corequisite:** NURS 768.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 768:** Practicum in Nursing Administration II. 3 credits.
Implements and integrates roles and functions of the nurse in management. Emphasizes using appropriate management principles and processes in a selected health-related agency. Notes: Lab arranged. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 763, NURS 765, NURS 766 (concurrent enrollment also permitted for 766).

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory

**NURS 769:** Physiology and Pathophysiology in Advanced Practice. 3 credits.
Analyzes health deviations in the physiologic and pathophysiologic aspects of systems functioning across the life span. Students assimilate the process of systematic assessment and management of health deviations foundational for making clinical decisions. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MSN or DNP or permission of instructor.

**Recommended Corequisite:** NURS 713.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 770:** Adult Primary Care I. 3 credits.
Theoretical application of health assessment, health management/promotion, anticipatory guidance, diagnosis and management of common primary care health care concerns through clinical decision making skills focusing on adults. Lecture, student presentations and seminar. Notes: Required course in Adult Nurse Practitioner concentration. Students must be admitted to the Adult Nurse Practitioner Program. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MSN or DNP or permission of instructor.

**Recommended Corequisite:** NURS 713.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NURS 771:** Adult Primary Care II. 4 credits.
Theoretical application of assessment, diagnosis and management of primary health care problems which will enable the nurse practitioner student to assume increased responsibility in the delivery of primary care to adults. Special emphasis is given to the primary care needs of elderly and medically underserved groups. Lectures, student presentations and seminars. Notes: Students must be admitted to the Adult Nurse Practitioner Program. Required course in Adult Nurse Practitioner concentration. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Adult Primary Care I.

**Recommended Corequisite:** Adult Primary Care Practicum II.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 772: Adult Primary Care Practicum I. 3 credits.
Demonstrates ability to function at a beginning level in the role of the nurse practitioner. Performance of advanced skills in assessment and development of plans for health promotion and prevention for adults. Clinical practicum, lab and seminar. Notes: Five clinical hours are required per week for each credit. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Students must be accepted to the Adult Nurse Practitioner program.

Recommended Corequisite: NURS 770.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

NURS 773: Clinical Applications of Theory in Advanced Clinical Nursing. 3 credits.
Foundational theory relevant to the emerging roles in advanced clinical nursing, focusing on therapeutic nursing interventions in a variety of clinical specialties, with attention to health illness continuum of individuals, families, and communities. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to Graduate Nursing Program. NURS 550, 680 (Concurrent enrollment is also permitted for either course).

Registration Restrictions:
Enrollment is limited to Graduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 774: Adult Primary Care Practicum II. 4 credits.
Enables the nurse practitioner student to assume increased responsibility in the delivery of primary care to adults. Special emphasis is given to the primary care needs of elderly and medically underserved groups. Practicum, clinical lab and seminar. Notes: Five clinical hours are required per week for each credit. Required course in Adult Nurse Practitioner concentration. Students must be admitted to the Adult Nurse Practitioner Program. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 770.

Recommended Corequisite: NURS 771.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

NURS 775: Advanced Specialty Practice I. 3 credits.
Focuses on clinical application of theory from NURS 773 to a selected clinical specialty with attention to the health illness continuum of individuals, families, and communities. Notes: One hour of seminar and eight hours of practicum. Lab meets every other week. Offered by Nursing (p. 280). May be repeated within the term for a maximum 17 credits.

Recommended Prerequisite: NURS 665.

Recommended Corequisite: NURS 768.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

NURS 776: Development of Advanced Practice Nursing Role. 3 credits.
Expansion of selected content included in NURS 773 for the delivery of advanced nursing care in a variety of settings. Emphasizes development and evaluation of the advanced practice nursing role in complex health care systems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 773.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 777: Practicum in Gerontological Nursing I. 3 credits.
Demonstrates the ability to function at a beginning level in the role of the gerontological nurse practitioner. Performance of advanced skill in geriatric assessment with a special emphasis on the delivery of health promotion and disease prevention services (practicum of at least 100 clinical hours and case analysis conferences). Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 719, 723, 745, 747, and 756.

Recommended Corequisite: NURS 773. Electronic strategies will be used and course will meet every other week.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

NURS 778: Practicum in Gerontological Nursing II. 3 credits.
Demonstrates the ability to function at an advanced level in the role of the gerontological nurse practitioner in varied settings, including primary care, long-term care, and sub-acute care (practicum of at least
100 clinical hours and case analysis conferences). Offered by Nursing (p. 280). May be repeated within the degree for a maximum of 6 credits.

**Recommended Prerequisite:** NURS 773 and 775.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**NURS 782:** Psychiatric Nurse Practitioner Practicum I. 4 credits.
Develops clinical competence in comprehensive assessment, diagnosis, and management of mental health problems and psychiatric and co-morbid medical disorders, referring when appropriate. Demonstrates effective clinical interviewing skills. Applies principles of pharmacology including complementary and alternative therapies. Develops culturally sensitive plans for health maintenance, promotion and treatment. Evaluates outcomes of treatment. Manages psychiatric emergencies. Advocates for patients and families. Notes: Five clinical hours per week are required for each credit. Required course in the Family Psychiatric Mental Health Nurse Practitioner (FPMHNP) concentration. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Doctor of Nursing Practice program or Psychiatric Mental Health Nurse Practitioner Certificate.
NURS 632, NURS 633, NURS 634 and NURS 743.

**Recommended Corequisite:** NURS 783.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Internship

**NURS 783:** Psychiatric Nurse Practitioner Seminar I. 2 credits.
Analyzes the professional role of family psychiatric mental health nurse practitioners. Students share assessment, diagnostic, intervention, evaluation, teaching-coaching, cultural competence, and therapeutic relationship development techniques through case studies from their practica. Management of client cases are evaluated and discussed. Students analyze the impact of advocacy actions, including duty to report, on the therapeutic relationship. Notes: Required course in the Family Psychiatric Mental Health Nurse Practitioner (FPMHNP) concentration. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Doctor of Nursing Practice program or Psychiatric Mental Health Nurse Practitioner Certificate.
NURS 632, NURS 633, NURS 634 and NURS 743.

**Recommended Corequisite:** NURS 782.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**NURS 784:** Psychiatric Nurse Practitioner Practicum II. 5 credits.
Builds on Family Psychiatric Nurse Practitioner Practicum I, improving diagnostic and clinical reasoning ability and competence in assessment, diagnosis, and management of psychiatric disorders. Enables the student to assume increased responsibility in the delivery of comprehensive mental health care. Participates in professional and community organizations to promote the health of patients while enhancing the role of practitioner. Notes: Five clinical hours per week are required for each credit. Required course in Family Psychiatric Mental Health Nurse Practitioner (FPMHNP) concentration. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the Doctor of Nursing Practice program or Psychiatric Mental Health Nurse Practitioner Certificate.
NURS 782.

**Recommended Corequisite:** NURS 785.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Internship

**NURS 785:** Psychiatric Nurse Practitioner Seminar II. 2 credits.
Discusses role transition and development of advanced practice psychiatric mental health nurses. Regulatory and economic policies affecting advanced psychiatric mental health nursing practice in the evolving health care system are discussed. Students demonstrate competence in comprehensive management of acute and chronic psychiatric disorders through case presentations from their practica.
Performs a comprehensive assessment of the mental health needs of a community. Notes: Required course in the Family Psychiatric Mental Health Nurse Practitioner (FPMHNP) concentration. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Doctor of Nursing Practice program or Psychiatric Mental Health Nurse Practitioner Certificate.
NURS 783.

**Recommended Corequisite:** NURS 784.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**NURS 786:** Adult Gerontology Primary Care Practicum I. 2 credits.
Application of health assessment, health maintenance/promotion, anticipatory guidance, genetics/genomics, diagnosis and management of common primary health care concerns, including women’s health issues. Focus is on care of adolescents and adults across the life. Clinical Practicum, lab and seminar. Offered by Nursing (p. 280). May not be repeated for credit.

**Recommended Prerequisite:** NURS 713, NURS 714, NURS 724, NURS 643.

**Recommended Corequisite:** NURS 787.

**Registration Restrictions:**
Enrollment is limited to students with a concentration in Adult Ger. Nurse Pract. PC.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Schedule Type: Internship

NURS 787: Adult Gerontology Primary Care I. 2 credits. 
Theoretical application of health assessment, health maintenance/promotion, anticipatory guidance, diagnosis and management of common primary health care concerns, including women’s health, through clinical decision making skills in adolescents, adults and older adults. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 713, NURS 724, NURS 714, NURS 643.
Recommended Corequisite: NURS 786.

Registration Restrictions:
Enrollment is limited to students with a concentration in Adult Ger. Nurse Pract. PC.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NURS 788: Adult Gerontology Primary Care Practicum II. 4 credits. 
Demonstration of the ability to function at a beginning level in the role of the nurse practitioner. Performance of advanced skills in assessment and the development of plans for health maintenance and promotion for adolescents, adults and older adults. Clinical practicum, lab and seminar. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 786, NURS 787.
Recommended Corequisite: NURS 789.

Registration Restrictions:
Enrollment is limited to students with a concentration in Adult Ger. Nurse Pract. PC.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

NURS 789: Adult Gerontology Primary Care II. 3 credits. 
This course consists of the application of health assessment, health management/promotion, genetics and genomics, anticipatory guidance, diagnosis and management of common primary care health care concerns of the adolescent, adult and older adult through clinical decision making skills. Lecture, student presentations and seminar. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 786, NURS 787.
Recommended Corequisite: NURS 788.

Schedule Type: Lecture

NURS 790: Adult Gerontology Primary Care Practicum III. 4 credits. 
This practicum enables the nurse practitioner student to assume increased responsibility in the delivery of primary care to adults of all ages, adolescents through older adults. Special emphasis is given to the primary care needs of elderly and medically underserved groups. Practicum, clinical lab and seminar. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 788, NURS 789.
Recommended Corequisite: NURS 791.

Registration Restrictions:
Enrollment is limited to students with a concentration in Adult Ger. Nurse Pract. PC.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

NURS 791: Adult Gerontology Primary Care III. 4 credits. 
Theoretical application of assessment, diagnosis and management of primary health care problems which will enable the adult gerontology nurse practitioner student to assume increased responsibility in the delivery of primary care. Focus will be on the primary care needs of older adult and medically underserved. Lectures, student presentations and seminars. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 788, NURS 789.
Recommended Corequisite: NURS 790.

Registration Restrictions:
Enrollment is limited to students with a concentration in Adult Ger. Nurse Pract. PC.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

800 Level Courses

NURS 804: Advanced Quantitative Data Analysis for Healthcare Research I. 3 credits. 
Covers principles and methods of statistical data analysis and inference. Emphasizes the use and application of various data analysis techniques and their assumptions. Examines factorial ANOVA, factorial ANCOVA, repeated measures ANOVA, ANOVA and ANCOVA via regression approaches, and linear and logistic regression analysis. Students apply statistical techniques in analyzing health-related data sets. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to GCH 804.

Recommended Prerequisite: A graduate-level statistics course (by instructor approval).

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

NURS 805: Advanced Quantitative Data Analysis for Healthcare Research II. 3 credits. 
Builds upon principles and methods of statistical analysis and inference. Emphasizes the use and application of various data analysis techniques and their assumptions. Examines multivariate analysis of variance (MANOVA), multivariate analysis of covariance (MANCOVA), multiple regression, and logistic regression, and factor analysis. Students apply statistical techniques in analyzing health-related data sets. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to GCH 805.
NURS 804: Advanced Multivariate Statistics and Data Analysis for Health Care Research. 3 credits.
Examines canonical correlation, discriminant analysis, factor analysis, and causal analysis (path models and structural equation modeling). Students analyze and interpret data using these statistical techniques. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to GCH 806.

Recommended Prerequisite: GCH/NURS 804 or an equivalent statistics course (by instructor approval).

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

NURS 806: Advanced Multivariate Statistics and Data Analysis for Health Care Research. 3 credits.
Recommended Prerequisite: GCH/NURS 804 or an equivalent multivariate statistics course.

Schedule Type: Lecture

NURS 808: Translating Nursing and Health Care Research into Evidence-Based Policy. 3 credits.
This course prepares students to assess the policy dimensions of nursing issues in clinical practice, education, and research environments and translate nursing research into policy. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 920, NURS 930.

Schedule Type: Lecture

NURS 810: Evaluation Research in Nursing Education. 3 credits.
Uses seminar/discussion to analyze and apply theoretical models for implementing evaluation research in nursing education. Examines quantitative approaches for evaluating process and outcomes of domestic or international nursing education programs, including role of accreditation guidelines. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: GCH/NURS 804 or an equivalent statistics course (by instructor approval).

Schedule Type: Lecture

NURS 811: Nurse as Educator and Scholar. 2 credits.
Uses seminar/discussion to explore role of nurse educator in meeting research and scholarship expectations of college, university, or service setting. Addresses approaches to scholarship in relation to types of evidence appropriate for various scholarly expectations in academic setting. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 920, NURS 930.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

NURS 814: Theory and Design in Health Science. 3 credits.
Analyzes and applies selected concepts related to nursing and system leaders and managers as well as factors influencing the performance of health systems and organizations. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to NURS 955.

Recommended Prerequisite: Master's degree in nursing, social work, or health-related discipline.

Schedule Type: Seminar

NURS 820: Human Genetics Concepts for Health Care. 4 credits.
The study of human genetics, principles of heredity, and disease risks. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 805 or permission of instructor.

Schedule Type: Lecture

NURS 830: Clinical Research Methodology. 3 credits.
Examines the theoretical basis of scholarship and practice in leadership and management of health systems and nursing organizations. Includes discovery of concepts and forces influencing the organization and performance of health care systems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD or DNP program.

Schedule Type: Seminar

NURS 830: Clinical Research Methodology I. 3 credits.
Examines the theoretical basis of scholarship and practice in leadership and management of health systems and nursing organizations. Includes discovery of concepts and forces influencing the organization and performance of health care systems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD or DNP program.

Schedule Type: Lecture

NURS 830: Clinical Research Methodology II. 3 credits.
Examines the theoretical basis of scholarship and practice in leadership and management of health systems and nursing organizations. Includes discovery of concepts and forces influencing the organization and performance of health care systems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD or DNP program.

Schedule Type: Seminar

NURS 860: Measurement Theories in Healthcare Research. 3 credits.
Synthesizes measurement theories and principles as a foundation for the development and evaluation of instruments for use in healthcare research. The course includes review of statistical techniques required for understanding measurement theory, reliability, validity, responsiveness, item analysis, and item construction. Students design, construct, administer, analyze, and evaluate an original instrument and evaluate an existing instrument in healthcare research. Offered by Nursing (p. 280). May not be repeated for credit. Equivalent to NURS 807.

Recommended Prerequisite: NURS 805 or permission of instructor.

Schedule Type: Lecture

NURS 870: Human Genetics Concepts for Health Care. 4 credits.
The study of human genetics, principles of heredity, and disease risks. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 805 or permission of instructor.

Schedule Type: Lecture

NURS 870: Clinical Research Methodology I. 3 credits.
Examines the theoretical basis of scholarship and practice in leadership and management of health systems and nursing organizations. Includes discovery of concepts and forces influencing the organization and performance of health care systems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD or DNP program.

Schedule Type: Seminar

NURS 870: Clinical Research Methodology II. 3 credits.
Examines the theoretical basis of scholarship and practice in leadership and management of health systems and nursing organizations. Includes discovery of concepts and forces influencing the organization and performance of health care systems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to the PhD or DNP program.

Schedule Type: Seminar

NURS 871: Nursing and Health Care Administration II. 2 credits.
Refers to the policies, procedures, and management of health care systems. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 870.

Registration Restrictions:
NURS 874: Internship in Health Care Administration/Policy/Education. 4 credits.
Internship experience of at least 126 hours with leader in field of nursing, health care administration, policy, or education. Participatory activities require integration and application of principles, frameworks, and science related to executive preceptor role. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Completion of all coursework, except NURS 998.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Internship

NURS 883: Evidence-Based Practice in Nursing and Healthcare. 4 credits.
Building on knowledge of research methodologies and personal expertise, student will identify practice and system problems, analyze the variations of processes and outcomes, evaluate research studies and systematic reviews, and develop a proposal to address issues related to the design of new model of care, translation of evidence into practice, or evaluation of current programs in the context of evidence-based practice. Emphasis is placed on the development of strategies to ensure quality improvement. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 757 and NURS 758.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

900 Level Courses

NURS 920: Qualitative Research in Nursing and Health Care. 3 credits.
Provides the philosophical assumptions underlying qualitative research in nursing and health care. Students will examine the principles of study design, data collection, data analysis, and interpretation associated with phenomenology, grounded theory, and ethnography. Description and mixed-methods designs will be introduced. Qualitative research will be analyzed within the scholarship of discovery, integration, and application. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 804.

Registration Restrictions:
Enrollment limited to students in a Doctor of Philosophy degree.

Schedule Type: Lecture

NURS 921: Clinical Practicum I. 1-10 credits.
Students, in consultation with their academic advisor, complete supervised practicum hours to meet both the post-baccalaureate and post-masters DNP practicum requirement. A practicum course that prepares students to perform clinical decision making in their role as advance practice nurses in individualized specialty areas. They will work with advanced practice nurse preceptors to develop clinical expertise, and to develop an understanding of leadership roles in the clinical setting that can enhance the system of health care delivery. One credit hour of seminar with the remaining hours in clinical practice. Offered by Nursing (p. 280). May be repeated within the degree for a maximum 20 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Internship

NURS 922: Clinical Practicum II. 1-10 credits.
Students, in consultation with their academic advisor, complete supervised practicum hours to meet both the post-baccalaureate and post-masters DNP practicum requirement. A practicum course that continues to prepare students to practice in an expanded, advanced clinical practice role. Students will learn to become change agents in the clinical setting with a focus on health care delivery systems. The student will apply advanced health assessment skills and clinical decision making in an area of specialty practice, correlating pathophysiology with symptom manifestations. One credit hour of seminar with the remaining hours in clinical practice. Offered by Nursing (p. 280). May be repeated within the degree for a maximum 20 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Internship

NURS 930: Quantitative Methods in Nursing and Health Care. 3 credits.
Guides the student in applying principles in the design of an innovative quantitative research study to address a significant problem in nursing and/or health care. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: NURS 805.

Registration Restrictions:
Enrollment limited to students in a Doctor of Philosophy degree.

Schedule Type: Lecture

NURS 940: Independent Study for the Doctoral Student. 1-6 credits.
Studies in depth a selected area of nursing theory, research, or practice under direction of faculty. Offered by Nursing (p. 280). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral nursing program.

Individualized section form required.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

NURS 950: Special Topics in Nursing. 3 credits.
Presents selected topics analyzing specialized areas in nursing. Content varies. Lecture, seminar, laboratory, workshop. Offered by Nursing (p. 280). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

NURS 980: Practice Inquiry I. 4 credits.
Synthesize the literature related to the problem. Analyze the environmental factors impacting the problem. Identify the standard of care related to the clinical problem. Assess the quality of evidence that
supports the standard of care. Develop a proposal that will impact the delivery of care in the identified area of practice inquiry. Develop the appropriate outcome measures to address the specific practice inquiry area. Offered by Nursing (p. 280). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** Completion of DNP core courses.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**NURS 981:** Practice Inquiry II. 4 credits.
Implement the proposal developed in Practice Inquiry I. Maintain an ongoing process analysis of the project. Collect data. Analyze the findings from the practice inquiry. Disseminate the findings from the practice inquiry in a scholarly manner. Offered by Nursing (p. 280). May be repeated within the degree for a maximum 8 credits.

**Recommended Prerequisite:** NURS 980.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**NURS 998:** Doctoral Dissertation Proposal. 1-9 credits.
A seminar for doctoral students to accompany the development of a doctoral dissertation proposal. Development of the research problem with analysis and critique of methodology discussed. Notes: Students must enroll in the course for 3-credits the first time they take the course. Offered by Nursing (p. 280). May be repeated within the degree.

**Recommended Prerequisite:** Completion of all other coursework except NURS 999 and completion of doctoral comprehensive examination.

**Registration Restrictions:**
Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Dissertation

**NURS 999:** Doctoral Dissertation. 1-9 credits.
Provides continued faculty assistance on an individual basis toward completion of approved dissertation. Note: Students must contact the department at (703) 993-1961 to receive approval and a CRN to register via Patriot Web. Offered by Nursing (p. 280). May be repeated within the degree.

**Recommended Prerequisite:** NURS 998.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

**Schedule Type:** Dissertation

**Nutrition and Food Studies (NUTR)**

**200 Level Courses**

**NUTR 295:** Introduction to Nutrition. 3 credits.
Introduces students to nutrition as a scientific discipline, providing a working knowledge of basic nutrition including the sources and functions of the nutrients, the components of a healthy diet, and the relationship between diet and overall health. Students will learn about the processes of digestion, absorption, and metabolism of nutrients, and several 'hot topics' in the field of nutrition. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Mason Core:** Natural Science Overview (p. 135)

**Schedule Type:** Lecture

**300 Level Courses**

**NUTR 312:** Experimental Foods. 3 credits.
Introduces the composition and structure of food through exploration of chemical, physical, nutritional, sensory and safety aspects, with emphasis on how these aspects relate to food preparation methods. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Corequisite:** NUTR 313.

**Schedule Type:** Lecture

**NUTR 313:** Experimental Foods Lab. 1 credit.
Explores the chemical, physical, nutritional, sensory, and safety aspects of food through hands-on food preparation labs. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Corequisite:** NUTR 312.

**Schedule Type:** Laboratory

**NUTR 314:** Food in Italy. 3 credits.
Explores student to Italian foodways, culture, and sustainability. Travel and field trips will supplement classroom learning and form the basis of a research project focusing on food’s place in Italian society. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Schedule Type:** Seminar

**NUTR 318:** Global Nutrition and Food Security. 3 credits.
An overview of the major concepts and perspectives of food security at the local, regional, and global levels. Explore and apply the definitions, means of measurement, and policy implications of food security from a multidisciplinary approach. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 295.

**Schedule Type:** Lecture

**NUTR 326:** Food Systems. 3 credits.
Taking a systems approach, this course provides an overview of the food system from production through consumption and waste. Students will consider the complexity of issues confronting the creation of just and sustainable food systems and access to healthy food for all. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Schedule Type:** Lecture

**NUTR 383:** Taste and Place. 3 credits.
Examines how dietary patterns have developed and evolved in specific geographic locations. Students will analyze the role of geography, history, politics, culture and taste as essential elements in distinctive local, regional, and national foodways. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Schedule Type:** Lecture
400 Level Courses

**NUTR 408: Food Security.** 3 credits.
Examines the human health aspects of food security at the local, regional, and global levels. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 295.

**Schedule Type:** Lecture

**NUTR 420: Strategies for Nutrition Education.** 3 credits.
Examines methods and techniques for educating individuals about nutrition. Addresses nutrition education issues from variety of populations with respect to culture, age, religion, and specific disease states. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 295 or permission of instructor.

**Schedule Type:** Lecture

**NUTR 421: Community Nutrition.** 3 credits.
Focuses on nutrition and health problems of specific community settings, and examines practices of nutrition services in various communities. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 295 or permission of instructor.

**Schedule Type:** Lecture

**NUTR 422: Nutrition throughout the Life Cycle.** 3 credits.
Focuses on nutrient needs and food habits throughout life cycle. Emphasizes nutrient needs prior, during, and after pregnancy, and nutritional requirements of infants, children, adolescents, adults, and elderly. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 295 or permission of instructor.

**Schedule Type:** Lecture

**NUTR 423: Nutrition and Chronic Illnesses.** 3 credits.
Examines nutrient needs related to specific chronic illnesses, including cardiovascular disease, cancer, obesity, and diabetes. Focuses on principles of nutritional therapy and prevention. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 295 or permission of instructor.

**Schedule Type:** Lecture

**NUTR 430: Introduction to Wine and Beer.** 3 credits.
Takes a multidisciplinary approach to understanding alcohol across time and space. Students will learn about alcohol production as well as the social and cultural dimensions of alcohol in a variety of cultures. Topics that might be covered in class include prohibition and neoprohibition, the health effects of alcohol, craft versus industrial production, among others. Students must be 21 to enroll. Notes: Fees apply. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Schedule Type:** Lecture

**NUTR 466: Nutrition and Weight Management: Obesity, Anorexia, and Bulimia.** 3 credits.
Focuses on the physiological, emotional, genetic, and societal and cultural factors that influence the relationship between eating and weight regulation. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 295, GCH 332 or permission of instructor.

**Schedule Type:** Lecture

**NUTR 494: Special Topics in Nutrition and Food Studies.** 3 credits.
In-depth study of contemporary areas of nutrition and food studies. Topics vary each semester. Students may take up to 6 credits of NUTR 494 to their degree program. Offered by Nutrition and Food Studies (p. 262). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Lecture

**NUTR 499: Independent Study in Nutrition and Food Studies.** 1-6 credits.
Readings or research on a pertinent topic in nutrition and food studies. Must be arranged with instructor before registering. Offered by Nutrition and Food Studies (p. 262). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Independent Study

500 Level Courses

The course will cover U.S. history in responding to health, nutrition, and population challenges worldwide; examine current programs in each area, including those of the U.S. government and nongovernmental organizations, foundations, and the private sector; and examine future directions for responding to health, nutrition, and population trends. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**NUTR 515: Fundamentals of Cooking.** 3 credits.
Introduces students to the fundamental concepts of food and its preparation. The biological components, the chemical transformation, and sensorial properties of food are explored throughout the course. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
NUTR 522: Nutrition Across the Lifespan. 3 credits.
Explores the nutrient needs and food habits across the lifespan. Focuses on nutrition policies, programs, and interventions across the lifespan. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Recommended Prerequisite: NUTR 295.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 530: Introduction to Wine and Beer. 3 credits.
Takes a multidisciplinary approach to understanding alcohol across time and space. Students will learn about alcohol production as well as the social and cultural dimensions of alcohol in a variety of cultures. Topics that might be covered in class include prohibition and neoprohibition, the health effects of alcohol, craft versus industrial production, among others. Students must be 21 to enroll. Notes: Fees apply. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit. Equivalent to NUTR 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 566: Nutrition and Weight Management. 3 credits.
Focuses on the physiological, emotional, genetic, and societal/cultural factors that influence the relationship between eating and weight regulation. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Recommended Prerequisite: GCH 295 or other introductory nutrition course.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 583: Nutrition and Food Security. 3 credits.
Explores selected topics in food science and technology as relevant to the field of nutrition. Coverage includes various food processing and preservation methods, ingredient functionality, nutrient analysis, sensory analysis, food safety considerations, toxicology, and biotechnology.

Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Recommended Prerequisite: NUTR 295 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 594: Special Topics in Nutrition and Food Studies. 3 credits.
In-depth study of contemporary areas of nutrition and food studies. Topics vary each semester. Students may take up to 6 credits of NUTR 594 within their degree program. Offered by Nutrition and Food Studies (p. 262). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Graduate level course.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

600 Level Courses

NUTR 608: Perspectives on Food Security. 3 credits.
Overview of the major concepts and perspectives of food security. Explores and applies the definitions, means of measurement, and policy implications of food security from a multidisciplinary approach. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 610: Food Safety and Defense. 3 credits.
Focuses on the possible sources of unintentional and intentional contaminations in the food supply, and on the roles and guiding policies of the various levels of government and the food industry, as well as individual responsibility, in managing risk to ensure a safe food supply. Notes: Fees may apply. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Recommended Prerequisite: NUTR 608.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 611: Food and Nutrition Security Policy. 3 credits.
In-depth analysis of food security and nutrition policies and programs aimed at reducing hunger and malnutrition among individuals and populations. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 620: Nutrition Education. 3 credits.
An overview of current nutrition education research, theories, programs, and policies. Explores how nutrition education can influence dietary behavior and food choice. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 625: Food Systems. 3 credits.
Survey of issues surrounding food production from a processing perspective. Students will gain an understanding various forms of food processing and the issues that surround industrial food systems. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 630: Global Nutrition. 3 credits.
Directed at students from a variety of disciplines, this course examines what malnutrition is and how it occurs by looking at several situations from around the world. It looks at the impact of nutrition on a society and community and examines the benefits of a well-nourished population. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

NUTR 642: Macronutrients. 3 credits.
Expands understanding of the biological roles of the macronutrients through application of advanced nutritional concepts relating to digestion, absorption and metabolism of carbohydrates, proteins, and lipids. Practical implications in the diet are emphasized, and particular attention is placed on the etiology and prevention of macronutrient-related diseases, including atherosclerosis, diabetes, and metabolic syndrome. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

Recommended Prerequisite: NUTR 295 and undergraduate biochemistry course.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

NUTR 644: Micronutrients. 3 credits.
Expands understanding of the biological roles of the micronutrients through application of advanced nutritional concepts relating to digestion, absorption, transport, and metabolism of vitamins and minerals. Practical implications in the diet are emphasized, with particular attention on the etiology and prevention of micronutrient-related diseases, including nutritional anemia and osteoporosis. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.
**Recommended Prerequisite:** NUTR 295 and Undergraduate biochemistry equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NUTR 651: Nutrition Assessment, Monitoring and Surveillance.** 3 credits.
Introduces students to methods and tools used in assessing nutritional status and, the practice and application of these to monitoring among individuals and population groups. Methods of interpretation of nutrition-related information will be examined. Will include off campus practice. Notes: Will include off campus practice Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit. Equivalent to NUTR 751.

**Recommended Prerequisite:** NUTR 630 or an introductory nutrition course.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**NUTR 652: American Agriculture in the 20th Century.** 3 credits.
Survey of issues surrounding food from an agricultural perspective. Students gain an understanding of how agricultural production shifted from a Jeffersonian ideal to an industrial and political practicality. Topics that may be covered: the agrarian ideal of the yeoman farmer, the ascendancy of markets and agricultural commodification, the politicization of agriculture and the farm bill, and sustainable agricultural systems. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NUTR 670: Nutrition Research Methods.** 3 credits.
Introduction to the fundamentals of research design and data collection methods. Students will learn about quantitative, qualitative, mixed method, participatory approaches, and ethical issues in nutrition-related research and evaluation. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** GCH 601 or GCH 712, NUTR 651 OR equivalent courses.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NUTR 675: Nutrition Program Development, Interventions and Assessments.** 3 credits.
Provides students with the knowledge and skills for planning, developing and evaluation of community nutrition programs and interventions. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 620, NUTR 670, GCH 601 and NUTR 651 OR equivalent courses.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**NUTR 690: Independent Study in Nutrition and Food Studies.** 1-6 credits.
Readings or research on a pertinent topic in nutrition and food studies. Must be arranged with instructor before registering. Offered by Nutrition and Food Studies (p. 262). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**700 Level Courses**

**NUTR 788: Pre-Practicum Seminar.** 1 credit.
Provides guidance and preparation for engaging in the capstone practicum. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar
**NUTR 790: Nutrition Practicum.** 2 credits.
An in-depth supervised experience in an approved nutrition-related organization. Includes a project related to a nutrition issue within the organization. Offered by Nutrition and Food Studies (p. 262). May not be repeated for credit.

**Recommended Prerequisite:** NUTR 788.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**NUTR 799: Thesis Research.** 1-6 credits.
Thesis research and writing. Offered by Nutrition and Food Studies (p. 262). May be repeated within the degree.

**Recommended Prerequisite:** Core courses in MS program.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

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**Operations Management (OM) 200 Level Courses**

**OM 210: Statistical Analysis for Management.** 4 credits.
Introduces application of statistical methods to support quantitative decision analysis for resolving business problems. Topics include descriptive statistics, probability distributions, statistical inference and regression. May be taught in lecture/recitation format. Students may not receive credit for both OM 210 and OM 211. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSU 203, OM 211.

**Registration Restrictions:**
Required Prerequisites: MATH 108$^C$, U108, 113$^C$, U113, HNRT 225$^C$ or U225.

$^C$ Requires minimum grade of C.

**Schedule Type:** Lecture, Recitation

**OM 211: Honors Statistical Analysis for Management.** 4 credits.
Introduces the application of statistical methods to support quantitative decision analysis for resolving business problems. Topics include descriptive statistics, probability, random variables, probability distributions, sampling and sampling distributions, estimation, hypothesis testing, and linear regression (both simple and multiple). Requires extensive use of case studies to integrate, synthesize and extend the concepts presented in order to foster a “learning by doing” approach that develops and promotes critical thinking abilities. Active class discussions via individual and/or group presentations of case assignments is an important learning activity. Extensive use of computer software for statistical modeling, problem solving, and analysis of case studies is a significant component of this course. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to OM 210.

**Recommended Prerequisite:** Cumulative GPA of 3.5 or higher.

**Registration Restrictions:**
Cumulative GPA of 3.5 or higher.

**OM 211: Honors Statistical Analysis for Management.** 4 credits.
Introduces application of statistical methods to support quantitative decision analysis for resolving business problems. Topics include descriptive statistics, probability, random variables, probability distributions, sampling and sampling distributions, estimation, hypothesis testing, and linear regression (both simple and multiple). Requires extensive use of case studies to integrate, synthesize and extend the concepts presented in order to foster a “learning by doing” approach that develops and promotes critical thinking abilities. Active class discussions via individual and/or group presentations of case assignments is an important learning activity. Extensive use of computer software for statistical modeling, problem solving, and analysis of case studies is a significant component of this course. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to OM 210.

**Recommended Prerequisite:** Cumulative GPA of 3.5 or higher.

**Registration Restrictions:**
Cumulative GPA of 3.5 or higher.

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**Required Prerequisites:** MATH 108$^C$, 113$^C$, HNRT 125$^C$, 225$^C$, MATH U108, U113 or HNRT U225.

$^C$ Requires minimum grade of C.

Enrollment limited to students with the Honors College (Business), Honors College (STEM). or Honors College. attributes.

**Schedule Type:** Lecture

**300 Level Courses**

**OM 301: Operations Management.** 3 credits.
Examines an organization’s operations, including design, management and improvement processes, projects and supply chains, in both product and service environments. Uses analytical models to support key planning and control activities. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in OM 301. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information about this, see the “Termination from the Major” section under Academic Policies. Notes: Students cannot receive credit for both OM 301 and OM 303. Offered by School of Business (p. 846). Limited to three attempts. Equivalent to OM 303.

**Registration Restrictions:**
Required Prerequisites: (OM 210$^C$ or 210T).

$^C$ Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**OM 303: Operations Management.** 3 credits.
Examines an organization’s operations, including design, management and improvement processes, projects and supply chains, in both product and service environments. Uses analytical models to support key planning and control activities. Notes: Students cannot receive credit for both OM 301 and OM 303. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in OM 303. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information about this, see the “Termination from the Major” section under Academic Policies. Offered by School of Business (p. 846). Limited to three attempts. Equivalent to OM 301.

**Recommended Prerequisite:** BUS 103 and BUS 200.

**Registration Restrictions:**
Required Prerequisites: (ACCT 203$^C$, U203, 204$^C$ or U204) and (BUS 100$^C$, SOM 100$^C$ or BUS U100) and (BUS 210$^C$ or U210) and (MATH 108$^C$, U108, 113$^C$, U113, 114$^C$, U114, HNRT 225$^C$ or U225).

$^C$ Requires minimum grade of C.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture
OM 320: Supply Chain Management in a Global Economy. 3 credits.
Design, development, and management of supply chain systems, including product and inventory management, distribution channels, and information systems that support them. Emphasizes impact of e-business on companies and industries, including Internet's impact on the way goods and services flow through value chain from providers to customers. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (DESC 301C, L301, OM 301C, L301 or 303C).
C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

OM 352: Management Science. 3 credits.
Introduces operation research and management sciences (OR/MS) techniques for supporting business management decisions. Specific mathematical programming and probabilistic topics include linear programming, integer programming, goal programming, network flow models, decision analysis, game theory, queuing models, and Monte Carlo simulation. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (DESC 301C, L301, OM 301C or L301) or OM 303C or L303.
C Requires minimum grade of C.

Students with a class of Freshman may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

400 Level Courses

OM 435: Business Process Analysis and Simulation. 3 credits.
Introduces concepts and tools used in designing, modeling, analyzing, and improving business processes. Various business process analysis and simulation methods, such as process mapping/flowcharting, process flow and capacity analysis, service process design, theory of constraints, process modeling and simulation, and business process reengineering are discussed. Introduces methods and analytical tools such as queue theory and computer simulation used to design, model, analyze, and improve business processes. Discusses methods such as process mapping/diagramming, service process design, process modeling, and business process reengineering. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (DESC 301C, L301, OM 301C or L301) or OM 303C or L303.
C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Seminar

OM 452: Business Forecasting. 3 credits.
Introduces techniques for producing predictions of future business operations as aids to making planning decisions. Specific topics include judgmental forecasting, forecast accuracy, correlation analysis, smoothing methods, regression models, decomposition, and autoregressive and ARIMA models. Methods demonstrated and used through computer software. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (DESC 301C, L301, OM 301C or L301) or OM 303C or L303.
C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

OM 456: Quality Management. 3 credits.
Provides an understanding of the multifaceted nature of quality management by emphasizing topics such as quality philosophies, total quality management, design quality, process quality, and managing quality in information systems development. Discusses ISO 9000 and Capability Maturity Model. Uses software, case studies. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (DESC 301C, L301, OM 301C or L301) or OM 303C or L303.
C Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

Schedule Type: Lecture

OM 462: Honors Seminar in Operations Management (Topic Varies). 3 credits.
Topic and format vary. In-depth study of a topic in the area of operations management. Enrollment limited and competitive. Offered by School of Business (p. 846). May not be repeated for credit.

Recommended Prerequisite: Degree status in ISOM major; senior standing; permission of department.

Registration Restrictions:
Students with the terminated from BU major attribute may not enroll.

Schedule Type: Seminar

OM 491: Seminar in Operations Management. 3 credits.
Analyzes selected topics that highlight latest developments in the operations management field, including contemporary research findings and case studies of operations management in business and other
organizations. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** (OM 301\(^C\)) or OM 303\(^C\), L301 or L303.

\(^C\) Requires minimum grade of C.

Enrollment limited to students with a class of Senior.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Seminar

**OM 493: Management of Technology Projects.** 3 credits.
Focuses on managerial problems associated with meeting technical, cost, and time constraints of technology projects. Discusses project management areas including organization, teams, scheduling, cost control, earned value analysis, risk management, and quality. Includes software cost estimation models and the management of IT projects. Software and case studies. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**

**Required Prerequisites:** (OM 301\(^C\), L301, DESC 301\(^C\) or L303) or OM 303\(^C\) or L303.

\(^C\) Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Lecture

**OM 499: Independent Study in Operations Management.** 1-3 credits.
By special arrangement with instructor, and approval from associate dean for undergraduate programs. Investigates business problem according to student interest, using state-of-the-art decision science methodology. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**

**Required Prerequisites:** (DESC 301\(^C\), L301, OM 301\(^C\) or L303) or OM 303\(^C\) or L303.

\(^C\) Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Non-Degree or Washington Consortium level students may not enroll.

Students with the terminated from BU major attribute may not enroll.

**Schedule Type:** Independent Study

### Operations Research (OR)

**300 Level Courses**

**OR 335: Discrete Systems Modeling and Simulation.** 3 credits.
Introduction to basic concepts of modeling complex discrete systems by computer simulation. Topics include Monte-Carlo methods, discrete event modeling, specialized simulation software, and statistics of input and output analysis. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts. Equivalent to SYST 335.

**Registration Restrictions:**

**Required Prerequisites:** (CS 112\(^C\)) and (STAT 344\(^C\), 346\(^C\) or MATH 351\(^C\)) (CS 211\(^C\)).

\(^C\) May be taken concurrently.

\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**OR 438: Analytics for Financial Engineering and Econometrics.** 3 credits.
This course introduces the basic analytics for financial engineering and econometrics. Topics include financial transactions and econometric data management, correlation, linear and multiple regressions for financial and economic predictions, financial time series analysis, portfolio theory and risk analysis. It will provide a foundation of basic theory and methodology as well as applied examples with techniques to analyzing large financial and econometric data. Hands-on experiments with R will be emphasized throughout the course. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts. Equivalent to SYST 438.

**Registration Restrictions:**

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**OR 441: Deterministic Operations Research.** 3 credits.

**Registration Restrictions:**

**Required Prerequisite:** MATH 203\(^C\).

\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

**OR 442: Stochastic Operations Research.** 3 credits.

**Registration Restrictions:**

**Required Prerequisites:** STAT 344\(^C\), 346\(^C\) or MATH 351\(^C\).

\(^C\) Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture
OR 481: Numerical Methods in Engineering. 3 credits. Modern numerical methods and software. Emphasis on problem solving through software and assessing the quality of solutions obtained. Topics include computer arithmetic, linear equations and least squares data fitting, interpolation, nonlinear optimization, and differential equations. Involves extensive computer use. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts. Equivalent to MATH 446.

Registration Restrictions:
Required Prerequisites: MATH 203C and CS 112C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture


Recommended Prerequisite: 60 hours; must be arranged with an instructor and approved by the dept. chair before registering.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

500 Level Courses

OR 531: Analytics and Decision Analysis. 3 credits. Course focus is predominantly on prescriptive analytics with some parts focused on predictive analytics. Topics include operations research techniques and their application to decision making such as mathematical optimization, networks modeling, stochastic modeling, and multi-objective modeling. Other topics such as PERT, CPM, computer simulation, decision analysis using decision trees and quantitative value functions, and heuristic methods are covered, as well as use of contemporary computer software for problem solving. In particular, the course will extensively use MS Excel for solving the decision making problems. Case-study approach to problem solving is used. Notes: Cannot be used for credit for the PhD IT program. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

OR 538: Analytics for Financial Engineering and Econometrics. 3 credits. This course introduces the basic analytics for financial engineering and econometrics, topics include financial transactions and econometric data management, correlation, linear and multiple regressions for financial and economic predictions, financial time series analysis, portfolio theory and risk analysis. It will provide a foundation of basic theory and methodology as well as applied examples with techniques to analyzing large financial and econometric data. Hand-on experiments with R will be emphasized throughout the course. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 538.

Recommended Prerequisite: STAT 515 or STAT 544.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

OR 540: Management Science. 3 credits. Operations research techniques and their application to managerial decision making. Mathematical programming, Markov processes, queuing theory, inventory models, PERT, CPM, and computer simulation are covered, as well as use of contemporary computer software for problem solving. Case-study approach to problem solving is used. Notes: Students who have taken OR 541 or OR 542 and OR MS majors do not receive credit. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 540.

Recommended Prerequisite: MATH 108, and STAT 250 or OM 200; or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

OR 541: Operations Research: Deterministic Models. 3 credits. Survey of deterministic methods of solving real world decision problems. Covers linear programming model and simplex method of solution, duality, and sensitivity analysis, transportation and assignment problems; shortest path, minimal spanning tree, and maximal flow problems; and an introduction to integer and nonlinear programming. Emphasis on modeling and problem solving. Notes: Students who have taken OR 441/MATH 441 will not receive credit. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: MATH 203 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture


Recommended Prerequisite: STAT 344 or MATH 351 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 568: Applied Predictive Analytics. 3 credits. Introduces predictive analytics with applications in engineering, business, and econometrics. Topics include time series and cross-sectional data processing, correlation, linear and multiple regressions, time series decomposition, predictive modeling and case study. Provides a foundation of basic theory and methodology with applied examples to analyze large engineering and econometric data for predictive decision making. Hand-on experiments with R will be emphasized. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 568.

Recommended Prerequisite: STAT 515 or Graduate Standing at the MSOR or MSSE programs.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 574: Quality Control and Process Management. 3 credits. An overview of quality control techniques widely used in a number of manufacturing industries. The course teaches students about combining engineering process quality management and traditional statistical quality control procedures that are applicable in industry and are based on contemporary technologies such as lean Six Sigma, total quality management and predictive maintenance for achieving superior quality, reliability and maintainability. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 574.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 576: Manufacturing Systems Analysis. 3 credits. An overview of modeling and analysis of general manufacturing systems techniques widely used in a number of manufacturing industries, such as semiconductor manufacturing. The course teaches students about best scheduling and inventory control practices, enterprise resource management principles, and details of engineering economy that are applicable in the industry. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 576.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 588: Financial Systems Engineering I: Introduction to Options, Futures, and Derivatives. 3 credits. This course is an introduction to financial engineering. Financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions. This course will introduce basic types of derivatives, such as forward, futures, swaps, and options; as well as financial models such as Brownian motion, Ito’s formula, and Black-Scholes model. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 588.

Recommended Prerequisite: Eng. or Math Graduate standing, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Schedule Type: Lecture

600 Level Courses

OR 603: Sports Analytics. 3 credits.
Cover topics in the applied analysis of sports, with a focus on supporting team decision-makers. Students will learn to apply modern, practical analytic techniques to sports data in search of actionable insight and a competitive edge. The four major team sports of North America (football, baseball, basketball, and hockey) will be the primary subjects of study, but the course's learning objectives will universally apply to a variety of sports. Students will become familiar with the full analytic life-cycle: asking productive and relevant research questions, finding the right data, applying the appropriate tools, discovering insight, and clearly communicating results. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: (OR 531 or OR 541), and (STAT 518 or OR 568).

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 604: Practical Optimization. 3 credits.
Survey of optimization methods for students whose main focus is on application of optimization. Covers modeling, search methods, convexity, linear programming, sensitivity, networks, multiobjective optimization, heuristic methods, integer programming, nonlinear programming and dynamic programming; use of modeling languages and optimization tools, including NEOS. Notes: Course cannot be counted toward MSOR degree. Students who have taken OR 541 or 644 cannot receive credit. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 531 and CS 112 or higher programming course.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 635: Discrete System Simulation. 3 credits.
Computer simulation as a scientific methodology in operations analysis, with emphasis on model development, implementation, and analysis of results. Discrete-event models, specialized software, input modeling, and output statistics are covered. Extensive computational work is required. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 542, or STAT 354 or 344, or equivalent; and knowledge of scientific programming language.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 640: Global Optimization and Computational Intelligence. 3 credits.
Introduction to global optimization of nonconvex mathematical programs and numerical methods for the solution of such problems. Topics covered include high-level survey of traditional mathematical programming algorithms; critical comparison of heuristics and artificial intelligence (AI) algorithms to traditional mathematical programming algorithms; probabilistic search, multistart methods, statistical tests of performance and confidence, simulated annealing, genetic algorithms, neural networks, Tabu search, homotopies and tunneling; the traveling salesman problem, the Steiner problem, Stackelberg-Cournot-Nash mathematical games and other classical nonconvex optimization problems. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: MATH 203 or equivalent, and knowledge of a scientific programming language.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 641: Linear Programming. 3 credits.
In-depth look at the theory and methodology of linear programming: Computational enhancements of the revised simplex method; sparse-matrix techniques, bounded variables and the dual simplex method. Alternative interior point methods described and computational complexity of various algorithms analyzed. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 541 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 642: Integer Programming. 3 credits.
Cutting plane and enumeration algorithms for solution of integer linear programs; bounding strategies and reformulation techniques; heuristic approaches to the solution of complex problems; knapsack problems, matching problems, set covering and partitioning problems; applications to problems in OR/MS, such as capital budgeting, facility location, political redistricting, engineering design, and scheduling. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 541 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 643: Network Modeling. 3 credits.
Introduction to network problems in operations research, computer science, electrical engineering, and systems engineering. Solution techniques for various classes of such problems are developed. Topics include minimal-cost network flow, maximal flow, shortest path, and generalized networks; plus stochastic networks, network reliability, and combinatorially based network problems. Complexity of each problem class analyzed. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 541 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 644: Nonlinear Programming. 3 credits.
Nonlinear optimization theory and techniques applicable to problems in engineering, economics, operations research, and management science. Covers convex sets and functions, optimality criteria and duality; algorithms for unconstrained minimization, including descent methods, conjugate directions, Newton-type and quasi-Newton methods; and algorithms for constrained optimization, including active set methods and penalty and barrier methods. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: MATH 213 or equivalent and OR 541 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 645: Stochastic Processes. 3 credits.

Recommended Prerequisite: OR 542 or STAT 544 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 646: Stochastic Optimization. 3 credits.
Provides an introduction to stochastic optimization, more specifically, stochastic programming. The objectives are (i) to provide students with the ability to model and solve optimization problems under uncertainty, and (ii) to make students familiar with the state-of-the-art of stochastic programming. Homework will be used to reinforce and supplement information in each section. Through the semester we will be reading research papers to supplement the material in the text book. Papers and other course material will be provided on Blackboard. Students should be proficient with one programming language (e.g. MATLAB, Python, Java, C++) and should be able to become familiar with a math programming solver (e.g. Cplex, Gurobi.) Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 541 and OR 542.

Registration Restrictions:
and risks. Cost analysis is distinctly different from cost estimating, evaluating selected alternatives on the basis of their costs, benefits, decision makers in choosing preferred future courses of action by systems analysis), cost analysis uses operations research to assist while drawing on other disciplines (managerial accounting, econometrics, OR 651:

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 647: Queuing Theory. 3 credits.
Unified approach to queuing, organized by type of model. Single- and multiple-channel exponential queues; Erlangian models, bulk and priority queues, networks of queues; general arrival and/or service times; and statistical inference and simulation of queues are covered. Extensive use of computational software. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 542, STAT 544, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 649: Topics in Operations Research. 3-6 credits.
Advanced topic chosen according to interests of students and instructor from dynamic programming, inventory theory, queuing theory, Markov and semi-Markov decision processes, reliability theory, decision theory, network flows, large-scale linear programming, nonlinear programming, and combinatorics. Notes: May be repeated if topics substantially different. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the term.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 650: Air Transportation Systems Modeling. 3 credits.
Introduces range of current issues in air transportation, including public policy toward the industry, industry economics, system capacity, current system modeling capability, human factors considerations, safety analysis and surveillance systems, and new technological developments. Students expected to develop broad understanding of contemporary and future issues. Knowledge evaluated through class discussions, a take-home midterm exam and a term project to be completed by the end of the semester. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 660.

Recommended Prerequisite: SYST 460/560, or permission of instructor.
**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 670: Metaheuristics for Optimization.** 3 credits.
Course on the theory and practice of metaheuristics, i.e. solution search techniques for solving combinatorial optimization problems. It will introduce the theory, applications (scheduling in manufacturing, transportation, and in other engineering and service industries), and computational aspects of directly searching for solutions to solve computationally complex optimization problems without a well-defined analytical model. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 670.

**Recommended Prerequisite:** OR 441/541 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 671: Judgment and Choice Processing and Decision Making.** 3 credits.
How do people make judgments and decisions? Course presents an initial review of scientific literature directed toward answering this question, and emphasizes its importance when performing decision analysis and designing systems to support judgment and decision processes. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 671.

**Recommended Prerequisite:** STAT 344/354, OR 542 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 674: Dynamic Programming.** 3 credits.
Course on the theory and practice of dynamic programming, i.e., optimal sequential decision making over time in the presence of uncertainties. Stresses intuition, the mathematical foundations being for the most part elementary. Introduces the theory, applications (finance, engineering, and biology), and computational aspects of dynamic programming for deterministic and stochastic problems. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 674.

**Recommended Prerequisite:** OR 442 or OR 542 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 675: Reliability Analysis.** 3 credits.
Introduction to component and system reliability, their relationship, and problems of inference. Topics include component lifetime distributions and hazard functions, parameter estimation and hypothesis testing, life testing, accelerated life testing, system structural functions, and system maintainability. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 675.

**Recommended Prerequisite:** STAT 544/554, OR 542 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 681: Decision and Risk Analysis.** 3 credits.
Application of analytic reasoning and skills to practical problems in decision-making. Topics include problem structure, analysis and solution implementation, emphasizing contemporary approaches to decision analytic techniques. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** OR 542 or MBA 638.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**OR 682: Computational Methods in Engineering and Statistics.** 3 credits. Numerical methods have been developed to solve mathematical problems that lack explicit closed-form solutions or have solutions that are not amenable to computer calculations. Examples include solving differential equations or computation probabilities. Discusses numerical methods for such problems as regression, analysis of variance, nonlinear equations, differential and difference equations and nonlinear optimization. Applications in statistics and engineering are emphasized. Involves extensive computer use. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to CSI 690, CSI 700, MATH 685.

**Recommended Prerequisite:** MATH 203 and 213 or equivalent, and modern numerical methods and software.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**OR 683: Principles of Command, Control, Communications, Computing, and Intelligence (C4I).** 3 credits. Fundamental principles of C4I are developed from descriptive, theoretical, and quantitative perspectives. Principles and techniques applicable to wide range of civilian and military situations. Topics include C2 process; modeling and simulation for combat operations; detection, sensing, and tracking; data fusion and situation assessment; optimal decision making; methodologies and tools of C4I architectures; tools for modeling and evaluations of C4 systems such as queuing theory. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** ECE 528 or OR 542 or SYST 611 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**OR 688: Financial Systems Engineering II: Derivative Products and Risk Management.** 3 credits. Financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions, as well as facilitating the risk management of those decisions. This course will focus on risk management for both market risk and credit risk. It will cover a broad range of derivatives products and hedging strategies with emphasis on how risks are managed in financial institutions. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 688.

**Recommended Prerequisite:** OR/SYST 588 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**OR 690: Optimization of Supply Chains.** 3 credits. Focuses on both supply chain optimization from an enterprise-wide perspective, and supply chain optimization from a business-to-business e-commerce concern. Concerned with optimizing the value of goods and services and assuring a reasonable return on such sales. Describes both heuristic and exact algorithms for scheduling, production, inventory management, logistics, and distribution. New software that enables such optimization is presented, as are manufacturing and service examples from the public and private sectors. New techniques to handle risk, quality of data, and robustness of solutions are presented. Students perform case studies using state-of-the-art software. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** Mathematics through linear algebra, and STAT 344.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**OR 699: Masters Project.** 3 credits. Capstone project course for MS/OR program. Key activity is completion of a major applied team project resulting in an acceptable technical report and oral briefing. Student should plan to take this course in the last semester of studies. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 680.
**Recommended Prerequisite:** 21 graduate credits in OR or SYST.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**700 Level Courses**

**OR 719:** *Graphical Models for Inference and Decision Making.* 3 credits.
Theory and methods for inference and decision making in environments characterized by uncertain information. Covers graphical probability and decision models. Studies approaches to representing knowledge about uncertain phenomena, and planning and acting under uncertainty. Topics include knowledge engineering, exact and approximate inference in graphical models, learning in graphical models, temporal reasoning, planning, and decision-making. Practical model-building experience provided. Students apply what they learn to a project of their own choosing. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to CSI 775, STAT 719.

**Recommended Prerequisite:** STAT 652 or SYST 664 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 735:** *Advanced Stochastic Simulation.* 3 credits.
Special topics and recent developments in Monte Carlo simulation methodology for discrete-event stochastic systems. Contents vary; possible topics include statistical analysis of simulation output data, random number and random ariate generation, variance reduction techniques, sensitivity analysis and optimization of simulation models, distributed and parallel simulation, object-oriented simulation, and specialized applications. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 735.

**Recommended Prerequisite:** OR 635 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 741:** *Advanced Linear Programming.* 3 credits.
Recent developments in linear programming. Highlights advances in interior point methods and also addresses developments in the simplex method. Projective methods, affine methods, and path-following methods are examined, including Karmarkar’s original work. Discusses relationships between these methods, and relationships to methods in nonlinear programming. Also discussed are advances in data structures and other implementation issues. Students test software and solve large-scale linear programs. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** OR 541 or 641.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 750:** *Advanced Topics in Operations Research.* 3 credits.
Special topics, applications, or recent developments in operations research. Contents vary and may include topics in optimization, stochastic methods, or decision support that are not covered in the standard OR curriculum. Notes: May be repeated when topics are distinctly different. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** OR 541 or 542, and 600-level course that varies with content of course.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 751:** *Advanced Topics in Operations Research for Planning and Scheduling.* 3 credits.
Introduces combinatorial optimization problems in scheduling and logistics. Solution techniques for various classes of such problems are developed. Topics include deterministic and stochastic scheduling algorithms with applications in manufacturing and service sectors. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** OR 541.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 752:** *Advanced Topics in Operations Research for Planning and Scheduling.* 3 credits.
Recent developments in operations research. Highlights advances in interior point methods and also addresses developments in the simplex method. Projective methods, affine methods, and path-following methods are examined, including Karmarkar’s original work. Discusses relationships between these methods, and relationships to methods in nonlinear programming. Also discussed are advances in data structures and other implementation issues. Students test software and solve large-scale linear programs. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** OR 541 or 641.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**OR 753:** *Advanced Topics in Operations Research for Planning and Scheduling.* 3 credits.
Introduces combinatorial optimization problems in scheduling and logistics. Solution techniques for various classes of such problems are developed. Topics include deterministic and stochastic scheduling algorithms with applications in manufacturing and service sectors. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** OR 541.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
OR 763: Research Methods in Systems Engineering and Information Technology. 3 credits. Examines alternative paradigms of scientific research and their applicability to research in information technology. Topics include fundamental elements of scientific investigation, basic principles of experimental design and statistical induction, philosophy of science and its relation to the information technology sciences, and case studies of information technology research. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 763.

Recommended Prerequisite: STAT 554, OR 542, or permission of instructor.

Registration Restrictions: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 774: Advanced Dynamic Programming. 3 credits. Covers advanced topics on the theory and practice of dynamic programming, i.e., optimal sequential decision making over time in the presence of uncertainties. Stresses the mathematical foundations and introduces the theory, computational aspect, and applications of dynamic programming for deterministic and stochastic problems. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 674/SYST 674 or permission of instructor.

Registration Restrictions: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture


Recommended Prerequisite: OR 645 or OR 647, or ECE 542, or equivalents.

Registration Restrictions: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 782: Advanced Topics in Combinatorial Optimizations. 3 credits. Studies problems using most recent developments. Topics include cutting plane procedures based on polyhedral combinatorics; column-generation procedures for large, complex problems; heuristic approaches such as genetic algorithms, simulated annealing, and tabu search; study of special structures; reformulation techniques; and bounding approaches. Topics stress most recent developments in field. Notes: May be repeated when topics are distinctly different. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: OR 641 or OR 642.

Registration Restrictions: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 783: Advanced Topics in Network Optimization. 3 credits. Recent developments in solving optimization problems on networks. Prepares doctoral students to perform advanced research on network-related problems. Topics include linear, discrete, nonlinear, and stochastic problems. Several aspects of problems also studied, including computational complexity, exact algorithms, heuristics, solvable special cases, and computer implementation issues. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: OR 643.

Registration Restrictions: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 784: Advanced Topics in Nonlinear Programming. 3 credits. Studies theory and algorithms for solving nonlinear optimization problems. Contents vary; possible topics include large-scale and parallel-unconstrained optimization, theoretical issues in constrained optimization, duality theory, Lagrangian and sequential quadratic programming methods. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 644.

Registration Restrictions: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture
800 Level Courses

OR 842: Models of Probabilistic Reasoning. 3 credits.
Survey of alternative views about how incomplete, inconclusive, and possibly unreliable evidence might be evaluated and combined. Discusses Bayesian, Baconian, Shafer-Dempster, and Fuzzy systems for probabilistic reasoning. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: STAT 544, OR 542, OR 681 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 888: Distributed Estimation and Multisensor Tracking and Fusion. 3 credits.
Centralized and distributed estimation theory, hierarchical estimation, tracking and data association, multisensor multtarget tracking and fusion, distributed tracking in distributed sensor networks, track-to-track association and fusion, and Bayesian networks for fusion. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: ECE 734 or SYST 611.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

900 Level Courses

OR 944: The Process of Discovery and Its Enhancement in Engineering Applications. 3 credits.
Studies ingredients of imaginative reasoning as it concerns efficient discovery of new ideas and valid evidential test of them. Topics include different interpretations of Peirce's theory of abductive reasoning and other forms of reasoning, Hintikka's analysis of process of inquiry, and current attempts to design systems that provide assistance in discovery-related or investigative activities. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 944.

Recommended Prerequisite: OR 842 or SYST 842 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

OR 981: Optimization in Medicine. 3 credits.
Course focuses on the application of optimization to medicine, as well as on modeling used and solution approaches to the optimization problems generated. Particular attention is paid to algorithms and methodology not discussed in other optimization courses. Topics covered include nonlinear integer programs, large-scale nonlinear and integer programs, problems governed by differential equations, and more. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: OR 641 or OR 642 or OR 643 or OR 644.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

Organization Development and Knowledge Management (ODKM)

700 Level Courses

ODKM 700: Organizations, Management and Work: Theory and Practice. 3 credits.
This introduction to organizations, management, and work examines ideas and practices from two perspectives: conventional ones that go back to the industrial age and scientific management; and contemporary ones that have to do with organizing knowledge-work. Covers contributions of a range of writers and deals with foundations of OD from the standpoint of both theory and practice. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: OR 641 or OR 642 or OR 643 or OR 644.

Registration Restrictions:
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ODKM 705: Group Dynamics and Team Learning. 3 credits.
Engaging in unstructured and semi-structured learning environment, students will learn how to facilitate team learning for organizational effectiveness. By exploring various aspects of group dynamics such as power, perception, motivation, leadership, and decision making, students will develop various competencies to manage teams and enhance their emotional and appreciative intelligence. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite:

Registration Restrictions:
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ODKM 710: Social and Organizational Inquiry. 4 credits.
Introduces participants to the ethics, conduct and evaluation of research into human, social and organizational realities. Explores relationships between what and how we measure and what we find. Students develop the capacity to reflect on themselves as research instruments, on their own impact on the systems under study, and on the impact of
the research assumptions, framing and approach both on the results obtained and on the future development of those systems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ODKM 715: Creating Learning Organizations.** 3 credits.
Focuses on the epistemological and ontological implications of organizational life in the twenty-first century. Reevaluates traditional management approaches in light of global economies, instantaneous communication, changing technologies, and diverse workgroups in knowledge economies. Special attention to developing skills for "double- and triple-loop learning," and reflection in professional lives through learning conversations, journals, narrative, autobiography, and imaginative literature. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ODKM 720: Socio-technical Systems and Collaborative Work.** 3 credits.
Examines the potential of collaborative technologies for creating effective knowledge sharing in organizations. Through the use of tools such as SharePoint, students will gain a comprehensive understanding of the state of the art of virtual work and collaboration technology and other subjects related to successful design of a collaborative knowledge work environment. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ODKM 725: Knowledge Management and Strategy.** 3 credits.
An in-depth look at knowledge management, both theory and practices, which distinguishes between technology-oriented KM practices and people-oriented ones, with an emphasis on leveraging and sharing knowledge to get work done well and develop more effective organizations. Examines effective ways of organizing knowledge-work, including social networks, communities of practice, and the use of collaborative technologies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ODKM 730: Special Topics.** 1-3 credits.
Selected special topics in organization development and knowledge management not covered by existing ODKM courses. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ODKM 731: Consulting Skills for Organizational Change.** 3 credits.
Explores various theories and practices of change management, collaborative consulting, action research, and organization development. Using class projects and case studies, students bring together their understanding of organization development, their values, and their personal style to perform more effectively in various consulting roles. Students also learn various aspects of process consulting and client relationship management. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ODKM 732: Leadership and Social Justice.** 4 credits.
This course challenges participants not just to theorize leadership and social justice but to inhabit them. Reflective understanding and practice span: inner journeys, interpersonal relationships, organizations, and large scale systems. With globalization, ethical leadership requires understanding diverse perspectives and complex systems. Outward leadership relies on inner leadership. Participants cultivate personal leadership philosophy and practice through engaging real-life challenges. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**ODKM 735: Organizational Development Practices.** 3 credits.
Students develop applied knowledge of various organizational development practices such as action research and appreciative inquiry. Includes simulations to understand the complexities of real-world change management. Group projects with selected organizations will help
students develop their diagnostic and analytical skills to become better facilitators of organizational learning. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

ODKM 740: Learning Community. 1-3 credits.
Using workshops, seminars, simulations, and structured experiences, students will learn how to build a learning Community of Practice (CoP) as practitioners of organization development. They will also reflect upon the community building experience using research findings and design practice sessions to apply the lessons learned to the work environment. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree for a maximum 3 credits. Equivalent to MNPS 720.

Recommended Prerequisite: Candidates for the M.S. in ODKM degree only.

Registration Restrictions:
Enrollment is limited to students with a major in Organiztn Dev Knowledge Mgt.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Parks, Recreation, and Leisure Studies (PRLS)

100 Level Courses

PRLS 115: Introduction to Fly Fishing. 1 credit.
A practical course designed for students with little or no knowledge of fly fishing. The course will involve activities to teach students the basics of fly fishing to include terms and equipment, casting, knot tying, aquatic entomology, fly selection, reading water, wading techniques and safety, and fly fishing tactics. In addition to the one-hour classes required during the week, a full day on a stream will be included. Note: Students will be required to pay an activities fee to cover transportation and equipment rental. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course

Schedule Type: Laboratory

PRLS 116: Intermediate Rock Climbing. 2 credits.
Introduces the practices designed to move into the intermediate indoor climbing realm with a focus on efficient and creative body positions, including specific, more advanced techniques and strength training. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: PRLS 115.

Schedule Type: Laboratory

PRLS 117: White-water Canoeing. 2 credits.
A practical course designed for students with little or no knowledge or skills in moving water and white-water canoeing. Involve activities to teach basic terms, rules, techniques for river safety, paddle strokes, boat control and maneuvering, reading river currents and conditions, self rescue techniques, ethics and river etiquette, and running rivers up to Class II- in difficulty. There will be one classroom and four all-day paddling sessions on regional rivers. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course

Schedule Type: Laboratory

PRLS 118: Introduction to Rowing. 1 credit.
This course is designed to provide experienced coastal kayaking students with an introduction to advanced strokes and maneuvers, open water rescues, on-water navigation, and safety concerns related to open water. Notes: Fee required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: PRLS 115 or permission of instructor.

Schedule Type: Laboratory

PRLS 123: Intermediate Indoor Rock Climbing. 1 credit.
Introduces the practices designed to move into the intermediate indoor climbing realm with a focus on efficient and creative body positions, including specific, more advanced techniques and strength training. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: PRLS 117.

Schedule Type: Laboratory

PRLS 125: Tracking, Trailing and Orienteering. 2 credits.
Develops outdoor navigational and tracking skills and assumes no prior experience in tracking, trailing, or orienteering. Use of modern topographical maps and navigational compasses in a variety of settings. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Laboratory

PRLS 128: Basic Rowing. 1 credit.
This course is designed to provide experienced coastal kayaking students with an introduction to advanced strokes and maneuvers, open water rescues, on-water navigation, and safety concerns related to open water. Notes: Fee required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: PRLS 115 or permission of instructor.

Schedule Type: Laboratory

PRLS 140: Advanced Canoeing. 2 credits.
A practical course designed for students with little or no knowledge or skills in moving water and white-water canoeing. Involve activities to teach basic terms, rules, techniques for river safety, paddle strokes, boat control and maneuvering, reading river currents and conditions, self rescue techniques, ethics and river etiquette, and running rivers up to Class II- in difficulty. There will be one classroom and four all-day paddling sessions on regional rivers. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course

Schedule Type: Laboratory

PRLS 173 or permission of instructor.

PRLS 174: Open Water Coastal Kayaking. 2 credits.
This course is designed to provide experienced coastal kayaking students with an introduction to advanced strokes and maneuvers, open water rescues, on-water navigation, and safety concerns related to open water. Notes: Fee required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: PRLS 173 or permission of instructor.

Schedule Type: Laboratory

PRLS 175: Introduction to Rowing. 1 credit.
This course is designed to provide students with the skills and knowledge necessary to row successfully in an eight-oared rowing shell. Includes instruction in, but not limited to, proper handling of rowing equipment, basic terminology, the proper execution of the rowing stroke, water safety, and team building. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course

Schedule Type: Laboratory

PRLS 180: White-water Canoeing. 2 credits.
A practical course designed for students with little or no knowledge or skills in moving water and white-water canoeing. Involve activities to teach basic terms, rules, techniques for river safety, paddle strokes, boat control and maneuvering, reading river currents and conditions, self rescue techniques, ethics and river etiquette, and running rivers up to Class II- in difficulty. There will be one classroom and four all-day paddling sessions on regional rivers. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
Facilitation. Classroom learning is combined with an experiential setting. Provides the fundamental principles and techniques of challenge course facilitation. Classroom learning is combined with an experiential setting.

Schedule Type: Lecture

PRLS 221: White-water Canoeing II. 2 credits.
A practical methods course to advance and refine the student's white-water canoeing skills with regard to paddle strokes, turns, maneuvers, boat control, and safety rescue skills. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course
Recommended Prerequisite: PRLS 180 or Permission of Instructor.

Schedule Type: Lecture

PRLS 220: Wilderness First Responder. 2 credits.
Examines the role of outdoor professionals in wilderness medicine and the response, care and rescue of outdoor participants in non-urban outdoor environments. Uses the Patient Assessment System (PAS) to assess backcountry patients in an intensive experiential course which addresses the issues of medico legal concerns, blood borne pathogens and infectious diseases. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 9 credits.

Schedule Type: Lecture

PRLS 210: Introduction to Recreation and Leisure. 3 credits.
Traces the development of current concepts of recreation and leisure and their implications and consequences. Covers influences of philosophy, religion, science, economics, sociology, and politics on discretionary time and its uses. Notes: Open to nonmajors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

PRLS 214: Field Study in Natural History. 3 credits.
Provides an introduction to natural history and its application in natural area interpretation through field study investigation of the environment. Covers fundamentals of bird, plant, animal, and rock identification, as well as sky and landscape interpretation. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

PRLS 210: Experiential Education Theory and Application. 3 credits.
Provides a broad theoretical, as well as practical, background in teaching and learning experientially. Concepts presented, experienced, and discussed include the basic premises of experiential learning according to a wide variety of educators and philosophers. The content and experience applies to recreation, education, development, and therapeutic settings. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Physical Activity Course

Schedule Type: Lecture

PRLS 221: Challenge Course Facilitation. 3 credits.
Provides the fundamental principles and techniques of challenge course facilitation. Classroom learning is combined with an experiential setting through leading youth groups in the field. Students are provided with an introduction to safety, skills, and facilitation techniques for low and high elements of outdoor challenge courses. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: CPR Certification and PRLS 220.

Schedule Type: Lecture

PRLS 241: Practicum. 3 credits.
Paid or voluntary work experience in a park and recreation agency. Minimum period of 10 to 12 weeks of part-time employment or experience. Capstone course for minors, allowing for integration and application of course work, theories, and research to a work setting. Work sites chosen among four approved sites. Includes meetings and assignments prior to and during the practicum. Notes: Open to departmental majors and minors only. Serves as a capstone for minors who have completed PRLS 310, 316, and 32. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: PRLS 210 or 327.
Requires minimum grade of C.

Schedule Type: Internship

PRLS 250: Wilderness Travel and Sustainability. 2 credits.
This experiential course is designed for students with prior backpacking experience. Involves discussions, demonstrations, and activities that teach students wilderness skills, safety and judgment, leadership and teamwork, and environmental ethics. Topics covered include basic wilderness first-aid, hazard evaluation, emergency procedures, expedition behavior, self awareness, judgment and decision making, campsite selection, shelter and stove use, fire building, sanitation and hygiene, cooking, nutrition and rationing, equipment care and selection, staying warm and dry, route finding and navigation, Leave No Trace backpacking, weather, natural history, and wilderness ethics. Application of these skills will occur during the 14-day offtrail backpacking trip in a remote wilderness area. Not only will students practice these wilderness skills, but they will also develop leadership abilities by working in a collaborative team environment. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Green Leaf Course, Physical Activity Course

Schedule Type: Lecture

PRLS 253: Florida Everglades Canoe Expedition. 3 credits.
Focuses on developing the knowledge and skills necessary to plan, manage, and participate in extended wilderness excursions by canoe in remote locations, while exploring a region's natural history. Students will be engaged in classroom preparation; training in canoeing and wilderness travel/living skills; group leadership; and environmental education in the Everglades National Park ecosystem. The class will travel and camp for 6 days/night in the Everglades back country by canoe as a self-contained group. Students will perform a service project in the park. For students planning careers in outdoor recreation, interpretation, and natural resources management and planning; and students with a general interest in the course topics. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: CPR Certification and PRLS 220.

Schedule Type: Lecture

PRLS 241: Practicum. 3 credits.
Paid or voluntary work experience in a park and recreation agency. Minimum period of 10 to 12 weeks of part-time employment or experience. Capstone course for minors, allowing for integration and application of course work, theories, and research to a work setting. Work sites chosen among four approved sites. Includes meetings and assignments prior to and during the practicum. Notes: Open to departmental majors and minors only. Serves as a capstone for minors who have completed PRLS 310, 316, and 32. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: PRLS 210 or 327.
Requires minimum grade of C.

Schedule Type: Internship

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This experiential course is designed for students with prior backpacking experience. Involves discussions, demonstrations, and activities that teach students wilderness skills, safety and judgment, leadership and teamwork, and environmental ethics. Topics covered include basic wilderness first-aid, hazard evaluation, emergency procedures, expedition behavior, self awareness, judgment and decision making, campsite selection, shelter and stove use, fire building, sanitation and hygiene, cooking, nutrition and rationing, equipment care and selection, staying warm and dry, route finding and navigation, Leave No Trace backpacking, weather, natural history, and wilderness ethics. Application of these skills will occur during the 14-day offtrail backpacking trip in a remote wilderness area. Not only will students practice these wilderness skills, but they will also develop leadership abilities by working in a collaborative team environment. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Green Leaf Course, Physical Activity Course

Schedule Type: Lecture

PRLS 253: Florida Everglades Canoe Expedition. 3 credits.
Focuses on developing the knowledge and skills necessary to plan, manage, and participate in extended wilderness excursions by canoe in remote locations, while exploring a region's natural history. Students will be engaged in classroom preparation; training in canoeing and wilderness travel/living skills; group leadership; and environmental education in the Everglades National Park ecosystem. The class will travel and camp for 6 days/night in the Everglades back country by canoe as a self-contained group. Students will perform a service project in the park. For students planning careers in outdoor recreation, interpretation, and natural resources management and planning; and students with a general interest in the course topics. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
Schedule Type: Lecture

PRLS 290: Aquatic Operation and Management. 3 credits.
Covers industry standards for water quality and aquatic facility management. Includes recognizing, measuring, and preventing biological and physical hazards. Meets requirements for certification as a Certified Pool/Spa Operator through the National Swimming Pool Foundation as well as certification in CPR through the American Red Cross. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

PRLS 300 Level Courses

PRLS 300: People with Nature. 3 credits.
Traces philosophical evolution of perceptions of and attitudes toward nature. Examines role of philosophers, scientists, nature-writers, and artists in the shaping of environmental thought. Includes extensive reading of Emerson, Thoreau, Muir, Leopold, Carson, Wilson, and others. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

PRLS 302: Park Management and Operations. 3 credits.
Focuses on management and operations of park resources, including the management of visitors and recreation development. Emphasizes understanding of contemporary threats to park integrity and preservation of resources. Also covers maintenance management systems. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: PRLS 300

Schedule Type: Lecture

PRLS 310: Program Planning and Evaluation. 3 credits.
Introduces fundamental principles and techniques of the planning process for sport, recreation and tourism programs, including assessment of needs and goals, objectives, and mission statement; generating solutions; planning programs for implementation and evaluation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: PRLS 210D or SRST 200C.
C Requires minimum grade of C.

Schedule Type: Lecture

PRLS 311: Leadership and Outdoor Education. 3 credits.
Focuses on promotion of lifelong health and fitness via noncompetitive and informal outdoor activities. Introduces safety, skills, and leadership techniques. Covers sustainable use, conservation, and stewardship of natural resources. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

PRLS 317: Social Psychology of Play and Recreation. 3 credits.
Applies social psychological theories and research to the study of leisure, play, and recreation behavior, including correlates, antecedents, and consequences of and constraints to these concepts. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: PRLS 210C or SRST 200C.
C Requires minimum grade of C.

Schedule Type: Lecture

PRLS 323: Program Leadership and Evaluation. 3 credits.
Covers leadership and evaluation of health, fitness, and recreation programs. Uses computer technology to study evaluative aspects of program planning and administration. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: PRLS 310C.
C Requires minimum grade of C.

Schedule Type: Lecture

PRLS 400 Level Courses

PRLS 402: Human Behavior in Natural Environments. 3 credits.
Applies social and behavioral theories to management for recreational users of land and water resources. Examines deterioration and pollution of land and water, noise, crowding, and conflicts among users. Discusses strategies for mitigation of deleterious impacts and depreciative behaviors, and attitudes toward resource conservation, preservation, and use. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**
**Required Prerequisite:** PRLS 300C.
C Requires minimum grade of C.

**Schedule Type:** Lecture

**PRLS 405:** Planning and Operation of Recreation Facilities. 3 credits.
Covers quantity, location, and design standards for facilities. Includes safety, functionality, durability, and maintenance demand criteria in planning and design; programmatic and operational objectives to be met, including user comfort and convenience, crowd management, and traffic flow, and space relationships. Includes field study of local facilities. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** 60 hrs or permission of instructor.

**Schedule Type:** Lecture

**PRLS 410:** Administration of SRT Organizations I. 3 credits.
Focuses on operation and management of sport, recreation and tourism organizations. Covers management and leadership theories and techniques, problem-solving and decision making, organizational communications, design of organizational structures and budgeting. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** 60 credits.

**Schedule Type:** Lecture

**PRLS 411:** Administration of SRT Organizations II. 3 credits.
Focuses on program and organizational marketing principles and strategies; service quality assessment and organizational evaluation techniques; and organizational financing for the experience industry. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** PRLS 410C.
C Requires minimum grade of C.

**Schedule Type:** Lecture

**PRLS 416:** Trends and Programming Assessment in Therapeutic Recreation. 3 credits.
Explores the role of leisure in human development with a specific focus on needs, demands, and services for people with disabilities and illness. Presents concepts associated with leisure, aging, physical challenge, targeting leisure services, research, and public policy. Notes: Field experience required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** PRLS 327C.
C Requires minimum grade of C.

**Schedule Type:** Lecture

**PRLS 417:** Processes, Techniques and Supervision in Therapeutic Recreation. 3 credits.
Exploration of processes and techniques used in Therapeutic Recreation, with a focus on the nature and diversity of recreation and leisure activities, modalities and interventions, facilitation techniques and approaches, leadership roles and tasks, communication skills, clinical supervision, health and safety considerations, and the impact of the impairment and/or treatment on the individual. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** PRLS 327C.
C Requires minimum grade of C.

**Schedule Type:** Lecture

**PRLS 418:** Assessment in Therapeutic Recreation. 3 credits.
Presents methods of assessment, development of treatment program plans, and evaluation of all components. Extends program design by developing competencies in the planning approaches, individual and group assessment techniques, program evaluation, and documentation strategies for people with disabilities and illness. Notes: Field experience required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** PRLS 327C.
C Requires minimum grade of C.

**Schedule Type:** Lecture

**PRLS 435:** Recreation Special Uses and Appeals. 3 credits.
Management of extensive and varied commercial and noncommercial demands on federal lands. Policies and procedures used by federal land managers. Implementation, effects, and problems of permit systems; appeal provisions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 635.

**Schedule Type:** Lecture

**PRLS 442:** Foundations of Public Domain Management. 1 credit.
Acquisition, disposal, reservation, and management of the public (federal) domain via the Bureau of Land Management, National Park Service, and the U.S. Forest Service. Policies, trends, and management needs are examined. Intra- and inter-agency integration of land management programs. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 542.

**Schedule Type:** Lecture

**PRLS 443:** Special Uses Management on Federal Lands. 4 credits.
Special use authority and authorizations. Policies, regulations, and directives in processing applications. Coordination and administration of special uses and integration with land and resource management plans. Includes agriculture, industry, community, aviation, water, treasure trove, and cultural uses. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 643.

**Schedule Type:** Lecture

**PRLS 444:** Linear Uses and FERC Licenses on Federal Lands. 3 credits.
Legislation, regulation policies, and directives governing linear uses. FERC licensing of hydroelectric power generation and distribution. Right-of-way for oil, gas, and electric transmission, railroads, communication, trams, conveyors, roads, and trails. FERC consultation, exemption, and licensing. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 644.

**Schedule Type:** Lecture
PRLS 445: Valuation and Landownership Adjustment. 5 credits.
Landownership authority, coordination, and adjustment processes; land valuation and rules, and processes of appraisal, title exchange, purchase, donation, transfer, sale, and condemnation of properties. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 645.

Schedule Type: Lecture

PRLS 446: Right-of-Way Acquisition. 3 credits.
Authorities and procedures right-of-way acquisition from public agencies and private landowners. Planning, coordination, and project scheduling requirements. Steps in the acquisition process. Cooperative development and use of roads. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 646.

Schedule Type: Lecture

PRLS 447: Land Status, Boundaries, Claims, and Withdrawals. 3 credits.
Land survey and status records system, programs for maintaining and managing boundaries, handling claims and encroachments, the land status record system, and Bureau of Land Management master title plot system. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 647.

Schedule Type: Lecture

PRLS 448: American Indian Rights and Claims. 3 credits.
American Indian sovereignty, Alaska Native corporations, colonization; treaties, rights, and claims; cultural resources an Indian laws and consultation with tribal governments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 648.

Schedule Type: Lecture

PRLS 450: Research Methods. 3 credits.
Covers the development of empirical research designs for both practical and theoretical problems in health, fitness, and recreation resources management. Includes literature review of hypothesized relationships, and formulation of research proposals. Notes: Only STAT 250 meets the Mason Core quantitative reasoning requirement. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: 60 credits

Registration Restrictions:
Required Prerequisites: STAT 250, DESC 210, OM 210, SOCI 313, OM 250 or IT 250.
D Requires minimum grade of D.

Schedule Type: Lecture

PRLS 451: Individual Study. 1-3 credits.
Individual study of topic area in leisure research, theory, or practice under direction of faculty. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 90 credits

Registration Restrictions:
Washington Consortium level students may not enroll.

Schedule Type: Independent Study

500 Level Courses

PRLS 480: Special Topics in Recreation Management. 1-3 credits.
Selected topics reflecting interest in specialized areas of parks and outdoor recreation or therapeutic recreation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 60 credits.

Schedule Type: Lecture

PRLS 490: Recreation Management Internship. 12 credits.
Paid or voluntary work experience in a park and recreation agency for a minimum period of 10-12 weeks of full-time employment, and 480 hours for therapeutic recreation students. Applies course work, theories, and research to work settings. Work sites are chosen by students after approval of faculty supervisors. Includes meetings and assignments before and during internship. Note: Mandatory internship meeting attendance required. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Registration Restrictions:
Required Prerequisites: PRLS 210, 310, 323, 316, 410, ATEP 120, SRST 200 and PRLS 323.
C Requires minimum grade of C.

Schedule Type: Internship

PRLS 499: Independent Study. 1-3 credits.
Individual study of topic area in leisure research, theory, or practice under direction of faculty. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 90 credits

Registration Restrictions:
Enrollment is limited to students with a major in Health Education, Health, Fitness Rec Resrcs, Individualized Study, Nursing, Physical Education (Special), Physical Education or Parks, Rec, Leisure Studies.

Schedule Type: Independent Study
PRLS 503: Administration and Disability Rights in Therapeutic Recreation. 3 credits.
Overview of major law and policy issues related to therapeutic recreation services for people with disabilities. Primary focus is on the Americans with Disabilities Act and related federal legislation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: PRLS 460.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 526: Environmental Education and Resource Interpretation. 3 credits.
Provides methods for communicating and disseminating information pertaining to the use of natural recreation resources. Covers design and implementation of educational materials and programs to enhance understanding and appreciation of cultural, historical, and natural resources. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 531: Natural Resources Recreation Planning. 3 credits.
Origins and evolution of recreation use philosophy, policies, and service of public estate management. Examines planning for a spectrum of opportunities, from wilderness to developed sites, with attention to financial consideration and sustainable use of cultural and visual resources. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 533: Visitor Services. 3 credits.
Examines motivation of resource-based recreation participants. Covers visitors’ expectations and perceptions, with emphasis on implication for service quality, staff training, and other management responsibilities. Discusses use and user conflicts and placement, information and interpretive service, and human and other interpretive service resources. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study
600 Level Courses

PRLS 601: History of Leisure and Sport in American Society. 3 credits.
Examines leisure and sport in American society from the early colonial period to the present day. Investigates the pattern of leisure and sport as America moved from a largely agrarian to a highly industrialized nation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 610: Recreation Administration and Planning. 3 credits.
Examines recreational administration concepts regarding organizational structure and operations, personnel management, financing, policy development, and public relations procedures. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 611: Social Psychology of Leisure. 3 credits.
Addresses historical, theoretical, and empirical foundations of social psychological constructs relative to social behavior in park, recreation, sport, and tourism settings. Focuses on attitudinal, social, and motivational theories as applied to leisure-related contexts. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 612: Philosophy of Leisure and Sport. 3 credits.
Investigates the phenomenon of leisure and sport from a philosophical perspective. Utilizes the philosophical approach to better explain the role that leisure and sport play in American society. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 613: Strategic Leadership in Recreation Administration. 3 credits.
Focuses on strategic leadership in recreation administration necessitated by demographic, social, political, and legal challenges; addresses organizational culture, positive leadership, innovation, partnerships, data-driven decision making, and accountability. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PRLS 614: Legal Issues in Recreation Administration. 3 credits.
Surveys current legal issues relevant to Recreation Administration, including, but not limited to, tort law, civil rights law, employment law, constitutional law, and copyright law. This course uses case studies of recent court decisions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 647: Land Status, Boundaries, Claims, and Withdrawals. 3 credits.
Land survey and status records system, programs for maintaining and managing boundaries, handling claims and encroachments, the land status record system, and Bureau of Land Management master title plot system. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 447.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PRLS 648: American Indian Rights and Claims. 3 credits.
American Indian sovereignty, Alaska Native corporations, colonization; treaties, rights, and claims; cultural resources an Indian laws and consultation with tribal governments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 448.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Persian (PERS)

100 Level Courses

PERS 110: Elementary Persian. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture

200 Level Courses

PERS 210: Intermediate Persian. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Persian-speaking regions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: PERS 110, appropriate placement score, or permission of department.

Schedule Type: Lecture

PERS 250: Gateway to Advanced Persian. 3 credits.
Integration of advanced intermediate-level Persian reading, writing, listening, and speaking skills and the development of critical thinking and understanding authentic texts from the Persian world. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: PERS 210 or permission of instructor.

Schedule Type: Lecture

300 Level Courses

PERS 330: Advanced Persian I. 3 credits.
Development of cultural and linguistic competency in written and spoken Persian at the low advanced level, with attention to reading, writing, listening and speaking, grammar and vocabulary pertaining to Persian social, political and cultural issues. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: PERS 250 or equivalent.

Schedule Type: Lecture

PERS 331: Advanced Persian II. 3 credits.
Development of cultural and linguistic competency in written and spoken Persian at the advanced level, with attention to reading, writing, listening and speaking, grammar and vocabulary pertaining to Persian social, political, and cultural issues. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: PERS 330, equivalent, or permission of instructor.

Schedule Type: Lecture

Philosophy (PHIL)

100 Level Courses

PHIL 100: Introduction to Philosophy. 3 credits.
Introduction to the nature of philosophical reasoning and some of the main problems of philosophy. Offered by Philosophy (p. 430). May not be repeated for credit.

Schedule Type: Lecture

PHIL 101: Introduction to Philosophy for Prospective Majors. 3 credits.
In this course, students can learn what distinguishes philosophy from other intellectual fields, major contributions in the history of philosophy, and basic philosophical issues, as well as how to develop the skills needed to address those issues oneself. The course is geared to the needs and the interests of students who may want to consider declaring philosophy as their major. Offered by Philosophy (p. 430). May not be repeated for credit.

Schedule Type: Lecture

PHIL 110: Ethics Lab. 1 credit.
Focuses on contemporary moral problems and case studies of real world situations involving complex ethical issues. Examines different ways of identifying, analyzing and responding to such issues based on different approaches to ethical thinking. Allows students to develop their capacities for moral perception, and ethical decision-making and action in a global setting. Offered by Philosophy (p. 430). May not be repeated for credit.

Schedule Type: Lecture

PHIL 112: Ethics and the Cybersociety. 1 credit.
Examines ethical issues associated with new developments in information technology, including privacy rights, intellectual property rights, and the effect of information technology on society. Offered by Philosophy (p. 430). May not be repeated for credit.

Schedule Type: Lecture

Mason Core: Information Technology: Ethics Only (p. 135)

Schedule Type: Lecture

PHIL 151: Introduction to Ethics. 3 credits.
Considers some perennial issues in ethical theory. Offered by Philosophy (p. 430). May not be repeated for credit.

Schedule Type: Lecture

PHIL 156: What Is Art?. 3 credits.
Introduction to philosophical reflection on the arts by looking at the critical issues in the history of aesthetics. Applies considerations to specific works and exploring these works in terms of their historical contexts and influences. Concentrates on one form of art or one period
and always emphasizes questions of critical evaluation and art historical analysis. Offered by Philosophy (p. 430). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Schedule Type:** Lecture

**PHIL 173:** *Logic and Critical Thinking.* 3 credits.
Basic concepts and techniques of deduction, emphasizing the modern treatment of such topics as quantification and rules of inference, with study of the classical treatment. Basic principles of induction, informal fallacies, and uses of logic in everyday life. Offered by Philosophy (p. 430). May not be repeated for credit.

**Schedule Type:** Lecture

**200 Level Courses**

**PHIL 243:** *Global Environmental Ethics.* 3 credits.
Examines the global dimensions of environmental problems. Although environmental problems are global in reach, because different societies make different philosophical and ethical assumptions, they are understood in different ways. Examines several environmental problems, including climate change, population growth, and resource depletion, from a variety of scientific, policy, and cross-cultural perspectives. Offered by Philosophy (p. 430). May not be repeated for credit.

**Mason Core:** Global Understanding, Encore:Sustainability, Encore:Well-Being (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Lecture

**PHIL 251:** *Happiness and the Good Life.* 3 credits.
Addresses the question "How do I live a happy life?" by drawing on 2,500 years of philosophy as well as the much more recent science of happiness. Encourages students to develop and live their own answer in light of some of the best available science and philosophy. Offered by Philosophy (p. 430). May not be repeated for credit.

**Schedule Type:** Lecture

**PHIL 253:** *Philosophy and Literature.* 3 credits.
Examines differences and relations between literary and philosophical texts. Examines texts from a given period in the history of literature and philosophy. Topics include the presence of common issues in literary and philosophical writings, the influence of philosophical ideas on the production of literary texts and literary theory, and the development in literary texts of issues that are possible objects of philosophical inquiry. Offered by Philosophy (p. 430). May not be repeated for credit.

**Mason Core:** Literature (p. 135)

**Schedule Type:** Lecture

**300 Level Courses**

**PHIL 301:** *History of Western Philosophy: Ancient.* 3 credits.
Classical Greek philosophy, including pre-Socratics, Socrates, Plato, and Aristotle. Offered by Philosophy (p. 430). May not be repeated for credit.

**Schedule Type:** Lecture
of natural law. Offered by Philosophy (p. 430). May not be repeated for credit. Equivalent to GOVT 323.

**Recommended Prerequisite:** GOVT 101 or three credits of Philosophy.

**Schedule Type:** Lecture

PHIL 324: Modern Western Political Theory. 3 credits.
Exploration through lecture and discussion of developments in the Western tradition of political thought from the Renaissance to the middle of the 19th century, focusing on such topics as the rise of individualism in political theory, early developments in social contact theory, theories of radical popular sovereignty, and early criticisms of liberal theory. Offered by Philosophy (p. 430). May not be repeated for credit. Equivalent to GOVT 324.

**Recommended Prerequisite:** GOVT 101 or three credits of philosophy.

**Schedule Type:** Lecture

PHIL 325: Karl Marx's Social and Political Thought. 3 credits.
Study and evaluation of Marx's social and political ideas based on writings selected from several phases of his career. Examination of relation of Marx's thought to post-Marxian socialist theory and practice. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits of philosophy, or permission of instructor.

**Schedule Type:** Lecture

PHIL 327: Contemporary Western Political Theory. 3 credits.
Exploration through lecture and discussion of recent developments in the Western tradition of political thought from the middle of the 19th century to today. Different sections focus on one or another of the various political theories that have been influential during this period such as liberal, libertarian, conservative, communitarian, Marxist, feminist, and postmodern thought. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the term for a maximum 12 credits. Equivalent to GOVT 327.

**Recommended Prerequisite:** GOVT 101 or three credits of philosophy.

**Schedule Type:** Lecture

PHIL 332: Twentieth-Century Analytic Philosophy. 3 credits.
Examination of the attempts of 20th-century philosophers to solve philosophical problems by an analysis of language. Figures and movements covered include Russell, Moore, Wittgenstein, logical positivism, and ordinary language philosophy. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits of logic and PHIL 303, or permission of instructor.

**Schedule Type:** Lecture

PHIL 333: American Philosophy: Pragmatism. 3 credits.
Examines the philosophical movement of American Pragmatism, with emphasis on its origin in the late nineteenth century. Figures covered include Peirce, James, Dewey, and Mead. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits of philosophy, or permission of the instructor.

**Schedule Type:** Lecture

PHIL 335: Nineteenth-Century Philosophy. 3 credits.
Development of German Romanticism and Idealism during a brilliant period in the history of the West rivaled only by ancient Greece. Kant, Fichte, Hegel, Kierkegaard, Schopenhauer, and Nietzsche mount a revolt against the rationalism and scientism of the modern world. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of PHIL or Permission of Instructor.

**Schedule Type:** Lecture

PHIL 336: Twentieth-Century Continental Thought: Existentialism. 3 credits.
Examination of existential philosophy from its 19th-century origins to its 20th-century expressions. Philosophers studied include Kierkegaard, Nietzsche, Sartre, De Beauvoir, and Buber. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of PHIL or permission of instructor.

**Schedule Type:** Lecture

PHIL 337: Twentieth-Century Continental Thought: Phenomenology. 3 credits.
Examines phenomenological way of doing philosophy, its findings in regard to the "life-world," questions of "first philosophy," and the subject matter of the social sciences, as well as critical difficulties in its development. Texts by Husserl, Heidegger, Merleau-Ponty, Sartre, Schutz, and Derrida. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits of philosophy, or permission of instructor.

**Schedule Type:** Lecture

PHIL 338: Philosophy, Sex, and Gender. 3 credits.
An exploration of how concepts of sex and gender both structure key philosophical ideas and put such ideas into question. The course examines the ways patriarchal structures situate woman as the ‘other’ as well as alternative feminist approaches to sexuality, subjectivity, the body, and language. An overriding theme is the relationship between questions of sexual difference and other key issues in contemporary philosophy. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of PHIL or Permission of Instructor.

**Schedule Type:** Lecture

PHIL 340: Hermeneutic Philosophy. 3 credits.
Study of the development of hermeneutic philosophy in works by Heidegger, Gadamer, and Ricoeur, as an effort toward coming to terms with the historicity of human experience. Implications for interpretive understanding of artworks, institutions, events, texts, and the human condition. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of PHIL or Permission of Instructor.

**Schedule Type:** Lecture

PHIL 343: Topics in Environmental Philosophy. 3 credits.
An in-depth examination of selected environmental issues from a philosophical perspective. Such issues might include the value of nature, the moral status of animals, duties to protect wilderness areas,
economics and environmental protection, environmental justice, and environmental aesthetics. Offered by Philosophy (p. 430). May not be repeated for credit.

**Mason Core:** Encore:Sustainability, Synthesis (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Seminar

**PHIL 344:** *Ethical Issues in Global Health.* 3 credits.
This course will consider ethical questions that arise in global health policy, practice and research. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** Sophomore standing or higher.

**Schedule Type:** Lecture

**PHIL 355:** *Theories of Ethics.* 3 credits.
A critical examination of a variety of different types of classical, modern, and contemporary ethical theories, including consequentialist theories, deontological theories, and virtue theories. Offered by Philosophy (p. 430). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 3 credits in PHIL or permission of instructor.

**Schedule Type:** Lecture

**PHIL 356:** *Philosophy of Art.* 3 credits.
Basic problems that arise from an inquiry into meaning and value of art and our response to art. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of PHIL or permission of instructor.

**Schedule Type:** Lecture

**PHIL 357:** *Philosophy of the Social Sciences.* 3 credits.
Philosophical issues relating to competing methodologies for the social sciences. Analysis and critique of mainstream positivism and behaviorism; paradigm theory and scientific revolutions; interpretive understanding and hermeneutical science; phenomenology and the social construction of reality; ethnomethodology and situational meaning; analytic philosophy and action theory; the "idea" of a social science; sociology of knowledge and theory of ideology; and Western Marxism and critical theory. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits of philosophy, or permission of instructor.

**Schedule Type:** Lecture

**PHIL 358:** *Ethics and Economics.* 3 credits.
Examines issues at the intersection of ethics and economics. Looks at the different ways in which ethics and economics impact each other. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits in philosophy or permission of the instructor.

**Schedule Type:** Lecture

**PHIL 371:** *Philosophy of Natural Sciences.* 3 credits.
One semester of logic recommended. Study of aims and methodology of science. Among the questions of concern are: What constitutes a good scientific explanation? What grounds are used for comparing rival theories? Is there a special method of scientific discovery? Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of philosophy or permission of instructor.

**Schedule Type:** Lecture

**PHIL 372:** *Reason, Science and Faith in the Modern Age.* 3 credits.
Historical examination of the rise of sciences in the modern age (1500-present) and the impact this has had on religion, drawing from such thinkers as Luther, Bacon, Galileo, Newton, Pascal, Hume, Darwin, Kierkegaard, and James. Offered by Philosophy (p. 430). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Schedule Type:** Lecture

**PHIL 373:** *Theory of Knowledge.* 3 credits.
Discussion of basic problems concerning the nature of knowledge, with study of the relation of knowledge to perception, belief, and language. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 hours of philosophy or Permission of Instructor.

**Schedule Type:** Lecture

**PHIL 374:** *Philosophy of Mind.* 3 credits.
Investigation of such theories as dualism, behaviorism, and materialism as they pertain to some of the central philosophical questions about mind. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits of philosophy, or permission of instructor.

**Schedule Type:** Lecture

**PHIL 376:** *Symbolic Logic.* 3 credits.
Study of predicate calculi by means of a step-by-step construction of artificial languages. Topics include procedures for constructing a calculus, proof techniques, significant properties of predicate calculi, and procedures for recognizing phrases. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** PHIL 173 or MATH 110 or permission of instructor.

**Schedule Type:** Lecture

**PHIL 377:** *Darwin: Biology and Beyond.* 3 credits.
Introduction to and philosophical examination of the theory of evolution in its historical perspective. Examines Darwin's theory of evolution as a scientific theory, connects it to its context in the history of science, and surveys its wider cultural impact. In particular, examines implications of the theory of evolution for religion and morality. Offered by Philosophy (p. 430). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Schedule Type:** Lecture

**PHIL 378:** *Perspectives on Time.* 3 credits.
Examines the variety of ways time is conceptualized in different disciplines. Influential conceptions of time from the history of philosophy...
are studied in order to provide a comparative framework within which to consider specialist conceptions of time drawn from the sciences and humanities, including relativistic time, geological deep time, life cycles, and time in historical narrative. Offered by Philosophy (p. 430). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Recommended Prerequisite: 3 credits of philosophy, or permission of instructor.

Schedule Type: Lecture

PHIL 391: Special Topics in Philosophy. 1-3 credits. Examines topics of current interest such as death and dying, rights of children, and philosophical controversies in modern physics. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the term for a maximum 12 credits.

Schedule Type: Lecture

PHIL 393: Humanities College to Career. 1 credit. Focuses on career choices and effective self-presentation for soon-to-be graduating students with majors in the humanities. Explores how skills typically learned in humanities majors can be leveraged for a successful transition to post-graduation employment. Offered by Philosophy (p. 430). May not be repeated for credit. Equivalent to ENGH 303, FRLN 309, HIST 385.

Schedule Type: Lecture

PHIL 398: Study Abroad. 3 credits. Study abroad under supervision of Mason faculty. Course topics, content and locations vary. Notes: A maximum of 6 credits may be applied to the BA in philosophy. Offered by Philosophy (p. 430). May be repeated within the degree for a maximum 12 credits.

Schedule Type: Lecture

400 Level Courses

PHIL 411: Theories of Decision. 3 credits. Examines from a philosophical perspective descriptive and normative theories of individual decision, with particular focus on the strengths and weaknesses of theories of rational choice, and attempts to incorporate insights from psychology into theories of decision. Explores theoretical developments and a variety of applications. Offered by Philosophy (p. 430). May not be repeated for credit.

Recommended Prerequisite: Two previous courses in either Philosophy, Psychology, or Economics.

Schedule Type: Lecture

PHIL 421: Seminar. 3 credits. Explores topics in current philosophical research in a seminar format. Topics vary. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the degree for a maximum 18 credits.

Mason Core: Capstone (p. 135)

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: Nine credits in philosophy.

Schedule Type: Seminar

PHIL 422: Honors Seminar. 3 credits. Seminar for students enrolled in the honors program in philosophy. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the term for a maximum 18 credits.

Mason Core: Capstone (p. 135)

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: 9 credits in philosophy and acceptance to the honors program in philosophy.

Schedule Type: Seminar

PHIL 425: Independent Study. 1-3 credits. Independent study under supervision of faculty member. Students and faculty agree on program of study to include at least a reading list and final written project. Students must arrange for independent study in the semester before they wish to enroll. Requires approval of department. Offered by Philosophy (p. 430). May be repeated within the term for a maximum 12 credits.

Recommended Prerequisite: Sixty credits, including 15 credits in Philosophy and permission of the department.

Schedule Type: Independent Study

PHIL 460: Senior Seminar in Philosophy, Politics, and Economics. 3 credits. Covers issues in the philosophy, economics, and political science of institutions, information, and collective action. Through case studies of existing legal and political institutions, applies the insights to problems in politics, policy making, social-choice theory, and social, moral, and political philosophy. (Specific content varies). Notes: Serves as the capstone course for the PPE program. Offered by Philosophy (p. 430). May not be repeated for credit. Equivalent to ECON 460, GOVT 469.

Recommended Prerequisite: PHIL 358 and ECON 412 or permission of instructor.

Schedule Type: Seminar

600 Level Courses

PHIL 600: Preseminar in Philosophy. 1 credit. Introduces MA students to the areas and methods of philosophical scholarship. Notes: Graduate students outside of the philosophy program may take this course with permission of the department. Offered by Philosophy (p. 430). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment limited to students in the MA Philosophy program.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar
PHIL 603: Aristotle: Selected Works. 3 credits.
Close study of Aristotle's work and its place and future in history of philosophy. Topics vary by semester and include Aristotle's metaphysics, natural sciences, ethics, political thought, logic, epistemology, and psychology. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May not be repeated for credit.
Registration Restrictions: 
Enrollment limited to a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHIL 608: Hegel's Phenomenology of the Spirit. 3 credits.
A study of the philosophy of Hegel through a reading of the text that presents an introduction to his system. Special attention is paid to Hegel's background in the work of Kant and the German Idealists. Offered by Philosophy (p. 430). May not be repeated for credit.
Registration Restrictions: 
Enrollment limited to a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PHIL 615: Postmodernist Thought. 3 credits.
In recent decades, the term "postmodern," first used by art critics in the late 19th century, has been taken up by prominent contributors to the arts, social thinkers, and philosophers, to describe developments as well as the current period. Examines three thematic concerns found in work that is identified with postmodern issues: what modernity defines itself in contrast to or against, the status of "man," and status of "subjectivity." Offered by Philosophy (p. 430). May not be repeated for credit.
Registration Restrictions: 
Enrollment limited to a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHIL 616: Phenomenology. 3 credits.
This major approach in philosophy is studied in regard to its basic features, the tasks to which it has been set by major contributors, certain findings of phenomenology in practice, as well as crucial problems that develop as phenomenology proceeds and how they are addressed by phenomenologists. Offered by Philosophy (p. 430). May not be repeated for credit.
Registration Restrictions: 
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHIL 617: Movements and Issues in the History of Political Philosophy. 3 credits.
Explores themes, movements, and periods in the history of political theory. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the degree for a maximum 6 credits.
Registration Restrictions: 
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHIL 640: History of Ethical Theory. 3 credits.
Examines history of Western ethical theory from ancient Greece to the present day, including virtue theory, consequentialism, deontological theory and contemporary feminism. Offered by Philosophy (p. 430). May not be repeated for credit.
Registration Restrictions: 
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHIL 642: Biomedical Ethics. 3 credits.
Explores the application of ethical theories and principles to issues in contemporary health care. Cases central to the development of the field will be examined. Offered by Philosophy (p. 430). May not be repeated for credit.
Registration Restrictions: 
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHIL 643: Environmental Ethics. 3 credits.
An examination of human interactions with the natural environment from an ethical perspective. Emphasis will be placed on the strengths and weaknesses of various ethical theories and the different conceptions of
the proper relationship between humans and their environment. Offered by Philosophy (p. 430). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

PHIL 644: *Business and Organizational Ethics.* 3 credits.
Examines the application of ethics in business and organizational settings, and the necessity for ethical development within organizational culture. Offered by Philosophy (p. 430). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

PHIL 645: *Research Ethics.* 3 credits.
Examines how ethical theories, concepts, and principles shape research guidelines. Students learn to identify ethical issues in research, to reflect on them critically, and to respond effectively. Designed for students in the humanities, social sciences, life sciences, and health sciences. Offered by Philosophy (p. 430). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

PHIL 658: *Feminist Theory.* 3 credits.
Analysis of the critique of patriarchy offered by contemporary continental feminist philosophers. Examines contemporary moral, political, and epistemological issues in feminist theory. Offered by Philosophy (p. 430). May not be repeated for credit.

**Recommended Prerequisite:** Admission to graduate program or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

PHIL 681: *Figures and Topics in Ancient Philosophy.* 3 credits.
Examines major philosophical authors, text, and topics of the ancient period and their influence on philosophical thought. May cover Plato, Aristotle, or the pre-Socratic philosophers. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

PHIL 682: *Figures and Topics in Early Modern Philosophy.* 3 credits.
Examines major philosophical authors, text and topics of the early modern period and their influence on philosophical thought. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

PHIL 683: *Contemporary Philosophical Figures.* 3 credits.
Examines major recent philosophical authors, texts, and topics, and their influence on philosophical thought. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

PHIL 693: *Directed Readings in Philosophy.* 3 credits.
Directed readings and research on specific topic in philosophy chosen by student and instructor. Offered by Philosophy (p. 430). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Independent Study

**PHIL 694:** *Special Topics in Contemporary Philosophy.* 3 credits.
Topics vary. Notes: May be repeated for credit when topic is different. Offered by Philosophy (p. 430). May be repeated within the term for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**Physical Education (PHED)**

**100 Level Courses**

**PHED 184:** *Historical Swordsmanship.* 1 credit.
Introduces Historical European Martial Arts of Swordsmanship. Offers fundamentals in footwork and body mechanics needed in the sport including sparing with protective gear and using 15th century Longsword and 17th century rapier are included. Notes: Open to all majors. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 3 credits.

**Schedule Type:** Laboratory

**PHED 199:** *Introduction to Health and Physical Education.* 1 credit.
Uses best practices to introduce to potential teacher candidates current health and physical education teaching issues. Introduces terminology specific to teaching, and concepts such as standards of learning, planning, assessment, curriculum developments, and risk management. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

**200 Level Courses**

**PHED 200:** *Professional Dimensions of Health, Recreation, and Physical Education.* 3 credits.
Traces historical foundations of health, recreation, physical education, and sport. Notes: Open to nonmajors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

**PHED 201:** *Developmental Motor Patterns.* 3 credits.
Analyzes motor-skill development and prescription of activities from immature to mature stages. This course must be complete within 5 years of student teaching. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

**PHED 202:** *Teaching Skillful Movement.* 3 credits.
Covers planning and presenting lessons on numerous motor skills using varied teaching strategies in a peer teaching setting. This course must be complete within 5 years of student teaching. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

**PHED 218:** *Technology in Health and Physical Education.* 2 credits.
Develops technology skills to support health and physical education instruction in school settings. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture
PHED 230: Asian Martial Arts: Origin and Development. 3 credits.
Introduction to martial arts of East, South, and Southeast Asia. Lectures address martial arts from a historical, philosophical, biographical, warfare, and sport perspective. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

PHED 273: Net and Target Games. 2 credits.
Skill and content knowledge in net and target games. Includes skill progression, strategies, officiating, and authentic assessment in games such as volleyball, golf, tennis, and badminton. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Physical Education.

Schedule Type: Lecture

PHED 274: Dance and Educational Gymnastics. 2 credits.
Skill and content knowledge in dance, rhythms, and educational gymnastics. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Physical Education.

Schedule Type: Lecture

PHED 275: Field and Invasion Games. 2 credits.
Skill and content knowledge in field and invasion games. Includes skill progression, strategies, officiating, and authentic assessment in activities such as softball, basketball, soccer, field events, and Ultimate Disc. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Physical Education.

Schedule Type: Lecture

PHED 276: Health-Related Fitness Education. 2 credits.
Prepares future physical educators to develop, implement, and assess fitness concepts, and strategies to K12 students. Requires fitness tests participation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

PHED 277: Adapted Physical Education. 3 credits.
Introduces disabilities in public schools. Covers national standards, federal legislation, IEPs, and developmental inclusion models. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Physical Education.

PHED 278: Social and Cultural Issues in Physical Education. 3 credits.
Studies contemporary and historical perspectives on socio-cultural and philosophical issues influencing American public schooling and physical education. Also covers statistical analysis of data and survey of selected instruments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to KINE 360.

Recommended Prerequisite: BIOL 124 and 125.

Schedule Type: Lecture

PHED 279: Student Assessment in Health and Physical Education. 2 credits.
Examines assessment purposes and introduces different assessment procedures that measure student achievement in the different domains of behaviors in health and physical education. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: BIOL 124 and 125.

Schedule Type: Lecture

PHED 280: Psychological Aspects of Learning. 3 credits.
Analyzes psychological aspects, learning theory, and practice conditions for learning motor skills. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: PHED 273, 274, 275, and PHED 306 (may be taken concurrently).

Schedule Type: Lecture

PHED 281: Elementary School Instruction in Physical Education. 3 credits.
Covers content, knowledge, and teaching methods for K-6 physical education. Requires field experience. Must be taken within one year of student teaching. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: PHED 273, 274, 275, and PHED 306 (may be taken concurrently).

Schedule Type: Lecture

PHED 300 Level Courses

PHED 301: Adapted Physical Education. 3 credits.
Introduces disabilities in public schools. Covers national standards, federal legislation, IEPs, and developmental inclusion models. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Physical Education.

Schedule Type: Lecture

PHED 364: Strength Training: Concepts and Applications. 3 credits.
Provides students with an opportunity to develop an in-depth understanding of the principles of strength training and conditioning, including anatomical and physiological considerations, lifting techniques, equipment selection, program development and evaluation, and weightlifting safety. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to KINE 370.

Recommended Prerequisite: BIOL 124 and 125.

Schedule Type: Lecture

PHED 365: Measurement and Evaluation of Physical Fitness. 3 credits.
Covers selection, administration, evaluation, and construction of measurements and evaluation instruments and techniques in physical education. Also covers statistical analysis of data and survey of selected instruments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to KINE 370.

Recommended Prerequisite: BIOL 124 and 125.

Schedule Type: Lecture

400 Level Courses

PHED 403: Elementary School Instruction in Physical Education. 3 credits.
Covers content, knowledge, and teaching methods for K-6 physical education. Requires field experience. Must be taken within one year of student teaching. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
PHED 404: *Middle and High School Instruction in Physical Education*. 3 credits.
Examines school curriculum, assessment, content, and teaching practices for middle and high school physical education programs. Requires field experience. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** PHED 273\(^D\), 275\(^D\), 306\(^D\), 403\(^D\), 274\(^D\), KINE 200\(^D\) and PHED 276\(^D\).

\(D\) Requires minimum grade of D.

Enrollment is limited to students with a major in Exercise, Fitness Hilth Promo, Health Education, Health, Fitness Rec Resrcs, Physical Education or Parks, Rec, Leisure Studies.

**Schedule Type:** Lecture

PHED 410: *Social/Psychological Aspects of Health and Fitness*. 3 credits.
Covers research, trends, and techniques of health and fitness from a behavioral perspective. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Lecture

PHED 415: *Student Teaching in Physical Education*. 12 credits.
Provides supervised clinical experience for a full semester in approved schools. Requires experiences in elementary and secondary school settings. Requires. Includes participation in pre-service workshop and related activities, and weekly seminars. Note: Completion of all Mason Core and program coursework, and acceptance into Student Teaching. PHED 415 must be completed within 5 years of PHED 201 and 202. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Registration Restrictions:**
**Required Prerequisites:** ATEP 120\(^D\), 300\(^D\), BIOL 125\(^D\), EDRD 300\(^D\), EDUC 302\(^D\), HEAL 110\(^D\), 200\(^D\), 220\(^D\), 310\(^D\), 325\(^D\), 405\(^D\), KINE 310\(^D\), 320\(^D\), PHED 199\(^D\), 218\(^D\), 308\(^D\), 320\(^D\), 340\(^D\), 404\(^D\) and PRLS 310\(^D\).

\(D\) Requires minimum grade of D.
\(C\) Requires minimum grade of C.

**Schedule Type:** Internship

PHED 480: *Special Topics*. 1-3 credits.
See course description in the Schedule of Classes. Selected topics reflect interest in specialized areas of exercise science or health promotion. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

PHED 499: *Independent Study in Physical Education and Fitness*. 1-3 credits.
Study of a problem area in physical education research, theory, or practice under direction of faculty member. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** Completion of 90 hours and Permission of Chair.

**Registration Restrictions:**
Enrollment is limited to students with a major in Health Education, Health, Fitness Rec Resrcs, Individualized Study, Nursing, Physical Education (Special), Physical Education or Parks, Rec, Leisure Studies.

**Schedule Type:** Independent Study

### 600 Level Courses

**PHED 670: Analysis of Teaching in Physical Education*. 3 credits.
Presents variety of research techniques for studying teacher and learner behaviors in physical education, engaging the teacher as researcher and grant writer. Goal is to prepare teachers to be leaders in their field. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHED 672: Curriculum and Assessment in Physical Education*. 3 credits.
Provides knowledge of curriculum models and assessment strategies in standards-based physical education program. Studies curriculum models such as sport education and adventure education. Examines traditional and alternative assessment. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHED 673: Motor Development for Special Populations*. 3 credits.
Provides knowledge that focuses on individuals with orthopedic, sensory, and learning disabilities in physical education setting. Areas of focus include development of motor patterns and skills assessment, and planning and instruction for students with disabilities. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** PHED 670.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHED 680: Mentoring and Supervising in Physical Education*. 3 credits.
Prepares mentors and supervisors of preservice and in-service teachers in physical education. Topics include professional
dispositions, assessment and evaluation, adult learners, counseling and communication, providing feedback, and reflection and inquiry into the profession. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** PHED 670.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Physics (PHYS)**

**100 Level Courses**

**PHYS 101:** _Light and Sound in Our World_. 3 credits. Nature of light, color, sound, electromagnetic spectrum, optical instruments, mechanisms of vision and hearing, color addition and subtraction, synthesis of musical sounds, interference of waves, polarization, Doppler effect, lasers, holography. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Schedule Type:** Lecture

**PHYS 102:** _Sports Physics_. 3 credits. Introduction to laws of physics in context of sports. Physics topics to be studied include two-dimensional motion, forces, conservation of energy, and momentum in the application to sports. Sports include football, basketball, baseball, swimming, and tennis. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Schedule Type:** Lecture

**PHYS 103:** _Physics and Everyday Phenomena I_. 4 credits. The course uses basic physics concepts from the areas of mechanics and thermodynamics to explain a wide range of everyday phenomena, such as how we walk and drive, how a ship floats, how clothing keeps us warm, and why it rains when we have a low pressure system. Notes: For nonscience majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Schedule Type:** Laboratory, Lecture

**PHYS 104:** _Physics and Everyday Phenomena II_. 4 credits. The course uses basic physics concepts from the areas of light, sound, electricity, magnetism, and modern physics to explain a wide range of everyday phenomena. Topics include how we speak, hear, and see, what to do if the circuit breaker keeps tripping, how your computer stores and displays data, how rainbows and northern lights form, and the basic nature of matter. Notes: For nonscience majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Recommended Prerequisite:** PHYS 103.

**Schedule Type:** Laboratory, Lecture

**PHYS 106:** _The Quantum World: A Continuous Revolution in What We Know and How We Live_. 3 credits. This course presents quantum physics that revolutionized the 20th Century and continues to evolve. In addition to presenting basic concepts, the course will discuss various applications involving quantum phenomena including quantum computers and quantum teleportation. The course will be a historical journey through the quantum science that many of its founders, such as Einstein, could not accept, and a peek into a possible future. Notes: For non-science majors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science Overview (p. 135)

**Schedule Type:** Lecture

**PHYS 111:** _Introduction to the Fundamentals of Atmospheric Science_. 3 credits. An overview of the Earth’s atmosphere, its history, and the physical and chemical processes that determine its characteristics. The focus is on key concepts from thermodynamics, radiation, chemistry, and dynamics that are essential for understanding the state, variability, and long term evolution of the atmosphere, especially in the context of comparisons with other planetary atmospheres. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CLIM 111.

**Mason Core:** Natural Science with Lab (p. 135)

**Schedule Type:** Lecture

**PHYS 112:** _Introduction to the Fundamentals of Atmospheric Science Lab_. 1 credit. Laboratory course associated with PHYS 111. Study of the Earth’s atmosphere based on concepts taken from thermodynamics, radiation transport, chemistry, and dynamics. Designated a Green Leaf Course. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CLIM 112.

**Mason Core:** Natural Science with Lab, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Laboratory

**PHYS 121:** _Uses of Physics_. 1 credit. Describes the uses of physics to a number of disciplines and professions, including medicine, information technology, energy, and environmental technology. Notes: Introductory course intended for both majors and nonmajors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Schedule Type:** Lecture

**PHYS 122:** _Inside Relativity_. 1 credit. Introductory course describing Einstein’s theories of special and general relativity. Notes: Intended for majors and nonmajors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Schedule Type:** Lecture

**PHYS 123:** _Inside the Quantum World_. 1 credit. Introductory course describing quantum theory. Notes: Intended for majors and nonmajors. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Schedule Type:** Lecture
**PHYS 124: Experimental Explorations in Physics. 2 credits.** Introductory nonmathematical course intended primarily for physics majors. Experimental studies of phenomena in mechanics, electricity and magnetism, and optics. Stresses development of familiarity with methods and techniques of measurement and with data evaluation. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Schedule Type:** Laboratory

**PHYS 160: University Physics I. 3 credits.** First semester of three-semester, calculus-based introductory physics sequence, designed primarily for science and engineering majors. Mechanics. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Registration Restrictions:**
**Required Prerequisites:** MATH 114*C or 116*C.

*C May be taken concurrently.

*C Requires minimum grade of C.

**Schedule Type:** Lecture, Recitation

**PHYS 161: University Physics I Laboratory. 1 credit.** Experiments in mechanics, including techniques for recording, graphically and statistically analyzing, and reporting data. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Schedule Type:** Laboratory

**PHYS 124: College Physics. 3 credits.** Two-semester basic physics course with emphasis on topics of classical and modern physics of particular importance to science majors. Principles of mechanics, heat, electricity, magnetism, optics, and atomic and nuclear physics are discussed. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Recommended Prerequisite:** C or higher in PHYS 243.

**Schedule Type:** Lecture, Recitation

**PHYS 251: Introduction to Computer Techniques in Physics. 3 credits.** Introduction to using computers in physics based on examples from mechanics and astronomy. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Information Technology: Without Ethics (p. 135)

**Registration Restrictions:**
**Required Prerequisite:** PHYS 160*C.

*C Requires minimum grade of C.

**Schedule Type:** Lecture

**PHYS 260: University Physics II. 3 credits.** Waves, electricity, and magnetism. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Recommended Prerequisite:** PHYS 160 with a grade of C or better.

**Recommended Corequisite:** MATH 213 or equivalent.

**Registration Restrictions:**
**Required Prerequisites:** PHYS 160*C and (MATH 213*C or 215*C).

*C May be taken concurrently.

*C Requires minimum grade of C.

**Schedule Type:** Lecture, Recitation

**PHYS 261: University Physics II Laboratory. 1 credit.** Experiments in mechanics, electricity, and magnetism, including techniques for recording, graphically and statistically analyzing, and reporting data. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Mason Core:** Natural Science with Lab (p. 135)

**Registration Restrictions:**
Required Prerequisites: PHYS 161$^c$ and 260$^c$.
$^c$ May be taken concurrently.
$^c$ Requires minimum grade of C.

Schedule Type: Laboratory

PHYS 262: University Physics III. 3 credits.
Thermodynamics, optics, and modern physics. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Recommended Prerequisite: C or higher in PHYS 261.

Registration Restrictions:
Required Prerequisite: PHYS 260$^c$.
$^c$ Requires minimum grade of C.

Schedule Type: Lecture, Recitation

PHYS 263: University Physics III Laboratory. 1 credit.
Experiments in optics and modern physics, including techniques for recording, graphically and statistically analyzing, and reporting data. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Natural Science with Lab (p. 135)

Registration Restrictions:
Required Prerequisites: PHYS 261$^c$ and 262$^c$.
$^c$ May be taken concurrently.
$^c$ Requires minimum grade of C.

Schedule Type: Laboratory

PHYS 265: Advanced University Physics II Laboratory. 2 credits.
Credit may be received for PHYS 261 or 265. Experiments in mechanics, electricity, and magnetism with emphasis on data analysis using spreadsheets and Matlab. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Corequisite: PHYS 260 and MATH 213.

Schedule Type: Laboratory

PHYS 266: Introduction to Thermodynamics. 1 credit.
Students may not receive credit for both PHYS 262 and 266. Laws of thermodynamics, kinetic theory of gases, heat engines, and entropy. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: PHYS 260$^c$.
$^c$ Requires minimum grade of C.

Schedule Type: Lecture, Recitation

300 Level Courses
PHYS 301: Analytical Methods of Physics. 3 credits.
Analytical methods in the Physical Sciences. Provides a comprehensive introduction to the areas of mathematical physics. Notes: This course does not satisfy the PHYS elective requirement. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: MATH 214$^c$.
$^c$ Requires minimum grade of C.

Schedule Type: Lecture

PHYS 303: Classical Mechanics. 3 credits.
Motion of a particle in one, two, and three dimensions; systems of particles; noninertial coordinate systems; and equations of Lagrange and Hamilton. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (PHYS 262$^c$ and MATH 214$^c$) and (PHYS 301$^c$, MATH 313$^c$ or 413$^c$).
$^c$ May be taken concurrently.
$^c$ Requires minimum grade of C.

Schedule Type: Lecture

PHYS 305: Electromagnetic Theory. 3 credits.
Interaction of static charges, interaction of stationary currents, electromagnetic induction, and Maxwell's equations. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 214$^c$ and PHYS 262$^c$) and (PHYS 301$^c$, MATH 313$^c$ or 413$^c$).
$^c$ May be taken concurrently.
$^c$ Requires minimum grade of C.

Schedule Type: Lecture

PHYS 306: Wave Motion and Electromagnetic Radiation. 3 credits.
Vibrating string, plane waves, interference, diffraction, polarization, electromagnetic waves, dispersion, and relativity. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Corequisite: MATH 214.

Registration Restrictions:
Required Prerequisite: PHYS 305$^c$.
$^c$ Requires minimum grade of C.

Schedule Type: Lecture

PHYS 307: Thermal Physics. 3 credits.
Classical concepts of energy and temperature, basic definitions, first and second laws of thermodynamics, properties of pure substances, and equations of state. Introduction to classical and quantum statistics and their application to physical systems. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to ENGR 307.

Registration Restrictions:
Required Prerequisite: PHYS 262$^c$.
$^c$ Requires minimum grade of C.

Schedule Type: Lecture

PHYS 308: Modern Physics with Applications. 3 credits.
Study of modern physics with emphasis on applications. Topics include introductory quantum physics; modern optics; lasers; binding and energy bands in solids; electrical, thermal, and magnetic properties of solids; semiconductors; radioactivity; nuclear reactions; radiation detectors; and applications of nuclear physics to other sciences. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Corequisite: MATH 214.

Registration Restrictions:
Required Prerequisite: PHYS 262C.
C Requires minimum grade of C.

Schedule Type: Lecture

PHYS 310: Physics of Semiconductor Materials and Processing, 3 credits.
Survey of the electronic and structural properties of semiconductors and the physics of semiconductor processing. Topics to be discussed include crystal growth, crystal defects, thin films, thermal properties, lithography, and characterization. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: PHYS 160C, 260C and 262C.
C Requires minimum grade of C.

Schedule Type: Lecture

PHYS 311: Instrumentation, 3 credits.
Introduction to basic analog and digital circuits, circuit design and simulation, and data acquisition. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHYS 251, PHYS 261.

Schedule Type: Laboratory

PHYS 312: Wave and Optics, 3 credits.
Laboratory survey of wave and optical phenomena and associated instrumentation. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHYS 251, PHYS 261.

Schedule Type: Laboratory

PHYS 326: Problems in Physics II, 1-3 credits.
Individual study of physics problems of current interest. Offered by Physics & Astronomy (p. 724). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: 60 credits and 2.500 GPA in physics and mathematical sciences.

Schedule Type: Independent Study

Introduces the physical principles for a range of renewable energies, including solar, wind, hydropower and geothermal. Demonstrates how the application of methods and principles of physics allow us to understand the basic operation, advantages, limitations and relative merits of various renewable energy sources. Designed for students majoring in the sciences or engineering but useful for students interested in science policy, business, global change and sustainable development. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Required Prerequisites: PHYS 262C or 266C.
C Requires minimum grade of C.

Schedule Type: Lecture

PHYS 332: Solar Cells, 3 credits.
Covers the physics of solar cells, basics of semiconductors, pn junctions, basic structure of solar cells, the latest advances in solar cell materials, and concepts for improving the efficiency of solar cells. Solar cell design based on silicon, copper indium gallium selenide, gallium arsenide, organic solar cells, dye-sensitized solar cells, quantum dots, and nanowires will also be reviewed. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Specialized Designation: Scholarly Inquiry

Registration Restrictions:
Required Prerequisites: (PHYS 262C and 263C) or (PHYS 245C and 246C).
C Requires minimum grade of C.

Schedule Type: Lecture

PHYS 346: Quarks to Strings, 3 credits.
An non-technical introduction to the Standard Model of Elementary Particles and String Theory, in the context of the philosophy of science. Conceptual mastery will be demonstrated through writing assignments rather than calculations. Notes: This course does not satisfy the PHYS elective requirement. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Registration Restrictions:
Required Prerequisite: PHYS 262C.
C Requires minimum grade of C.

Schedule Type: Lecture

PHYS 370: Molecular Biophysics, 3 credits.
Offers a broad introduction into molecular biophysics. Demonstrates that the application of methods of physics provides a unique opportunity to tackle complex biological programs. Mainly designed for students majoring in physics or chemistry but also useful for biology majors interested in bioinformatics and computational biology. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to BINF 470.

Registration Restrictions:
Required Prerequisites: (PHYS 307C) or (CHEM 331C and 332C).
C Requires minimum grade of C.

Schedule Type: Lecture

PHYS 385: Materials Science with Applications to Renewable Energy, 3 credits.
Introduction to basic concepts and methods of materials science. Review of metallic alloys and compounds, ceramic materials, ionic solids, semiconductors, polymers, and nano-structured materials. Mechanical, thermal, electric, magnetic and optical properties of materials. Theoretical background and experimental methods of materials characterization. Various materials applications with emphasis on renewable energy. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CDS 385.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Required Prerequisites: PHYS 262C, 266C, 245C or MATH 113C.
C Requires minimum grade of C.

Schedule Type: Lecture
PHYS 390: Topics in Physics. 1-4 credits. Selected topics in physics not covered in fixed-content courses. Offered by Physics & Astronomy (p. 724). May be repeated within the term for a maximum 9 credits.

Schedule Type: Lecture

400 Level Courses

PHYS 402: Introduction to Quantum Mechanics and Atomic Physics. 3 credits. Experimental basis of quantum mechanics; the wave function; systems in one, two, and three dimensions. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 502.

Registration Restrictions:
Required Prerequisites: PHYS 303C, 305C and 308C.
C Requires minimum grade of C.

Schedule Type: Lecture


Registration Restrictions:
Required Prerequisite: PHYS 402C.
C Requires minimum grade of C.

Schedule Type: Lecture

PHYS 405: Honors Thesis in Physics. 3 credits. Project chosen and completed under the guidance of a faculty member, which results in a thesis. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Notes: PHYS 405 is a prerequisite for PHYS 406. An oral progress report is required for PHYS 405. Oral and written presentations are required for PHYS 406. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: 21 credits of Physics, PHYS 262, 305, 308; physics major and admission to Physics department honors program.

Schedule Type: Independent Study

PHYS 406: Honors Thesis in Physics. 3 credits. Project chosen and completed under the guidance of a faculty member, which results in a thesis. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Notes: PHYS 405 is a prerequisite for PHYS 406. An oral progress report is required for PHYS 405. Oral and written presentations are required for PHYS 406. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHYS 405.

Schedule Type: Independent Study

PHYS 407: Senior Laboratory in Modern Physics. 4 credits. Advanced experiments in modern physics: electronics, optics, condensed matter, and nuclear physics. Techniques for recording, graphically and statistically analyzing, and reporting data. Typical experiments include the Frank-Hertz experiment, Hall Effect, electron spin resonance, nuclear magnetic resonance and optical pumping. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: C or higher in PHYS 263, 305, 308.

Registration Restrictions:
Required Prerequisite: PHYS 402C.
C May be taken concurrently.
C Requires minimum grade of C.

Schedule Type: Laboratory

PHYS 408: Senior Research. 2-3 credits. Work under guidance of faculty member on research project in experimental or theoretical physics. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Notes: May be repeated with permission of the Physics Department. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Offered by Physics & Astronomy (p. 724). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 21 credits of physics courses.

Schedule Type: Research

PHYS 409: Physics Internship. 3 credits. On-the-job experience for physics majors in industry or government laboratories including summer programs. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Notes: May be repeated with permission of the School of Physics, Astronomy, & Computational Sciences. Students may receive no more than 6 credits of PHYS 405, 406, 408, and 409. Offered by Physics & Astronomy (p. 724). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: PHYS 262 or 266, and at least 12 credits at the 300-level or above of physics, astronomy, chemistry, engineering, or mathematics courses, and permission of the undergraduate coordinator.

Schedule Type: Internship

PHYS 410: Computational Physics I. 3 credits. Study and development leading to computer simulations of various physical systems. Requires the study and development of computational techniques and numerical algorithms to obtain both numerical results and visualization of these results. Application to individual physical processes taking place in a variety of physical streams. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 510.

Registration Restrictions:
Required Prerequisites: PHYS 303C and 305C.
C Requires minimum grade of C.

Schedule Type: Laboratory, Lecture

PHYS 412: Solid State Physics and Applications. 3 credits. Crystal structures, binding, lattice vibrations, the free electron model, metals, semiconductors and semiconductor devices, superconductivity, and magnetism. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 512.

Registration Restrictions:
processes. Topics include observational and modeling techniques in governing equations of atmospheric and ionospheric dynamics with a chemistry of the atmosphere-ionosphere system. The focus is on the

Required Prerequisites: PHYS 402^{C} or 502^{B}.

C Requires minimum grade of C.

B Requires minimum grade of B.

Schedule Type: Laboratory, Lecture

PHYS 416: Special Topics in Modern Physics. 1 credit.
Topics of current interest in modern physics with emphasis on the breadth of physical understanding needed to approach many of today's problems. The course will also review all of undergraduate physics through assigned problems from the GRE test. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: Completion of 21 hours of PHYS.

Required Prerequisites:

Schedule Type: Lecture

PHYS 417: Geophysics. 3 credits.
Seismological and gravitational theory and application to an understanding of the Earth's interior. Geology requirement may be waived for physics and engineering students with sufficient background. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to GEOL 417.

Recommended Prerequisite: GEOL 102, 201, 301; MATH 113, 114; PHYS 160.

Recommended Corequisite: MATH 213 and PHYS 260, 261.

Schedule Type: Lecture

PHYS 428: Relativity. 3 credits.
Special relativity; four-dimensional space-time; general relativity; non-Euclidean geometries, geodesics, and field equations; tests of general theory of relativity; black holes; cosmology; models of the universe; remnant blackbody radiation; big bang cosmology; thermodynamics; and the universe. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to ASTR 428.

Registration Restrictions:

Required Prerequisites: PHYS 303^{C} and 305^{C}.

Schedule Type: Lecture

PHYS 440: Nuclear and Particle Physics. 3 credits.
Accelerators, detectors and related electronics; nuclear and elementary particle structure; symmetries and conservation laws; the electromagnetic, weak, and hadronic interactions; nuclear models; the quark model; and nuclear science and technology. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 540.

Registration Restrictions:

Required Prerequisites: PHYS 402^{C} or 502^{B}.

C Requires minimum grade of C.

B Requires minimum grade of B.

Schedule Type: Laboratory, Lecture

PHYS 465: Planetary Atmospheres and Ionospheres. 3 credits.
An interdisciplinary introduction to the fundamental physics and chemistry of the atmosphere-ionosphere system. The focus is on the governing equations of atmospheric and ionospheric dynamics with a systems (science) approach to the atmosphere-ionosphere coupling processes. Topics include observational and modeling techniques in the Earth's upper atmosphere as well as recent progress in planetary atmosphere-ionospheres and planetary missions. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHys 262 and PHYS 301 or MATH 314 or MATH 478 or permission of instructor.

Schedule Type: Lecture

PHYS 475: Atmospheric Physics. 3 credits.
Introduction to basic physical and chemical processes that operate in the Earth's atmosphere. Emphasis on those concepts that provide a global description of the current atmospheric state and those processes that relate to global change and atmospheric evolution. Topics include equilibrium structure, radiative transfer models, thermodynamics of various atmospheric layers, and the various processes defining these layers. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHYS 260 and 262.

Schedule Type: Lecture

500 Level Courses

PHYS 502: Introduction to Quantum Mechanics and Atomic Physics. 3 credits.
Experimental basis of quantum mechanics, the wave function, and systems in one, two, and three dimensions. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:

Required Prerequisite: PHYS 308^{C}.

C Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 510: Computational Physics I. 3 credits.
Study and development leading to computer simulations of various physical systems. Requires the study and development of computational techniques and numerical algorithms to obtain both numerical results and visualization of these results. Application to individual physical processes taking place in a variety of physical systems. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 410.

Registration Restrictions:

Required Prerequisites: PHYS 303^{C} and 305^{C}.

C Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Schedule Type: Lecture

**PHYS 512: Solid State Physics and Applications.** 3 credits. Crystal structures, binding, lattice vibrations, the free electron model, metals, semiconductors and semiconductor devices, superconductivity, and magnetism. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CSI 687, PHYS 412.

**Registration Restrictions:**
- **Required Prerequisites:** PHYS 402\(^C\) or 502\(^B\). 
- \(^C\) Requires minimum grade of C. 
- \(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 513: Applied Electromagnetic Theory.** 3 credits. Classical electromagnetic theory with applications. Topics include electrostatics, magnetic fields and materials, electromagnetic wave propagation, waveguides, transmission lines, radiation, and antennas. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Registration Restrictions:**
- **Required Prerequisites:** PHYS 305\(^C\), 306\(^C\), MATH 313\(^C\) and 314\(^C\).
- \(^C\) Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 525:**

**PHYS 533: Modern Instrumentation.** 3 credits. Topics include sensors for radiation, particles, electric and magnetic fields, pressure, and motion; electronic instruments, computer data collection, instrumentation noise and noise reduction methods; and specialized instrumentation systems for various areas of applied physics. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CHEM 620.

**Registration Restrictions:**
- **Required Prerequisite:** PHYS 513\(^B\).
- \(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 540:** Nuclear and Particle Physics. 3 credits. Accelerators, detectors and related electronics; nuclear and elementary particle structure; symmetries and conservation laws; the electromagnetic, weak, and hadronic interactions; nuclear models; the quark model; and nuclear science and technology. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to PHYS 440.

**Registration Restrictions:**
- **Required Prerequisites:** PHYS 402\(^C\) or 502\(^B\).
- \(^C\) Requires minimum grade of C. 
- \(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
**PHYS 581: Topics in Renewable Energy.** 3 credits.
The course covers the physical principles for a range of renewable energies, including solar, wind, hydropower and geothermal using mathematical and other types of analysis. The course demonstrates how the application of methods and principles of physics allow us to understand the basic operation, advantages, limitations and relative merits of various renewable energy sources. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** PHYS 262\(^C\) and 266\(^C\).
\(^C\) Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 590: Selected Topics in Physics.** 1-6 credits.
Selected topics from recent theoretical or experimental developments and applications. Satisfies needs of professional community to keep abreast of current developments. Offered by Physics & Astronomy (p. 724). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**600 Level Courses**

**PHYS 600: Special Topics in Physics.** 1-6 credits.
In-service course to strengthen and update teachers’ knowledge of physics and astronomy. Offered by Physics & Astronomy (p. 724). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 612: Physics of Modern Imaging.** 3 credits.
Study of imaging methods using acoustic and electromagnetic waves to probe extended objects, and mathematical transformations to produce images from scattered waves. Topics include classical imaging, physical optics, Fourier transform, holography, tomography, seismic mapping, underwater acoustic imaging and mapping, side-looking radar, antenna arrays, applicable computer methods. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** PHYS 513\(^B\) or 685\(^B\).
\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 613: Computational Physics II.** 3 credits.
Study of diverse physical systems with emphasis on modeling and simulation. Study and development of numerical algorithms and techniques to obtain both numerical results and visualization of these results. Projects undertaken will draw from such areas as many-body orbital dynamics, molecular interactions, quantum systems, radiative transfer in high-temperature plasmas, stellar interiors, hydrodynamics, and cosmology. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** PHYS 502

**Registration Restrictions:**
**Required Prerequisites:** PHYS 303\(^C\), 305\(^C\) and 510\(^B\).
\(^C\) Requires minimum grade of C.
\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 614: Thermodynamics and Kinetics of Materials.** 3 credits.
Advanced thermodynamics and physical kinetics with applications to materials science. The course covers an axiomatic formulation of thermodynamics, theory of phase transformations, kinetic theory of reactions and diffusion processes in solids, and interface phenomena. Possible applications considered in the course include processing and
fabrication of semiconductor materials, metal oxidation and corrosion, diffusion-controlled phase growth in solid solutions, shape memory alloys, and small-size effects in physical properties of materials. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (MATH 113\textsuperscript{C}, 114\textsuperscript{C}, 213\textsuperscript{C} and 307\textsuperscript{C}) and (PHYS 262\textsuperscript{C} or 266\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 615: Fundamentals of Materials Science. 3 credits.
Covers fundamentals of materials science with emphasis on physical topics including crystal structure and symmetry, dislocation theory, theory of interfaces, multicomponent phase diagrams, theory of phase transformations, nano-materials, metallic glasses. Includes a term project, assignments from current literature and application of computation in materials science. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CSI 685.

Recommended Prerequisite: CDS 385 or PHYS 385 or undergraduate degree in physics, chemistry, materials, electrical or mechanical engineering or related disciplines; or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 620: Continuum Mechanics. 3 credits.
Study of continuum mechanics; topics include physical concepts, mathematical formulation and solution, elastic materials, ideal fluids, viscous fluids, waves in continuous media, turbulence, thermal convection, stability considerations, high-temperature gas flows, radiative processes for momentum and energy transport, shocks, and computational fluid dynamics. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: PHYS 510\textsuperscript{B} and 303\textsuperscript{C}.
\textsuperscript{B} Requires minimum grade of B-
\textsuperscript{C} Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 628: Relativity. 3 credits.
Special relativity; four-dimensional space-time; general relativity; non-Euclidean geometries, geodesics, and field equations; tests of general theory of relativity; black holes; cosmology; models of the universe; remnant blackbody radiation; big bang cosmology; thermodynamics; and the universe. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHYS 303, 305, or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 630: Introduction to Biophysics. 3 credits.
Introduces biophysics, focusing on physical and chemical concepts and their relation to rapidly expanding interdisciplinary interfaces among biology, chemistry, and physics. Reveals multiscale nature of biophysics, and includes exploration of macroscopic and microscopic applications. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to BINF 740.

Recommended Prerequisite: Undergraduate degree in physics, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 640: Finite Element Analysis of Solids and Fluids. 3 credits.
Introduction to fundamentals of finite element analysis of solid, structural, fluid, and heat transfer problems. Topics include governing equations for heat transfer, solid and fluid mechanics; finite element formulation and solution procedures; appropriate use of finite element methods including setting up an appropriate model, interpreting results, and assessing solution error. Students are expected to develop their own finite element code. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Recommended Prerequisite: PHYS 620 or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
boundary value problems, multipoles, time dependent fields, propagating wave solutions, and resonant structures. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: PHYS 305C, 306C, MATH 313C and 314C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Applied Engineering Physics or Physics.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
PHYS 695: Applied Fluid Mechanics. 3 credits.
Introduction to concepts of fluid mechanics and solving its equations using numerical techniques. The concepts and methods of computational fluid dynamics (CFD) will be introduced. Topics include
fluid mechanics equations, spatial and temporal discretization, finite difference and finite volume schemes, accuracy and convergence. This course requires writing of code to solve the governing equations of fluid mechanics. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** PHYS 620 or PHYS 705 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**PHYS 701**: *Theoretical Physics*. 3 credits.
Study of the physical basis for selection of particular mathematical tools in physics; topics include curvilinear coordinates, tensors, matrices, differential equations, special functions, complex variables, and group theory. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate degree in physics or permission of instructor.

**Registration Restrictions:**
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 703**: *Seminar in Physics*. 1 credit.
A general seminar course that combines invited seminars from faculty (both internal and external) with graduate student seminars. Offered by Physics & Astronomy (p. 724). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 705**: *Classical Mechanics*. 3 credits.
Study of classical mechanics; topics include variational principles, constrained motion, Lagrangian and Hamiltonian mechanics, canonical transformations, and applications (central forces, rigid-body motion, oscillations). Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate degree in physics or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 711**: *Statistical Mechanics*. 3 credits.
Topics include thermodynamics, kinetic theory, ensemble theory, quantum statistics, and applications. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate degree in physics or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 736**: *Computational Quantum Mechanics*. 3 credits.
Study of the fundamental concepts of quantum mechanics from a computational point of view, review of systems with spherically symmetric potentials, many-electron-atom solutions to Schrodinger’s equation, electron spin in many-electron systems, atomic structure calculations, algebra of many-electron calculations, Hartree-Fock self-consistent field method, molecular structure calculations, scattering theory computations, and solid-state computations. Offered by Physics & Astronomy (p. 724). May not be repeated for credit. Equivalent to CHEM 736, CSI 783.

**Registration Restrictions:**
**Required Prerequisites:** PHYS 502*B* and 510*B*.
*B* requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 760**: *Space Plasma Physics*. 3 credits.
Covers plasma processes involved in today’s space physics research, including different regimes of plasma; basic concepts in kinetic, fluid, and MHD plasmas; and existent waves in these media. Also covers basics of shocks, discontinuities, transport and acceleration of particles such as cosmic rays, reconnection, and MHD instabilities. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** PHYS 513*B* or 685*B*.
*B* requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PHYS 780**: *Advanced Selected Topics in Physics*. 3 credits.
Selected topics in physics not covered in fixed-content physics courses. Offered by Physics & Astronomy (p. 724). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
900 Level Courses

PHYS 784: Quantum Mechanics II. 3 credits.
Advanced topics in quantum mechanics. Covers density and tensor operators, approximation methods, scattering theory, and identical particles. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: PHYS 684B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 785: Classical Electrodynamics II. 3 credits.
Advanced topics in electrodynamics. Covers radiation, scattering and diffraction, special relativity, relativistic particle dynamics, Lorentz transformation, 4-vectors, transformation of fields, charges and currents, Thomas precession, retarded potentials, and radiation from moving charges. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: PHYS 685B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 786: Quantum Field Theory of Particles and Condensed Matter. 3 credits.
Introduction to quantum field theory and its applications in particle and condensed matter physics. Topics: second quantization, scalar bosonic and fermionic fields, symmetries and conserved currents, Dirac equation, gauge theory, quantum electrodynamics, Feynman diagrams, renormalization, Fermi liquid, symmetry breaking, superconductivity, magnetism, path integral, quantum phase transitions to topological order, etc. Offered by Physics & Astronomy (p. 724). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisite: PHYS 684B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 787: Introduction to Electromagnetism. 3 credits.
Advanced topics in classical electromagnetism. Covers fields, potentials, Maxwell's equations, Green functions, charge and current, and solutions of Maxwell's equations, etc. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: PHYS 685B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 788: Advanced Quantum Mechanics. 3 credits.
Advanced topics in quantum mechanics. Covers second quantization, many-body theory, symmetries and conservation laws, superconductivity, magnetism, path integral, quantum phase transitions to topological order, etc. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: PHYS 684B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 789: Advanced Quantum Mechanics I. 3 credits.
Advanced topics in quantum mechanics. Covers density and tensor operators, approximation methods, scattering theory, and identical particles. Offered by Physics & Astronomy (p. 724). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: PHYS 684B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PHYS 998: Doctoral Dissertation Proposal. 1-12 credits.
Covers development of a research proposal under the guidance of a dissertation director and the doctoral committee. The proposal forms the basis for the doctoral dissertation. Notes: No more than 24 credits in ASTR/PHYS 998 and ASTR/PHYS 999 may be applied toward satisfying doctoral degree requirements in the physics PhD program. Out of the 24, no more than 12 credits of ASTR/PHYS 998 may be applied. Offered by Physics & Astronomy (p. 724). May be repeated within the degree.

Recommended Prerequisite: Admission to physics doctoral program and permission of advisor.

Schedule Type: Dissertation

PHYS 999: Doctoral Dissertation. 1-12 credits.
Doctoral research performed under direction of dissertation director. Notes: No more than 24 credits in ASTR/PHYS 998 and ASTR/PHYS 999 may be applied toward satisfying doctoral degree requirements in the physics PhD program. Offered by Physics & Astronomy (p. 724). May be repeated within the degree.

Recommended Prerequisite: Admission to physics doctoral program and permission of advisor.

Schedule Type: Dissertation

Notes:
- No more than 24 credits in ASTR/PHYS 998 and ASTR/PHYS 999 may be applied toward satisfying doctoral degree requirements in the physics PhD program. Out of the 24, no more than 12 credits of ASTR/PHYS 998 may be applied. Offered by Physics & Astronomy (p. 724). May be repeated within the degree.
- For registration restrictions, see the course descriptions provided.


Portuguese (PORT)

100 Level Courses
PORT 110: Elementary Portuguese. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture

200 Level Courses
PORT 210: Intermediate Portuguese. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Portuguese-speaking regions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: PORT 110, appropriate placement score, or permission of department.

Schedule Type: Lecture

Professional Development in Education (EDPD)

400 Level Courses
EDPD 402: Professional Development in Elementary Literacy, and Secondary Education. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in elementary, literacy and secondary education. Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

Schedule Type: Lecture

EDPD 406: Professional Development in Special Education and Disability Research. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in special education and disability research. Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

Schedule Type: Lecture

500 Level Courses
EDPD 501: Professional Development in Advanced Teacher Research and Practice. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in advanced teacher research and practices. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDPD 502: Professional Development in Elementary, Literacy, and Secondary Education. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in elementary, literacy and secondary education. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDPD 503: Professional Development in Individual and Organizational Transformation. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in individual and organizational transformation. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDPD 504: Professional Development in Learning Technologies. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in learning technologies. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDPD 505: Professional Development in Educational Psychology, Research Methods and Education Policy. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in educational psychology, research methods and education policy. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDPD 506:** Professional Development in Special Education and Disability Research. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in special education and disability research. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDPD 507:** Professional Development in Health and Human Performance. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in health and human performance. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDPD 508:** Professional Development in Sport, Recreation and Tourism. 1-6 credits.
Provides opportunity for focused study on selected topics or emerging issues in sport, recreation and tourism. Notes: Course may not be applied to a degree program. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 15 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Provost (PROV)**

**000 Level Courses**

**PROV 044:** Business Math Preparation. 2 credits.
Notes: The successful completion of this course will serve as a prerequisite for MATH 108 in lieu of the Math Placement Test. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 6 credits. Equivalent to MATH 008.

**Recommended Prerequisite:** AE Level 3 Core AE Level 3 OCS or admission to an INTO Mason Pathway program.

**Registration Restrictions:**
Enrollment is limited to English Language level students.

**Schedule Type:** Seminar

**PROV 045:** STEM Mathematics Preparation. 2 credits.
Notes: The successful completion of this course will either: a) Serve as a prerequisite for Math 105 Pre-Calculus in lieu of the Math Placement Test or b) Prepare the student to achieve the necessary score on the Math Placement Test for entry into MATH 113. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 6 credits. Equivalent to MATH 008.

**Recommended Prerequisite:** AE Level 3 Core AE Level 3 OCS or admission to an INTO Mason Pathway program.

**Registration Restrictions:**
Enrollment is limited to English Language level students.

**Schedule Type:** Seminar

**PROV 095:** Quantitative Preparation for the Graduate Record Examination. 0 credits.
Prepares students in the International Graduate Pathways requiring the general Graduate Record Examination test to take the computer adaptive version of the exam with primary emphasis on the quantitative section. This course emphasizes test language and the quantitative portion of the exam along with testing strategies; identifying common test-taking errors; and managing test anxiety. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum credits. Equivalent to EAP 097, PROV 096, PROV 097.

**Registration Restrictions:**
Enrollment is limited to English Language level students.

**Schedule Type:** Seminar

**PROV 096:** Verbal and Quantitative Preparation for the Graduate Record Examination. 0 credits.
Prepares students in International Graduate Pathways requiring the general Graduate Record Examination test for progression to take the exam for students whose pathways require a primary focus on verbal and quantitative sections. This course emphasizes test language and vocabulary, in addition to: testing strategies; practicing logical, rhetorical, and mathematical problem-solving; identifying common test-taking errors; and managing test anxiety. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum credits. Equivalent to EAP 097, PROV 095, PROV 097.

**Registration Restrictions:**
Enrollment is limited to English Language level students.

**Schedule Type:** Seminar
Schedule Type: Seminar

**PROV 097: Verbal, Quantitative, and Academic Writing Preparation for the Graduate Record Examination.** 0 credits.
Prepares students in International Graduate Pathways requiring the general Graduate Record Examination test (GRE) for progression to take the exam for students whose pathways equal emphasis on all three areas of the exam. This course emphasizes test language and vocabulary, in addition to: testing strategies; academic writing preparation; practicing mathematical problem-solving; identifying common test-taking errors; and managing test anxiety. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 0 credits. Equivalent to EAP 097, PROV 095, PROV 096.

**Schedule Type:** Lecture

**100 Level Courses**

**PROV 105: American Cultures.** 3 credits.
This course provides an introduction to US cultures with a focus on diversity within American society. The course uses the concept of culture as a basis for discussing differences in Americans’ experience of family life, work, education, the arts, national and ethnic identities, gender, religion and more. Through ethnographic readings, literature, film and field projects, students develop a better understanding of similarities and differences across the American experience. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Recommended Prerequisite:** Admission to the INTO Mason Undergraduate Pathway program.

**Schedule Type:** Lecture, Recitation

**PROV 106: Introduction to Research Methods for International Students.** 3 credits.
Academic research is the fundamental element of university-level education. Despite the variations in research disciplines, they all share basic concepts of academic inquiry. This course is designed to teach the methods, norms and procedures of undergraduate research in the humanities and social sciences. It should equip international students with the essential skills needed to successfully produce a quality academic paper. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** Admission to the INTO Mason Undergraduate Pathway program.

**Registration Restrictions:** undefined

**Schedule Type:** Lecture, Recitation

**PROV 110: Special Topics.** 1-3 credits.
Exploration of leadership in a specific career field(s); changing nature of that industry; understanding of organizational structures in the field(s); and introduction to career and internship opportunities for students who aspire to a career in that field. Offered by Provost’s Office (p. 1102). May be repeated within the term.

**Registration Restrictions:**
Enrollment is limited to Non-Degree or Undergraduate level students.

**Schedule Type:** Lecture

**200 Level Courses**

**PROV 206: International Peer Educational Leadership.** 3 credits.
This course is an experiential leadership course for students partnering with Undergraduate International Pathway Program students as peer educational mentors. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Sophomore status or higher.

**Schedule Type:** Independent Study

**PROV 207: International Peer Learning Partnership.** 1 credit.
This course is an experiential credit course for undergrad students partnering with Undergraduate International Pathway Program students as peer educational mentors. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 3 credits.

**Schedule Type:** Internship

**PROV 210: Comprehensive Topics in Leadership.** 1-3 credits.
Comprehensive exploration of leadership in a specific career field(s); changing nature of that industry; understanding of organizational structures in the field(s); and introduction to career and internship opportunities for students who aspire to a career in that field. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 3 credits.

**Schedule Type:** Lecture

**300 Level Courses**

**PROV 301: Great Ideas in Science.** 3 credits.
Nontechnical introduction to ideas that have shaped the growth of science, from the building of Stonehenge to modern theories of the Big Bang. The idea behind each major advance is treated in its historical context, with special attention to its importance in mankind’s understanding of the nature of the universe. Intended for nonscience majors; uses little mathematics. Offered by Provost’s Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 301.

**Mason Core:** Natural Science Overview (p. 135)

**Schedule Type:** Lecture

**PROV 342: The George Mason Debates in Current Affairs.** 3 credits.
In-depth investigation of one or more contemporary public policy issues. Examines the selected topics as discussed by scholars, public interest groups and think tanks, government officials, and the news media. Texts and guest lecturers presenting a wide range of perspectives are an important feature. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 6 credits.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** Completion or concurrent enrollment in all other required general education courses.

**Schedule Type:** Lecture
500 Level Courses

PROV 501: Introduction to Graduate Study for International Students I. 2-3 credits.
Designed particularly the Graduate International Pathways program, this course is the first of a two-part transitional course series designed for international students who are studying abroad, emphasizing development, readiness, and success for Graduate/Professional school enrollment. This first course covers western educational systems, university policies and procedures, writing skills and research resources, and graduate school study skills and methods. Notes: This course is for graduate degree seeking students whose highest degree is from a non-US institution. This course may not count towards academic degree requirements at the graduate level. Enrolled students are required to take PROV 502 the following semester. Department approval required. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to English Language, Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PROV 502: Introduction to Graduate Study for International Students II. 2-3 credits.
Designed particularly for the Graduate International Pathways program, this course is the second of a two-part transitional course series designed for international students who are studying abroad, emphasizing development, readiness, and success for Graduate school enrollment. This course covers cultural adjustment to life and education in the U.S., program development, university resources, career planning as well as professional and personal presentation. Notes: This course is for graduate degree seeking students whose highest degree is from a non-US institution. This course may not count towards academic degree requirements at the graduate level, depending on the pathway program. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Completion of PROV 501 with a grade of B or better, in the immediate past semester.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PROV 508: Special Topics Content Support in the Disciplines. 6 credits.
This Special Topics Content Support in the Disciplines course is tailored to international students enrolled in the INTO Mason Graduate Pathways Program. The courses will be designed to support INTO Mason graduate students in their major courses, providing individualized feedback and foundational information for those courses. Offered by Provost's Office (p. 1102). May be repeated within the term for a maximum 6 credits.

Schedule Type: Lecture

600 Level Courses

PROV 601: Thriving in Your Graduate Program. 1 credit.
Gaining greater insight into student learning theories, the nature of research and scholarship, higher education trends, and the various career paths available to individuals with graduate degrees is important for students in the early stages of their academic programs. This seminar is designed for early career MFA and doctoral students to facilitate their success as graduate students at Mason. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PROV 701: Preparing for Academic Careers. 1 credit.
This seminar will be devoted to helping doctoral students explore and prepare for future academic careers and to strengthening their instructional effectiveness. The seminar will provide a clearer understanding of the roles and responsibilities of being a faculty member. Participants will learn how to construct a meaningful statement of teaching philosophy and plan for a course through syllabus design. Notes: This course does not apply to required credits for doctoral degrees. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**Psychology (PSYC)**

**100 Level Courses**

**PSYC 100:** *Basic Concepts in Psychology.* 3 credits.
Introduces psychology as scientific discipline. Examines concepts and methods in learning, motivation, development, personality, and measurement. Offered by Psychology (p. 443). May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences (p. 135)

**Schedule Type:** Lecture, Recitation

**200 Level Courses**

**PSYC 211:** *Developmental Psychology.* 3 credits.
Review of major developmental theories including perspectives of childhood, adolescence, adulthood, and old age. Offered by Psychology (p. 443). May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences (p. 135)

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 231:** *Social Psychology.* 3 credits.
Study of human behavior development in a social matrix, including such topics as socialization, cultural behavior, group norms, and attitude formation. Offered by Psychology (p. 443). May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences (p. 135)

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 260:** *Basic Research Methods in Psychology.* 1-3 credits.
Introduction to research methods in psychology in the context of assisting faculty with research; individualized sections by arrangement with faculty. Methods taught vary but generally include basic data collection and recordkeeping methods in research. Notes: Course culminates in a paper describing techniques learned. No more than 6 credits in PSYC 260, 350, and 460 can be used toward a psychology major. Offered by Psychology (p. 443). May be repeated within the term.

**Recommended Prerequisite:** A 3.0 overall G.P.A., and a written proposal approved before registration by the instructor and the department chair.

**Schedule Type:** Lecture

**300 Level Courses**

**PSYC 300:** *Statistics in Psychology.* 4 credits.
Descriptive and inferential statistics in design, analysis, and interpretation of psychological research with practical application using computers in laboratory. Notes: Students are strongly encouraged to take PSYC 301 concurrently. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** 6 credits of PSYC and 3 credits of MATH course work or permission of instructor.

**Recommended Corequisite:** Students are strongly encouraged to take PSYC 301.

**Schedule Type:** Laboratory, Lecture

**PSYC 301:** *Research Methods in Psychology.* 4 credits.
General research design in psychology, with an emphasis on experimental design and control. Topics include use of human participants in research, reliability and validity, observational methods, and survey and longitudinal designs. Notes: Students are strongly encouraged to take PSYC 300 concurrently. Laboratory work will include designing and running research studies and writing manuscripts using appropriate style and format. Offered by Psychology (p. 443). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** PSYC 100 and either PSYC 300, STAT 250, or STAT 350 or equivalent.

**Schedule Type:** Laboratory, Lecture

**PSYC 304:** *Principles of Learning.* 4 credits.
Principles of animal learning, including such topics as classical and operant conditioning, discrimination learning, and animal cognition. Notes: Laboratory projects require working with computer simulations. Offered by Psychology (p. 443). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** PSYC 300 or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**PSYC 309:** *Sensation, Perception, and Information Processing.* 4 credits.
Principles of perception, including topics such as psychophysics, perceptual organization, perceptual learning, and perceptual constancies. Notes: Laboratory projects demonstrate and investigate perceptual phenomena. Offered by Psychology (p. 443). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** PSYC 300 and PSYC 301.

**Schedule Type:** Laboratory, Lecture

**PSYC 312:** *Educational Psychology.* 3 credits.
Enables students to apply psychological principles to the learning process in the classroom context. Examines the theoretical and applied aspects of learning, motivation, human development, personality, assessment, and evaluation in educational settings. Corresponding implications for effective teaching will be discussed. Offered by Psychology (p. 443). May not be repeated for credit.

**Schedule Type:** Lecture

**PSYC 313:** *Child Development.* 3 credits.
Study of human psychological development from conception to adolescence including such topics as genetic factors, emotional and intellectual growth, and environmental influences. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 100 or equivalent.

**Schedule Type:** Lecture
PSYC 314: Adolescent Development. 3 credits.
Study of the biological and cultural changes accompanying adolescence, including the effect of these changes on emotional, intellectual, and social development. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 or equivalent.

Schedule Type: Lecture

PSYC 317: Cognitive Psychology. 3 credits.
An in-depth overview of important topics in cognitive psychology, including memory, attention, pattern recognition, problem solving, reasoning, and psycholinguistics. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: Six credits of psychology or permission of instructor.

Schedule Type: Lecture

PSYC 320: Psychological Tests and Measurements. 4 credits.
Examination and application of principles underlying the theory, interpretation, and administration of psychological tests, including a study of tests of intelligence, achievement, and ability. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 300 or permission of instructor.

Schedule Type: Laboratory, Lecture

PSYC 321: Clinical Psychology. 3 credits.
Examines evidence-based psychological assessment and psychotherapy techniques to understand, prevent, and treat psychological distress and dysfunction and promote well-being. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 325 or permission of instructor.

Schedule Type: Lecture

PSYC 322: Behavior Modification. 3-5 credits.
Examination of experimental principles of human and animal learning within theoretical framework of applied behavior analysis, including design, implementation, and evaluation of operant intervention programs across a wide variety of human situations. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 324 or permission of instructor.

Schedule Type: Lecture

PSYC 324: Personality Theory. 3 credits.
Introduction to classical and contemporary theories of personality, and comparative evaluation of major theories in terms of relevant studies. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 or permission of instructor.

Schedule Type: Lecture

PSYC 325: Abnormal Psychology. 3 credits.
Study of development of abnormal behavior patterns, including such topics as methods of diagnosis and prevention of serious mental disorders such as psychosomatic disorders, psychoses, character disorders, and mental retardation. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 and either PSYC 211, 231, or 324 or permission of instructor.

Schedule Type: Lecture

PSYC 326: Therapeutic Communication Skills. 3 credits.
Introduction to understanding and use of basic therapeutic communication skills used in clinical and counseling psychology. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (PSYC 325 or L325).
C- Requires minimum grade of C-.

Schedule Type: Lecture

PSYC 327: Psychology in the Community. 3 credits.
Individual placements in applied psychology settings. Notes: A maximum of 6 credits of PSYC 327, 328, 421, and 422 can be applied to the psychology major. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: PSYC major with 6 hours of PSYC and permission of associate chair for undergraduate studies.

Schedule Type: Internship

PSYC 328: Psychology in the Community Laboratory. 1 credit.
Consists of a one-hour service learning component linked to selected psychology courses. Notes: A maximum of 6 credits of PSYC 327, 328, 421, and 422 can be applied to the psychology major. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: PSYC major with 6 hours of PSYC and permission of instructor and associate chair for undergraduate studies.

Schedule Type: Internship

PSYC 333: Industrial and Organizational Psychology. 3 credits.
Examination of application of psychological principles and methods to problems commonly encountered in business and industry. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 and PSYC 300; or permission of instructor.

Schedule Type: Lecture

PSYC 335: Psychology of Creativity and Innovation. 3 credits.
Creativity and innovation take place in many domains such as business, science and the arts. Learn the distinction between creativity and innovation. Apply findings from the scientific literature about the antecedents of creativity and innovation including emotions, cognition, individual differences, and social contexts. Experiment with ways to enhance your creativity and skills for innovation. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 or permission of instructor.

Schedule Type: Seminar
PSYC 340: Human Factors Psychology. 3 credits.
Reviews history and current practice of optimal product and system design as a function of psychology. Includes a brief history of human factors psychology, a review of human memory and attentional systems as they relate to product and system design, and an introduction to current methods used to analyze and redesign products and systems for optimal human interaction. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 or permission of instructor.

Schedule Type: Lecture

PSYC 350: Directed Reading and Research in Psychology. 1-3 credits.
Library research in psychology, culminating in a substantial formal paper; individualized sections by arrangement with faculty. Notes: No more than 6 credits in PSYC 260, 350, and 460 can be used toward psychology major. Offered by Psychology (p. 443). May be repeated within the term.

Schedule Type: Independent Study

PSYC 362: Psychology of Gender. 3 credits.
Behavior and attitudes of women; influence of chromosomes and hormones on behavior, influence of culture on sex role differentiation, and theories of sex role development. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100, BIOL 103, and BIOL 104 or permission of instructor.

Schedule Type: Lecture

PSYC 372: Physiological Psychology. 3 credits.
Survey of neuroscience, including basic neuroanatomy, neural and synaptic transmission, neural mechanisms underlying normal and abnormal behavior, and biological mechanisms of drug action. Students may earn credit for PSYC 372 and either PSYC 375 or PSYC 376, but they may not earn credit for all three. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100, BIOL 103 and 104; or permission of instructor.

Schedule Type: Lecture

PSYC 373: Physiological Psychology Laboratory. 1 credit.
Functional anatomy and physiology of the brain, including dissection of brain and eye, and a demonstration and practice in research methods for studying physiological mechanisms underlying behavior. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 372 or 375, or permission of instructor. Concurrent enrollment is also permitted.

Schedule Type: Laboratory

PSYC 375: Brain and Sensory Processes. 3 credits.
First half of comprehensive survey of neuroscience, including basic neuroanatomy, neural and synaptic transmission, neural mechanisms underlying normal and abnormal behavior, and biological mechanisms of drug action. Notes: Students may earn credit for 372 and either 375 or 376, but they may not earn credit for all three. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 with a grade of C- or better, and BIOL 103, 104 or BIOL 213; or permission of instructor.

Schedule Type: Lecture

PSYC 376: Brain and Behavior. 3 credits.
Second half of a comprehensive survey of neuroscience, including neural mechanisms underlying normal and abnormal behavior. Notes: Students may earn credit for 372 and either 375 or 376, but they may not earn credit for all three. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: C or better in PSYC 375 or permission of instructor.

Schedule Type: Lecture

PSYC 379: Applied Cross-Cultural Psychology. 3 credits.
A review of important landmarks in cross-cultural research, showing how this research impacts psychology as a discipline. Emphasizes an empirical approach to cross-cultural study and includes topics such as theoretical and empirical developments in cross-cultural psychology, development of coherent schemas to guide cross-cultural research and interventions, comparison of psychology's goals and assumptions in Western and other cultures, and integration of course materials into educational and career goals of students. Offered by Psychology (p. 443). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Recommended Prerequisite: PSYC 100 or permission of instructor.

Schedule Type: Lecture

PSYC 380: Introduction to Forensic Psychology. 3 credits.
Explains the differing, yet varied facets of the field of forensic psychology including landmark legal cases relevant to psychology, potential careers in forensic psychology, police psychology, expert testimony, forensic psychological assessment, psychopathy, homeland security, ethics, correctional psychology, and issues in working in the juvenile justice system. Offered by Psychology (p. 443). May not be repeated for credit.

Schedule Type: Lecture

PSYC 381: Mental Illness and Criminal Justice. 3 credits.
Examines the frequent intersection of individuals diagnosed with severe mental illness and the criminal justice system. Includes case studies that demonstrate possible judicial, therapeutic, correctional, and post-adjudication outcomes. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 325.

Schedule Type: Lecture

PSYC 382: Psychology of Crime Victims. 3 credits.
Explores short-term and long-term psychological effects of crime on victims through interviews with survivors of childhood abduction, elder abuse, intimate partner violence, and child abuse, among others. Evaluates roles and responsibilities of mental professionals and law enforcement when interacting with crime victims. Offered by Psychology (p. 443). May not be repeated for credit.

Schedule Type: Lecture
PSYC 399: Psychology: College to Career. 3 credits.
Emphasizes development and readiness for a profession in the social sciences through self-assessment and professional skill acquisition. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** At least 30 hours of completed college coursework and a declared major in the social sciences or permission of the instructor.

**Schedule Type:** Seminar

### 400 Level Courses

**PSYC 405: Mystery, Madness, and Murder. 3 credits.**
Multidisciplinary approach to taboo topics that fascinate and frighten us. Instructors from disciplines across the arts and sciences bring expertise and diverse perspectives to provocative issues such as cannibalism and serial murder. Students learn to think critically and objectively while examining use in myth, literature, and popular culture. Offered by Psychology (p. 443). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 406: Psychology of Communication. 3 credits.**
An examination of the behavior of communicating across species and sensory modalities, with an emphasis on the evolutionary basis for the various communication strategies used by animals and humans. Offered by Psychology (p. 443). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 408: Psychological Fitness. 3 credits.**
Evaluates and applies scientific research on psychological exercises to increase one's cognitive, behavioral, emotional, and physical health. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 100.

**Schedule Type:** Lecture

**PSYC 414: Behavior Disorders of Childhood. 3 credits.**
Review of the theories, methods, and research dealing with emotional and behavioral disorders of children. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 313 and 325 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 415: Psychological Factors in Aging. 3 credits.**
Examination of the sensory, perceptual, intellectual, personality, health, and familial changes that occur as people age and adjust into their later years. Common and more serious adjustment difficulties and developments are discussed with attention to impacts on the individual and the family. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 417: Science of Well Being. 3 credits.**
This course will examine and interpret the latest research in social, personality, and clinical psychology on well-being, character strengths, and personal growth. Emphasis will be placed on the ways in which scientists generate hypotheses regarding the nature of positive psychological traits and processes and the methods by which these ideas are tested. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 443.

**Schedule Type:** Lecture

**PSYC 418: Death, Dying, and Grieving. 3 credits.**
Advanced survey of processes of grieving and their relationship to death and dying. Topics include ways of dying, effects of death on loved ones, and care for the terminally ill. Offered by Psychology (p. 443). May not be repeated for credit. Equivalent to PSYC 518.

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 419: Synthesis in Psychology. 3 credits.**
Understand and relate broad psychological issues to society as a whole. Possible topics include mental health in society, the psychology of food and eating behavior, and animals and society. See schedule of classes for current topic(s). Notes: May be repeated for credit when topic is different. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 15 credits.

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 423: Group Psychotherapy Techniques. 3 credits.**
Review of theory and methods of group therapy with emphasis on humanistic and interpersonal approaches, including applications to family therapy, alcoholism, and drug abuse. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 324 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 427: Community Engagement for Social Change. 3 credits.**
Explores social problems and interpersonal, intrapersonal, and social aspects of addressing them. Addresses both theoretical aspects of social problems through readings and class discussion and application through community service. Offered by Psychology (p. 443). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Recommended Prerequisite:** PSYC 100 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 435: Personnel Training and Development: A Psychological Perspective. 3 credits.**
Overview and critique of training methods used in industry from viewpoint of psychological theory, including simulations, on-the-job training, supervisory/leadership skills training, computer-assisted instruction, and programmed texts. Principles of needs analysis, program
development, and program evaluation are discussed within framework of industrial psychology. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 333, PSYC 320 (may be taken concurrently) or permission of instructor.

**Schedule Type:** Lecture

**PSYC 440: Forensic Psychology: Science and Pseudoscience.** 3 credits. Provides a critical, evidenced-based, examination of common psychological practices and constructs in the field of forensic psychology including psychological assessments, expert testimony, risk assessment, hypnosis, criminal profiling, polygraph examination, and methods of interrogation. Offered by Psychology (p. 443). May not be repeated for credit.

**Schedule Type:** Lecture

**PSYC 441: Criminal Behavior: Psychological and Neurological Aspects.** 3 credits. Considers the psychological factors and structural and functional neurological differences that influence criminal behaviors including murder, sexual assault, fraud, intimate partner violence, and arson. The predictive and explanatory abilities of neuroimaging with respect to the criminal acts in question, as well as the role of neuroimaging in the judicial system, will also be explored. Offered by Psychology (p. 443). May not be repeated for credit.

**Schedule Type:** Lecture

**PSYC 460: Independent Study in Psychology.** 1-4 credits. Advanced research methods in psychology in context of individual student projects or assisting with research on faculty projects; individual sections by arrangement with faculty. Notes: No more than 6 credits in PSYC 260, 350, and 460 can be used toward psychology major. Offered by Psychology (p. 443). May be repeated within the term.

**Recommended Prerequisite:** 18 credits of PSYC, including PSYC 301 (grade of C or better), a 2.500 GPA in PSYC, and a written proposal approved before registration by the instructor and the department.

**Schedule Type:** Independent Study

**PSYC 461: Special Topics.** 1-3 credits. Selected topics reflecting interest in specialized areas. Notes: Topic announced in advance. May be repeated when topic is different. Offered by Psychology (p. 443). May be repeated within the term.

**Schedule Type:** Lecture

**PSYC 462: Selected Topics in Forensic Psychology.** 3 credits. Selected topics reflecting interest in forensic psychology. Notes: May be repeated for credit when topic is different. Offered by Psychology (p. 443). May be repeated within the term.

**Schedule Type:** Lecture

**PSYC 465: Pioneering Ideas in Psychology.** 3 credits. Historical background and major theoretical systems in modern psychology. Approaches include behaviorism, cognitive/information processing approaches, and psychodynamic theories. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** 18 credits in psychology including PSYC 317 or permission of instructor.

**Schedule Type:** Lecture

**PSYC 466: Psychology of Intimate Relationships.** 3 credits. Advanced survey of theories and research related to intimate relationships, including romantic relations and those among family members and friends in diverse cultural and relationship contexts. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 100 and PSYC 231; PSYC 324 recommended.

**Schedule Type:** Lecture

**PSYC 467: The Psychology of Working in Groups and Teams.** 3 credits. Teaches knowledge and the skills to meet communication, interpersonal, and task-related challenges that arise when functioning in work teams. Through readings, classroom activities, and applied problem-solving exercises, students acquire or refine team-related competencies. Students study theory of group and team processes while gaining insight from feedback on their behavior in exercises to become more effective team members. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** 60 credit hours, including PSYC 100, or permission of instructor.

**Schedule Type:** Lecture

**PSYC 472: Current Topics in Brain and Behavior.** 3 credits. Rotating topics. Physiological mechanisms underlying behavior. Selected topics include neuronal bases of learning and memory, Alzheimer’s disease, and biological bases of addiction. Notes: May be repeated with approval of instructor. Offered by Psychology (p. 443). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** PSYC 372 or PSYC 375, and PSYC 376; or permission of instructor.

**Schedule Type:** Lecture

**PSYC 490: Psychology Honors I.** 3 credits. Review of topics and issues in psychology, including historical overview, theory and supporting data, and influences on behavior. Notes: Topics vary. Offered by Psychology (p. 443). May not be repeated for credit.

**Specialized Designation:** Research Associated

**Recommended Prerequisite:** Admission to psychology department Honors program.

**Schedule Type:** Seminar

**PSYC 491: Psychology Honors II.** 3 credits. Introduces advanced statistics, research methodologies, statistics packages, computing and information technology, and library technology appropriate for psychological research and pedagogy. Notes: Students required to complete proposal in preparation for admission to Psychology Honors III. Offered by Psychology (p. 443). May not be repeated for credit.

**Specialized Designation:** Research Associated

**Recommended Prerequisite:** PSYC 300, 305 and 490.
Schedule Type: Seminar

PSYC 492: RS: Psychology Honors III. 3 credits.
Completion of final honors project or thesis. Students must complete project or thesis, and present oral defense to committee and poster to class. Students also expected to prepare proposal to present project or thesis at regional or national conference, or prepare manuscript for publication in appropriate journal. Offered by Psychology (p. 443). May not be repeated for credit.

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: PSYC 491 and approval of final honors project for thesis.

Schedule Type: Seminar

PSYC 499: Senior Thesis. 3 credits.
Directed research on topic agreed on by student and advisor. Notes: Students should take PSYC 460 with same advisor to develop thesis proposal before registering for PSYC 499. Students must complete thesis and defend it orally before advisor and two faculty members. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: Psychology major with 84 hours, an experimental psychology laboratory course, PSYC 460, Permission of Instructor, and prior approval of thesis proposal.

Schedule Type: Independent Study

500 Level Courses

PSYC 518: Death, Dying, and Grieving. 3 credits.
Advanced survey of processes of grieving and their relationship to death and dying. Topics include ways of dying, effects of death on loved ones, and care for the terminally ill. Offered by Psychology (p. 443). May not be repeated for credit. Equivalent to PSYC 418.

Recommended Prerequisite: PSYC 100

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 527: Introduction to Neurobiology. 2 credits.
Introduction to neurobiology with overview of embryological development of nervous system in evolutionary context. Introduces regional and systems neuroanatomy by studying mammalian visual system with comparative perspective. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 372 or PSYC 375 and 376, or BIOL 213 and 303.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Application of cognitive theory to understand and predict interactions among human cognition, artifact, and task. Discusses recent research and case studies that emphasize empirical research, analytical modeling techniques, systems design, and development of tools and methods. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: An experimental lab course or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 531: Mammalian Neurobiology. 3 credits.
Functional anatomy of brains of mammals, with emphasis on regional and systems neuroanatomy of humans. Anatomy correlated with material from clinical neurology where possible. Laboratory component includes brain dissections and clinical correlations. Offered by Psychology (p. 443). May not be repeated for credit. Equivalent to BIOL 516.

Recommended Prerequisite: PSYC 527.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 552: Histology/Histochemistry of the Brain. 4 credits.
Explores conceptual basics and provides hands-on experience in techniques for studying brain tissue, including stereotaxic surgery, perfusion, sectioning, Nissl and myelin stains, enzyme histochemistry, immunohistochemistry, in situ hybridization, and quantitative receptor autoradiography. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 372 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**PSYC 555: Neuroimaging.** 3 credits. Covers functional magnetic resonance imaging (fMRI) methods, experimental design and analysis issues in fMRI, structural MRI techniques and how they can contribute to cognitive neuroscience, and event-related potential methods. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** Graduate enrollment in either Cognitive & Behavioral Neuroscience or Human Factors & Applied Cognition programs, or instructor approval.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 557: Psychometric Methods.** 3 credits. Examines concepts of psychological measurement with emphasis on predictor test and criterion development. Discusses reliability, validity, and specialized techniques to develop tests of ability, interest, and personality. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 611 and 612 or permission of instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 558: Neuronal Bases of Learning and Memory.** 3 credits. Examines neuronal mechanisms involved in learning and memory, in animals ranging from invertebrates to humans. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 372, or 375 and 376; or permission of instructor

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 559: Behavioral Chemistry.** 3 credits. Neurochemistry and neuroendocrinology, including neurotransmitter synthesis, genetic aspects of neural functioning, mechanisms of action of neurotransmitters and second messenger systems, regulation of neuroendocrine systems, neuroendocrine effects on behavior, and neuroimmunology. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 372, or 375 and 376; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 561: Behavioral Biology of Substance Abuse.** 3 credits. Overview of biological effects of substance abuse, and biological mechanisms underlying addiction. Topics include alcohol, cocaine, marijuana, and other drugs; genetics of addiction; and neural systems underlying addiction and withdrawal. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 372 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 562: Research Methods in Human Experimental Psychology.** 3 credits. Hands-on approach to selected current and/or classical human experimental psychology research methods. Course topics include experimental design, including psychophysical and physiological experimentation. In addition, mathematical, cognitive modeling and simulation, as well as advanced statistical techniques will be covered. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** Graduate enrollment in either Cognitive and Behavioral Neuroscience or Human Factors and Applied Cognition programs.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
PSYC 563: Laboratory Methods in Behavioral Neuroscience. 3 credits.
Laboratory work, to be completed in groups, will include surgical, histological and behavioral techniques. Proper use and handling of animals, ethical issues, evaluation of neuroscience literature, experimental design and data analysis are addressed in lecture. This course requires working with laboratory rodents. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

PSYC 566: Cognitive and Perceptual Development. 3 credits.
Survey of theory and the research on development of perception, memory, concepts, problem solving, intelligence, and academic skills in children. Offered by Psychology (p. 443). May not be repeated for credit. Equivalent to PSYC 666.

Recommended Prerequisite: 6 credits of child psychology and course in experimental psychology or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 592: Special Topics. 1-6 credits.
Special topics reflecting interests in specialized areas. Notes: Topic announced in advance. May be repeated when topic is different. Offered by Psychology (p. 443). May be repeated within the term for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 597: Directed Reading and Research. 1-6 credits.
Independent reading or research on topic agreed on by student and faculty member. Notes: Directed reading or research for MA students in psychology. Offered by Psychology (p. 443). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

PSYC 611: Advanced Statistics. 4 credits.
Test must be passed to take course. Open only to degree students. Integrates basic psychological statistics with overview of research methodology including experimental, quasi-experimental, field approaches, and measurement issues from advanced perspective. Lab work includes using computer packages for data handling and analyses. Notes: Students must enroll in 611 and 612 in sequential semesters. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Psychology.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

PSYC 612: Advanced Statistics. 4 credits.
Open only to degree students. Integrates basic psychological statistics with overview of research methodology including experimental, quasi-experimental, field approaches, and measurement issues from advanced perspective. Lab work includes use of computer packages for data handling and analyses. Notes: Students must enroll in 611 and 612 in sequential semesters. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Corequisite: Open only to degree students.

Registration Restrictions:
Required Prerequisite: PSYC 611B.

B Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory, Lecture

PSYC 614: The Psychology of Aging. 3 credits.
Review of the experimental literature in psychology of aging, including intellectual functioning, personality and adjustment, minor and major adjustment problems, and role changes in later life. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 100 and undergraduate or graduate course in aging.
**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PSYC 615: Language Development.** 3 credits.
Seminar covering theory and research on acquisition of language, including biological and environmental influences and constraints; research methods; role of parents; individual and cultural differences; links between language and other domains of development including cognitive, behavioral, social, and emotional; language and the brain; animal language; bilingualism; and atypical language development. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** 3 credits graduate Developmental Psychology or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PSYC 617: Child Psychopathology.** 3 credits.
Intensive survey of major types of psychopathological disturbances of infancy and childhood. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 211 or 313 and 325.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

Focuses on basic principles and procedures of applied behavior analysis; identification of factors that contribute to behavioral problems and improved performance; and procedures that can be used to minimize behavioral problems, improve performance, teach new behaviors, and increase probability of behaviors occurring under appropriate circumstances. Offered by Psychology (p. 443). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 636:** *Survey of Industrial Psychology*. 3 credits.
Intensive survey of historical and current issues in major areas of applied (nonclinical) psychology. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 300 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment limited to students in the MA Psychology or PHD Psychology programs.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 638:** *Training: Psychological Contributions to Theory, Design, and Evaluation*. 3 credits.
Focuses on applying learning principles derived from psychological research in development of training models and techniques of skill acquisition. Discusses research designs and empirical results appropriate to training evaluation. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 636 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment limited to students in the MA Psychology or PHD Psychology programs.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 639:** *Survey of Organizational Processes*. 3 credits.
Trains at conceptual/theoretical and empirical levels in organizational processes. Includes individual, interpersonal, intra-group, and intergroup phenomena as they exist in context of organizational settings. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 333 or 632.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment limited to students in the MA Psychology or PHD Psychology programs.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 640:** *Techniques in Industrial/Organizational Psychology*. 3 credits.
Skills-oriented course enabling students to construct instruments and perform functions critical to both researchers and practitioners in industrial/organizational psychology. Focuses on conducting job analysis interviews, developing and scoring task inventories, using critical incident and KSAO methods, and constructing performance appraisal and selection instruments. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 300 or Permission of Instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment limited to students in the MA Psychology or PHD Psychology programs.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 644:** *Methods for Social Research*. 3 credits.
Examines issues in basic and applied social science methodology including internal validity, causal generalization, and construct validity. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 530 and 611.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment limited to students in the MA Psychology or PHD Psychology programs.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**PSYC 645:** *Research Methods in Human Factors and Applied Cognition*. 3 credits.
Hands-on approach to selected current or classical human factors/ applied cognition research methods; exact methods announced in advance. Potential methods include cognitive task analysis, usability evaluation methods, critical incident analysis, reliability analysis, workload measures, verbal protocol analysis, and engineering models of human performance. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 530 and 611.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment limited to students in the MA Psychology or PHD Psychology programs.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
PSYC 646: Issues and Methods in Longitudinal Developmental Research. 3 credits.
Examines techniques for measuring developmental change across lifespan. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 611 and 612, 6 credits of graduate developmental psychology.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 648: Developmental Psychopathology. 3 credits.
In-depth look at emerging discipline of developmental psychopathology. Discusses specific disorders and contexts to illustrate how knowledge of normal development, deviant development, and maladaptive behavior illuminates principles underlying adaptive functioning. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: 6 credits graduate developmental psychology.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 652: Quantitative Methods II: Analysis of Variance. 3 credits.
Basic concepts in experimental design, fundamental assumptions in analysis of variance, and analysis of variance and covariance designs. Reviews multiple comparison tests. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 300 and either 304, 305, or 309.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PSYC 654: Naturalistic Methods in Psychology. 3 credits.
Theory and techniques involved in studying people in their natural environment. Primary emphasis on quasiexperimental designs and methods of systematic observation. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 300 and either 304, 305, or 309.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students in the MA Psychology or PHD Psychology programs.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 667: Behavior in Small Groups and Teams. 3 credits.
Theories, methods, and topics relevant to individual behavior in small group setting. Includes effects of individual on group, effects of group on individual, and interaction effects among individuals. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 231.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Psychology.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 668: Personality: Theoretical and Empirical Approaches. 3 credits.
Presents comprehensive overview of current theoretical and empirical approaches to personality. Emphasizes areas of special relevance to clinical, developmental, and industrial/ organizational psychology. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 324 (or equivalent) or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students in the MA Psychology or PHD Psychology programs.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 669: Social and Emotional Development. 3 credits.
Surveys theory and research relevant to development of social relationships, emotional expressiveness and regulation, aggressive and altruistic behaviors, sex roles, and morality. Emphasizes influences on such development, including parents, other adults, peers, siblings, and broader culture. Offered by Psychology (p. 443). May not be repeated for credit.
Recommended Prerequisite: Six hours of developmental psychology or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 671: Role and Function of the School Psychologist. 3 credits.
Considers roles, functions of school psychologist in educational environment, including certification and ethical standards, issues, and trends. Notes: Open only to school psychology MA students, or by permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 673: Prevention, Intervention, and Consultation in Schools. 4 credits.
Examines theory and practice of behavior modification and consultation in school environment. Notes: Open only to practicing school psychologists and students in school psychology, or by permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 685: Cognitive Neuroscience. 3 credits.
Provides an overview of the neural basis of human mental functions. Uses neuroimaging (PET, fMRI, ERPs, TMS, etc.), computational, and information-processing methods to examine functions such as attention, memory, language, emotion, and decision making. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Psychology.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 701: Cognitive Bases of Behavior. 3 credits.
Surveys concepts in learning, cognitive, and affective processes, including theories and supporting data and their influences on behavior. Notes: Open only to degree students. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Adv Grad Studies in Sch Psych or Psychology.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 702: Biological Bases of Human Behavior. 3 credits.
Surveys biological bases of behavior, including such topics as neural conduction, role of specific neurotransmitters, cortical functioning, and brain disorders. Notes: Open only to degree students. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 703: Social Bases of Behavior. 3 credits.
Surveys social influences on behavior, including group processes, person perception, and attitude formation. Notes: Open only to degree students. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 704: Life-Span Development. 3 credits.
Surveys theories and research regarding lifespan development and personality formation. Notes: Open only to degree students. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: Admission to graduate program in psychology.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 709: The Measurement of Intelligence. 4 credits.
Administration, scoring, and interpretation of major infant, child, and adult intelligence tests, with emphasis on individual tests. Development of IQ tests, theories of intelligence, and current trends and developments
in intellectual assessment. Notes: Open only to school psychology MA student. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 617 or 822 and PSYC 320 or equivalent; permission of department.

**Recommended Corequisite:** PSYC 611.

**Registration Restrictions:**
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**PSYC 710: Psychological Assessment.** 4 credits.
Study of major instruments used in clinical assessment and nature, problems, and predictive value; administration and scoring of major techniques for evaluation of personality; and principles of interpretation of these procedures. Notes: Open only to school psychology MA students. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 617, 709, 822, or 810: and permission of director of School Psychology Program.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**PSYC 722: Advanced Child Assessment.** 4 credits.
Problems involved in diagnostic assessment of children with various handicapping conditions such as learning disabilities, retardation, and emotional disturbances. Notes: Open only to school psychology MA or PhD students. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 709 and 710 or PSYC 810 and 811, and five intellectual assessments in the Psychology Clinic.

**Registration Restrictions:**
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Laboratory, Lecture

**PSYC 730: Practicum in Applied Psychology.** 1-6 credits.
Practical experience in organizational setting as assigned. Notes: PhD students may repeat course for a maximum of 15 credits; MA students for a maximum 6 credits. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 15 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Adv Grad Studies in Sch Psych or Psychology.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**PSYC 733: Issues in Personnel Psychology.** 3 credits.
Examines psychological literature on job analysis, job evaluation and compensation, performance appraisal, training, and EEOL selection issues. Methodological and psychometric issues in interpretation and evaluation of personnel psychology research receive particular attention. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 636 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students in the MA Psychology or PHD Psychology programs.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 734: Seminar in Human Factors and Applied Cognition.** 3 credits.
Emphasizes current research and application of human factors, ergonomics, applied cognition, and applied perception. Notes: May be repeated when topic is different. Offered by Psychology (p. 443). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** Six graduate credits in Human Factors and Applied Cognition or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**PSYC 737: Psychology of Human-Technology Interaction.** 3 credits.
Emphasizes current research and development in human-computer interaction, cognitive systems engineering, cognitive ergonomics, and cognitive engineering. Notes: May be repeated when topic is different. Offered by Psychology (p. 443). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** 6 graduate credits in human factors and applied cognition or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PSYC 739: Seminar in Industrial/Organizational Psychology.** 3 credits.
Rotating topics such as leadership theories and management development, and performance appraisal. Notes: Topics announced in advance. May be repeated when topic is different. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** PSYC 333 and 636, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students in the MA Psychology or PHD Psychology programs.
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

**PSYC 741: Psychology of Work Motivation.** 3 credits.
Examines psychological literature of need, cognitive, and reinforcement theories of motivation; organizational attachment (commitment, absenteeism, and turnover); job design and quality of work issues. Emphasizes methodological and psychometric issues in interpreting and evaluating work-motivation research. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 333 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students in the MA Psychology or PHD Psychology programs.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**PSYC 750: School Psychology Practicum I.** 1 credit.
Practical experience in school psychology. Notes: Open only to school psychology MA students. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** Admission to school psychology concentration and PSYC 709.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

**PSYC 751: School Psychology Assessment Practicum II.** 2 credits.
Practical experience in school psychology. Notes: Open only to School Psychology MA students. Apply in writing for permission of department 60 days prior to beginning of semester. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 4 credits.

**Recommended Prerequisite:** PSYC 750.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

**PSYC 754: Quantitative Methods III: Psychological Applications of Regression Techniques.** 3 credits.
Reviews psychological applications of regression techniques in variety of contexts including experimental, field, and survey settings. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 611 and 612.

**Registration Restrictions:**
Enrollment limited to students in the MA Psychology or PHD Psychology programs.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**PSYC 756: Quantitative Methods IV: Multivariate Techniques in Psychology.** 3 credits.
Surveys multivariate statistical techniques as applied to psychological research. Emphasizes analysis of complex designs and interpretation of multivariate data analyses resulting from computer processing. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 611 and 612 or equivalent. PSYC 755 recommended.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**PSYC 757: Advanced Topics in Statistical Analysis.** 3 credits.
Focuses on noncognitive individual differences that predict performance. Published work discussed in seminar format with emphasis on conceptual development, methodological adequacy, and new directions. Notes: May be repeated for credit when topic is different. Offered by Psychology (p. 443). May be repeated within the degree.

**Recommended Prerequisite:** PSYC 754.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**PSYC 768: Advanced Topics in Cognitive Science.** 3 credits.
Emphasizes current research in cognitive science. Topics may include computational cognitive models, nature of expertise, diagrammatic reasoning, display-based problem solving, visual attention, decision making, goal-based versus event-based cognition, and situated action. Notes: May be repeated when topic is different. Offered by Psychology (p. 443). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** PSYC 530 or 701.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**PSYC 780: Applied Developmental Psychology.** 3 credits.
Examines how developmental theory, knowledge base, and methodology can be used to promote health and welfare of individuals across lifespan. Topics include contemporary social issues and child development, research in applied settings, developmental assessment and intervention, and program evaluation. Offered by Psychology (p. 443). May not be repeated for credit.

**Recommended Prerequisite:** PSYC 704 or 3 credits of other graduate developmental psychology courses and permission of instructor.
Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 790: School Psychology Internship. 3-6 credits.
Supervised field experience of one school year. Advanced school psychology student functions as full-time staff member in school system. Student completes paper on practical research project involving alternative school psychology role in school system. Notes: Enrollment is for total 9 credits (thesis option) or 12 credits (nonthesis option) in increments of 3 credits according to placement. Students enrolled in PSYC 799 are not required to complete the practical research project. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: Completion of required courses in school psychology and permission of program coordinator.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

PSYC 792: Psychology Practicum. 1-6 credits.
Supervised experience working in applied, school, or agency settings. Notes: For School Psychology, interested students must apply to area coordinator 60 days before registration. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to psychology graduate program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

PSYC 794: Developmental Assessment. 1-6 credits.
Introduces considerations and methods needed for evaluating young children (ages two - six). Focus on the skills necessary for formulating, conducting, and reporting comprehensive developmental evaluations. Emphasizes evaluation of preschool children and includes information relating to infants, as well as older children functioning at lower developmental levels. Offered by Psychology (p. 443). May be repeated within the term for a maximum 9 credits.

Recommended Prerequisite: Admission to applied developmental psychology program.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PSYC 798: Thesis Proposal. 1-6 credits.
Work on a proposal for master’s thesis. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Permission of program coordinator.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

PSYC 799: Master’s Thesis. 1-6 credits.
Research on approved master’s thesis topic under direction of thesis committee with approval of chair. Offered by Psychology (p. 443). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

800 Level Courses

PSYC 810: Psychological Assessment I. 4 credits.
First of required two-course sequence that provides comprehensive coverage of principles, strategies, and techniques of psychological assessment. Emphasizes empirically supported methods. Notes: Open to clinical psychology PhD students, or other students with permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to Graduate level students.

Schedule Type: Laboratory, Lecture

PSYC 811: Psychological Assessment II. 4 credits.
Second of required two-course sequence that provides comprehensive coverage of principles, strategies, and techniques of psychological assessment. Emphasizes empirically supported methods. Notes: Open to clinical psychology PhD students, or other students with permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: PSYC 810.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to Graduate level students.

Schedule Type: Laboratory

PSYC 822: Scientific Foundations of Clinical Psychology I. 3 credits.
First of required two-course sequence that provides comprehensive coverage of major psychological problems, including review of empirically supported interventions. Notes: Open to clinical psychology PhD students, or other students with permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.

Enrollment is limited to Graduate level students.

Schedule Type: Laboratory, Lecture
PSYC 823: Scientific Foundations of Clinical Psychology II. 3 credits.
Second of required two-course sequence that provides comprehensive coverage of major psychological problems, including review of empirically supported interventions. Notes: Open only to clinical psychology PhD students. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

PSYC 830: History, Systems, and Theories of Personality and Psychotherapy. 3 credits.
Review of history, systems, and theories of clinical psychology emphasizing traditional theories of personality and psychotherapy. Notes: Open to clinical psychology PhD students, or other students with permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: Admission to doctoral concentration in clinical psychology.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

PSYC 833: Social And Cognitive Foundations Of Clinical Psychology. 3 credits.
Review of theory and research in social psychology (particularly social cognition) relevant to understanding psychological adjustment, adjustment problems, and clinical interventions. Notes: Open to clinical psychology PhD students, or other students with permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

PSYC 850: Teaching Practicum in Psychology. 1 credit.
Workshop in effective teaching of selected undergraduate psychology courses. Required of and designed to guide graduate teaching assistants assigned to teach undergraduate course (not a lab) for first time. Topics include course planning, syllabus development, lecture resources, effective lecturing skills, use of audio visuals, leading of classroom discussion, construction and grading of exams, student writing, instructional technology, and handling of student questions and problems. Individual critiques of teaching. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

PSYC 860: Introductory Helping Skills and Motivational Interviewing. 3 credits.
Teaches fundamental interviewing skills and the theory, research, and practice of motivational interviewing. Offered by Psychology (p. 443). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

PSYC 861: Cognitive Behavioral Therapy for Youth. 3 credits.
Teaches the selection, evaluation, and application of empirically supported interventions for children and adolescents with a focus on cognitive-behavioral interventions. Instruction in evidence based assessments, cognitive-behavioral case conceptualization, outcome evaluation, and consultation. Supervision of cognitive-behavioral therapy with youth. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

PSYC 862: Cognitive Behavioral Therapy for Adults. 3 credits.
Teaches the principles of cognitive-behavioral theory, conceptualization and psychotherapy techniques for psychological problems with adults. Supervision of cognitive-behavioral therapy with adults. Offered by Psychology (p. 443). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Admission to doctoral concentration in clinical psychology and permission of director.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

PSYC 863: Ethical and Professional Issues in Clinical Practice. 3 credits.
Examines ethical principles and professional guidelines to help develop ethical decision-making and behavior to meet the appropriate standards of care in providing clinical services. Notes: Open to clinical psychology PhD students, or other students with permission of instructor. Offered by Psychology (p. 443). May not be repeated for credit.

Recommended Prerequisite: Admission to doctoral concentration in clinical psychology and permission of director.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar
PSYC 885: Clinical Externship. 0 credits.
Individual placements in psychological assessment or psychotherapy service settings. Notes: Open only to clinical psychology PhD students in the third year or more of training. Offered by Psychology (p. 443). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to students with a major in Psychology.

Schedule Type: Internship

PSYC 890: Seminar in Professional Psychology. 1-3 credits.
Each section limited to students in one concentration of MA or PhD program. See area coordinator for requirements for section in each track. Offered by Psychology (p. 443). May be repeated within the term for a maximum 3 credits.

Recommended Prerequisite: Student in psychology.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

PSYC 892: Special Topics in Psychology. 1-6 credits.
Selected topics reflecting specialized areas in psychology. Notes: Open only to PhD students. Content varies. May be repeated when topic is different. Offered by Psychology (p. 443). May be repeated within the term for a maximum 17 credits.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

PSYC 897: Directed Reading and Research. 1-3 credits.
Independent reading on topic agreed on by student and faculty member. Notes: PhD students in the clinical psychology concentration may not take this course for elective credit. May not be repeated for credit towards a degree by students who also register for PSYC 799. Offered by Psychology (p. 443). May be repeated within the term.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

900 Level Courses

PSYC 998: Doctoral Dissertation Proposal. 1-6 credits.
Work on research proposal that forms basis for doctoral dissertation. Notes: No more than 24 credits of PSYC 998 and 999 may be applied to doctoral degree requirements. Offered by Psychology (p. 443). May be repeated within the degree.

Recommended Prerequisite: PSYC 998.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Public Administration (PUAD)

500 Level Courses

PUAD 502: Administration in Public and Nonprofit Organizations. 3 credits.
Graduate introduction to field of public administration. Focuses on structure, functions, and processes of executive branch agencies of national, state, and local governments. Emphasizes nonprofit organizations as co-actors with government in policy-making/policy implementation nexus. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 504: Managing in the International Arena: Theory and Practice. 3 credits.
Theoretical and empirical examination of international system that both affects and is affected by decisions, behaviors, and subsystems of state and nonstate (organizational) actors. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 505: Introduction to Management of Nonprofits. 3 credits.
Examines nonprofit organizations and their role in contemporary society. Explores unique aspects of nonprofits including voluntary governance, tax-exempt status, nonprofit corporation law, accounting practices, fund raising, finance, and management of volunteers. Emphasizes board/executive relationship, and value of establishing and maintaining nonprofit organization’s reputation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUAD 509: Justice Organizations and Processes.** 3 credits.
Examines structures, practices, and performance of organizations involved in administration of justice (law enforcement, courts and legal agencies, corrections, regulatory and related agencies, private organizations) Explores applicability of various theoretical perspectives on organizational processes, and considers extent to which processes operate as a system. Focuses on comparing formal goals and system expectations to actual practice. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 509.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUAD 511: Problem Solving and Data Analysis I.** 3 credits.
Techniques, skills for public managers to solve policy-related problems or analyze policy-related data. Focuses on problem definition, research design, and problem solving under conditions of uncertainty in public sector. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to GOVT 511, GOVT 711, PUAD 611, PUBP 511.

**Registration Restrictions:**
Required Prerequisite: minimum score of 1 in 'Statistical Screening Exam'.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUAD 520: Organization Theory and Management Behavior.** 3 credits.
Considers behavior in context of public organization, and consequent changes required in management. Focuses on such issues as perception, attitude formation, motivation, leadership, systems theory, communication and information flow, conflict theory, and decision theory. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 620.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**PUAD 540: Public Policy Process.** 3 credits.
Processes of making public policy, including detection of public issues, consideration of alternatives, and adoption and implementation of solutions. Highlights major actors in policy process, and environment within which they work. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 640.

**Recommended Prerequisite:** PUAD 502.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**600 Level Courses**

**PUAD 612: Problem Solving and Data Analysis II.** 3 credits.
Techniques and skills for public managers to solve policy-related problems or analyze policy-related data. Focuses on data gathering and analysis, use of computers, systems theory and analysis, and operations research. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to GOVT 712, PUBP 705.

**Registration Restrictions:**
Required Prerequisites: PUAD 511\(^B\), GOVT 511\(^B\) or PUBP 511\(^B\).

Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUAD 613: Economic Analysis in Public Administration.** 3 credits.
Covers major economic issues about role of markets and government in global world. Applies fundamental economic concepts such as cost benefit analysis to public sector. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisites: PUAD 511\(^B\), GOVT 511\(^B\) or PUBP 511\(^B\).

Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUAD 615: Administrative Law.** 3 credits.
Covers law as guiding and controlling force in public-sector operations. Includes application of legal processes to administrative practices.
Managing Government Contracting. 3 credits.
Explores unique management and administrative challenges of providing public goods and services through contracts. Examines debates over privatization, and explores tools managers need to address unique accountability challenges associated with this governance tool. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 623: Managing Government Contracting. 3 credits.

Recommended Prerequisite: PUAD 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 622: Program Planning and Implementation. 3 credits.
Practical exploration of implementing public law in American federal system. Studies construction of organizational apparatus, development of operational plans, and systems of control and evaluation necessary to implement government programs. Emphasizes coordinating tasks and resources required for effective program implementation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUAD 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

Major management theories applicable to American federal system. Emphasizes organization, structure, and operations. Examines relationship of theories to management practices in contemporary American administration. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUAD 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 620: Higher Education Law. 3 credits.
Analyzes legal issues confronting higher education: governance, faculty matters, and student issues. Examples include due process, freedom of speech, and privacy. Reviews key constituents in higher education-students, faculty, administrators, board of trustees, and parents -and how their roles are changing. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUAD 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Seminar

PUAD 625: Public and Private Partnerships. 3 credits.
Emphasizes entrepreneurial efforts where governments, nonprofit organizations and private companies establish goals and combine resources and talents. Issues of efficiency, accountability, and democratic responsiveness will be examined. Various tools for promoting and implementing such partnerships will be explored. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 626: Consulting Management. 3 credits.
Explores the consulting industry, changes in the industry and future expectations of consulting as a career. Examines different sectors of consulting such as HR, IT, Operations, Marketing, Succession Planning, Organizational Consulting, Knowledge management, Non-profit and health care and government consulting. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Seminar

PUAD 624: Organizational Consulting. 3 credits.
Explores the consulting industry, changes in the industry and future expectations of consulting as a career. Examines different sectors of consulting such as HR, IT, Operations, Marketing, Succession Planning, Organizational Consulting, Knowledge management, Non-profit and health care and government consulting. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 625: Higher Education Law. 3 credits.

Recommended Prerequisite: PUAD 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 624: Public and Private Partnerships. 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 623: Managing Government Contracting. 3 credits.

Recommended Prerequisite: PUAD 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Schedule Type: Lecture

PUAD 622: Program Planning and Implementation. 3 credits.
PUAD 630: Emergency Planning and Preparedness. 3 credits.
Provides an understanding of the issues associated in developing plans and policies to prepare for disasters, both natural and man made. Overview of nature of challenges posed by different kinds of disasters; discussion of regulatory requirements, sample plans, equipment requirements, collateral and mutual aid support agreements, and methods for testing and updating plans. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 631: Disaster Response Operations and Recovery. 3 credits.
Explores the principles and practices that promote effective disaster response operations and management. Examines nature of disasters, models for response operations in the United States and roles and responsibilities of various emergency management-related organizations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 632: Terrorism: Theory and Practice. 3 credits.
Introduces students to the subject of terrorism including the history and evolution of terrorism, case studies of key terrorist groups, the current nature of the terrorist threat, and counterterrorism strategies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 633: Hazard Mitigation Policy. 3 credits.
Examines the complex interplay and policy approaches to hazard prevention and protection of known hazards in terms of land use, zoning, infrastructure, and building code management. Focuses on understanding the relative roles of proactive policy design and implementation at the federal, state, and local levels of government. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 634: Management of International Security. 3 credits.
Examines theory and practice of managing international security. Emphasizes interplay of organizational structure and bureaucratic dynamics in international context. Presents theory and practice of crisis management, and coordination and comparison of security methods and techniques. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 635: Emergency Preparedness: Interagency Communication and Coordination. 3 credits.
Considers complex relationships within governments and across sectors and levels of government for effective emergency management in planning, response, recovery, and mitigation phases. Explores intergovernmental management and network management theories and research to understand the nature of interorganizational problems and potential models for collaboration. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 636: The NGO: Policy and Management. 3 credits.
Explores unique aspects of nonprofit organizations operating in international environments, particularly in relief and development work. Examines relationship between NGO and U.S. and foreign governments. Covers international philanthropy; cross-cultural understanding; and key managerial concerns such as communications, planning, human resource management, control, group process, and project evaluation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
PUAD 637: Managing Homeland Security. 3 credits.
Focuses on the Department of Homeland Security and will cover the statutory law that provides the foundation for the department, the resources appropriated to the department, the determination of strategy and priorities, the development of operational capacity, and other challenges associated with top-level (secretarial) management of the department and its principal bureaus. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 642: Environmental Policy. 3 credits.
In-depth examination of environmental policy making. Examines U.S. efforts from 1970 to present to mitigate pollution of nation’s air, land, and water; and addresses issues of global concern including biodiversity loss, ozone depletion, and climate change. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to EVPP 642, PUAD 742.

Specialized Designation: Green Leaf Course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 644: Public Policy Models. 3 credits.
Approaches to modeling policy problems. Includes analysis and comparison of dominant paradigms in policy sciences. Reviews assumptions and implications of different models and their utility for analysis, implementation, and evaluation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUAD 540.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 645: Policy Analysis. 3 credits.
Introduces concepts and techniques for formal policy analysis, development of skills in applying policy analysis techniques through case studies, and exploring legitimacy and utility of policy analysis. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 741.

Registration Restrictions:
Required Prerequisites: or GOVT 511B or PUBP 511B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 646: Program Evaluation. 3 credits.
Practical exploration of assessment techniques used in studying results of public programs and policies, including evaluation of implementation strategies and impacts. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 742, PUBP 713.

Registration Restrictions:
Required Prerequisites: PUAD 511B, GOVT 511B or PUBP 511B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 649: Advocacy and Lobbying. 3 credits.
Explores how nonprofit organizations advocate and lobby for social change. Considers the different steps in the advocacy process and the broad range of strategies used by non profits seeking to influence public policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 651: Virginia Politics, Policy, and Administration. 3 credits.
Cultural, demographic, constitutional, and socioeconomic environment of public administration in Virginia. Covers governmental agencies, legislative functions, executive leadership, staff agencies, state-local relationships, intrastate regionalism, administrative customs peculiar to
Virginia. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 652:** Nonprofit Leadership and Change. 3 credits.
Examines the principles of leadership and the process of change within the context of the nonprofit sector and its role in the community. Looks at current changes and challenges within the nonprofit sector and their effect on the sector and society as a whole. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502 or 505.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**PUAD 654:** The Community, Marketing, and Public Relations. 3 credits.
Focuses on marketing concepts and communications issues of nonprofit organization as they apply to identifying market, ability to formulate public image and reputation, and capability to raise money and retain membership or volunteers. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502 or 505.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 655:** Philanthropy and Fund Raising. 3 credits.
Examines history of philanthropy and relationship to nonprofit, government, and commercial sectors in United States. Studies principles of financial development including governance, development of organizational capacity, and identification of funding sources and donor motivations. Provides understanding of fund raising techniques that generate financial support for nonprofits, and context in which these methods may be used. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502 or 505.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 657:** Association Management. 3 credits.
Practical application of management theory in context of professional and trade associations. Covers legal structures, tax-exempt status, and general organizational structure. Topics include volunteer management, budgeting and accounting practices in associations, fund raising, media relations, media and event planning, and human resource management. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502 or 505.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 658:** Social Entrepreneurship and Nonprofit Enterprise. 3 credits.
Explores innovative approaches for addressing social problems. Organized around the steps in the entrepreneurial process: identifying social needs, formulating program strategies, mobilizing resources, managing growth tracking results, and maximizing impact. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502 or 505.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**PUAD 659:** Nonprofit Law, Governance, and Ethics. 3 credits.
Overview of nonprofit governance as well as basic contract, labor, and tax law issues within nonprofit corporation law. Covers relationship between board and executive, and ethics topics typical to nonprofit organizations such as self-dealing, fiduciary responsibility, and human resource issues. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502 or 505.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
that play role in budget development, appropriation, implementation, and auditing. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 664: Nonprofit Financial Management. 3 credits.
Covers nonprofit financial management with attention to conflicts between social mission and financial entrepreneurship. Topics include mission, budgeting, fund raising, commercial programs, investments, accounting and information systems, financial reporting, auditing, and internal control. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: Admission to MPA, certificate in association management, or certificate in nonprofit management.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 670: Human Resources Management in the Public Sector. 3 credits.
Overview of range and complexity of functions, responsibilities, and expectations of human resource staff and line managers in public sector. Focuses on human resources management in context of political, legal, and managerial systems. Human resource functions, such as hiring, performance, and development, are also presented. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUAD 502.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 671: Public Employee Labor Relations. 3 credits.
Public employee labor relations, including unionization, representational elections, bilateral policy negotiations, administration of agreements, management rights, union and membership security, strike issue and grievance procedures, impact on public administration, and assessment of future developments. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 672: Human Resources Reforms for Public Administration. 3 credits. Explores recent reforms in human resources management in federal, state, and local governments. Covers pay for performance systems, flexible assignment patterns, incentives for productivity, work-life balance, job design, and changes resulting from higher levels of contracting for government programs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 679: Leadership Skills for the 21st Century. 3 credits. The class is premised on the belief that an individual's leadership capabilities can be enhanced by better understanding and practicing day-to-day leadership skills which can be used in the workplace. The academic literature on leadership will also be discussed. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 691: Justice Program Planning and Implementation. 3 credits. Covers development and construction of organizational systems to implement government policies and programs. Emphasizes dealing with real-world challenges, constraints, and opportunities to create feasible plans, performance-monitoring systems, and secure multiple agency coordination. Applications of planning and implementation principles to actual projects in justice agencies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 691.

Recommended Prerequisite: PUAD 502 and 509.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

PUAD 700: Ethics and Public Administration. 3 credits. Topics of ethical dimensions including constitutionalism, democratic values and traditions, standards of conduct and ethics, and conflicting values of public officials and social equity of public programs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions: Required Prerequisites: (PUAD 502B) and (PUAD 511B or 611B) and (PUAD 520B or 620B) and (PUAD 540B or 640B). B Requires minimum grade of B.

Enrollment is limited to students with a major in Nonprofit Management or Public Administration.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 701: Cross-Cultural and Ethical Dimensions of International Management. 3 credits. To be taken in final two semesters of MPA program. Examines normative issues in management of programs in international context. Emphasizes interplay of cultural, sociopolitical, legal, and ethical factors, and management and policy problems arising from conflicting goals, values, and inequities among nations and regions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: To be taken during final semester of student's MPA program.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
PUAD 703: Third-Party Governance. 3 credits.
Examines design and management of government programs relying on other levels of government and private sector for delivery, with focus on such governmental tools as contracts, grants, loans, regulation, and tax credits. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (PUAD 502*) and (PUAD 511* or 611* and (PUAD 520* or 620*) and (PUAD 540* or 640*). Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 720: Performance Measurement. 3 credits.
Methods used by managers to systematically assess performance. Includes practical tools such as focus groups, survey research, cost/benefit analysis, benchmarking, and comparison methods for revealing outcomes and impacts. Prepares managers to use information more effectively in developing programs and services and formulating policy, and covers reporting techniques to communicate performance results. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 727: Seminar in Risk Assessment and Decision Making. 3 credits.
Examines decision making under risk and uncertainty. Readings introduce major intellectual perspectives on topic and are drawn from variety of disciplines, including biology, economics, law, and psychology. Emphasizes making actual decisions under uncertainty. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: 12 graduate credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 729: Issues in Public Management. 3 credits.
Current issues in management of public organizations in contemporary American government. Includes practical applications of theories and analysis to managerial problems. Emphasizes competence in improving management in selected government settings. Notes: May be repeated for credit when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term.

Recommended Prerequisite: PUAD 502 and 9 graduate credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 730: Professional Development Workshop. 1-3 credits.
Explores external and internal factors reshaping public and nonprofit organizations. Investigates processes and techniques that managers and staff can use to respond to rapid environmental change. Emphasizes case studies and application of techniques and processes. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 731: Homeland/Transportation Security Administration. 3 credits.
Examines the terrorist attacks of 9/11, the vulnerabilities of the aviation security system at that time, reasons why elected leaders and officials did not act more decisively to improve security before 9/11, and the policy and administration responses to the 9/11 attacks, including the creation of the Transportation Security Administration and the Department of Homeland Security. Includes the development of radical Islam and the rise of Osama bin Laden and Al Qaeda. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 738: Issues in International Security. 3 credits.
Examines issues of topical interest in general area of international security. Possible topics include nuclear strategy, disarmament, American defense policy, and international terrorism. Notes: May be repeated for credit when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term.

Recommended Prerequisite: PUAD 504 and 9 graduate credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUAD 739: Issues in International Management. 3 credits.
Examines significant current issues in public international management. Emphasizes practical applications of theories and analysis of problems in public international management arena, and competence in improving management practices in international management settings. Notes: May be repeated for credit when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term.

Recommended Prerequisite: PUAD 502 and 9 graduate credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
**PUAD 749: Issues in Public Policy.** 3 credits.
Examines significant issues in public policy in contemporary American government. Emphasizes practical applications of theories and analysis to policy problems, and competence in improving policy analysis in selected government settings. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term.

**Recommended Prerequisite:** PUAD 502 and 9 graduate credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 750: Federalism and Intergovernmental Relations.** 3 credits.
Examines broad trends in governance, including theory and practice of federalism, with particular focus on intergovernmental relations and changing roles of federal, state, and local governments. May include privatization, devolution, mandating, regulatory reform, and comprehensive federalism reform. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 502 and 9 graduate credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**PUAD 758: Environmental Politics.** 3 credits.
Evolution and current state of environmental policy making. Includes history, strengths, and weaknesses of key U.S. environmental laws and central international environmental agreements. Introduces analytical approaches, including cost-benefit and risk analysis. Discusses economic incentives and normative considerations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to EVPP 758.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 759: Issues in Local Government Administration.** 3 credits.
Management and policy formulation in American local governments. Addresses environments, institutions, and actors involved. Examines contemporary problems such as education, criminal justice, transportation, land use, economic development, and environmental impact. Notes: May be repeated with different topic. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term.

**Recommended Prerequisite:** PUAD 502 and 9 graduate credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 769: Issues in Public Financial Management.** 3 credits.
Current issues in budgeting and financial management in contemporary American government. Emphasizes practical applications of administration and management issues and policy choices at all levels of government. Notes: May be repeated for credit when topic is different. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 15 credits.

**Recommended Prerequisite:** PUAD 502 and 9 graduate credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 781: Information Management: Technology and Policy.** 3 credits.
Examines challenges that organizations encounter as they move to a more technologically sophisticated information and communication environment. Studies organizational policy issues evolving from new technologies, including privacy, security, authentication, content control, intellectual property, and taxation, focusing on effectiveness of previous policy solutions and analyzing proposed solutions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUAD 680 or Permission of Instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUAD 790: Justice Organization and Administration.** 3 credits.
Examines organization and administration of justice and security organizations. Covers organization theory and behavior as applied to justice and security organizations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 740.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**PUAD 791: Justice Program Evaluation.** 3 credits.
Practical exploration of assessment techniques used to study need for and consequences of justice programs and policies. Covers needs assessments, process, and impact evaluations. Includes design and measurement issues for assessing performance of justice programs, and interpreting and presenting results. Emphasizes designing program evaluation for justice agency. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 781.

**Recommended Prerequisite:** PUAD 511 and 612.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar
PUAD 792: Advanced Seminar in Applied Public Administration Research. 3 credits.

An applied research experience. Students will apply skills in problem definition, issue framing, collection of data and information, interviewing, selection and analysis of alternatives, presentation of findings and recommendations, design of implementation tools and administrative procedures and organizations, report writing and oral presentation to policymakers. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: 30 PUAD credits and permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 793: Conduct of Justice Organizations at the Street Level. 3 credits.

Explores how justice organizations behave at lowest levels, where service is delivered and discretion is greatest. Includes suspects, victims, witnesses, police officers, prison guards, parole officers, attorneys, and others who interact with the justice system. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 741.

Recommended Prerequisite: CRIM 740/PUAD 790 or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 794: Internship. 3 credits.

Open only to MPA students. Contact internship coordinator one semester before enrollment. Credit determined by the department. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: 12 PUAD credits or permission of instructor. Open only to MPA students. Enrollment is controlled. See http://pia.gmu.edu/internships for registration application.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

PUAD 795: Leadership in Justice and Security Organizations. 3 credits.

Examines leadership theories, and explores fundamental questions about leadership in justice and security organizations today. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: CRIM 740, PUAD 790, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Independent Study

800 Level Courses

PUAD 796: Directed Readings and Research. 1-3 credits.

Reading and research on specific topic under direction of faculty member. Written report is required; oral exam covering research and report may be required. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: 18 PUAD credits and Permission of Instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 797: Changing Justice and Security Organizations. 3 credits.

Examines challenges of changing justice organizations, how changes have been successfully and unsuccessfully implemented in the past, and what change strategies appear to be most effective. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to CRIM 743.

Recommended Prerequisite: CRIM 740, PUAD 790, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUAD 821: Doctoral Seminar in Theories of Organization and Bureaucracy. 3 credits.

Examines key issues in organization theory and behavior. Issues include organization design; interorganizational coordination, intelligence and decision-making systems; leadership and motivation theories; and theories or organizations as agents of political and social change. Uses case studies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUAD 520 or equivalent, or permission of instructor.

Registration Restrictions: Enrollment is limited to Graduate level students.

Schedule Type: Seminar

PUAD 840: Research Seminar in Policy Governance I. 2-4 credits.

Surveys major institutions that formulate and implement public policy in United States. Examines translation of public preferences into public policy, and decisions about which societal and economic functions are most appropriately carried out by governments, and which are best accomplished by private institutions and individuals. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUBP 840.
Recommended Prerequisite: Admission to the doctoral program or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

PUBP 502: Governance and Policy Processes. 1-4 credits. Assesses governance processes in public and private organizational settings on the basis of economic and political standards such as efficiency, accountability, and responsiveness to societal needs in a rapidly changing global environment. Using cases, simulations, and fieldwork, students learn to evaluate the quality of institutional governance in specific venues and appraise implications for public policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Recommended Prerequisite: Admission to doctoral program.

Schedule Type: Lecture

PUBP 503: Culture, Organization, and Technology. 1-4 credits. Focuses on the influence of culture in societal, political, economic, and technological processes, nationally and internationally. Culture is seen as dynamic and interactional. Using case studies, students learn pertinent approaches to the study of culture, from the analysis of organization and social networks to that of belief systems and identities. Students also develop practical skills in observation, participation, and intervention. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 504: Grand Strategy. 3 credits. Uses the traditional tools of history and theory to analyze grand strategy. The goal is to gain an in-depth understanding of effective and ineffective grand strategies so as to inform U.S. policy, or that of other countries. Analyzing the strategic implications of policy-making, it takes a long view of effective statecraft, using current means to achieve large ends. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 505: Politics and Practice of International Security Policy. 3 credits. Drawing on current and historical cases, this course develops knowledge, strategies, and skills required to transform policy ideas and proposals for credit.

Recommended Prerequisite: Policy and Organizational Analysis.
into implemented policy on issues of international security. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Schedule Type:** Lecture

**PUBP 506: Ethics and the Use of Force.** 3 credits.
Explores the relationship between weapons and warfare and the ethical issues raised by the use of force, both in past conflicts and in a current and future context. Examines the relationship between emerging technology enabled weapons and the just war tradition. Studies relevant theories of war and selected international laws and conventions governing war and weapons. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 511: Statistical Methods in Policy Analysis.** 3 credits.
Introduces students to the range of quantitative methods used for public policy analysis. Provides a broad foundation to prepare students for doing statistical analysis on the master's level. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to GOVT 511, PUAD 511.

**Registration Restrictions:**
Required Prerequisite: minimum score of 1 in 'Statistical Screening Exam'.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 533: Topics in Public Policy Processes.** 1-3 credits.
Focuses on selected topics in public policy processes and procedures on an introductory level. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 550: Topics in Public Policy.** 1-3 credits.
Focuses on selected topics in public policy not covered in fixed-content public policy courses. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

### 600 Level Courses

**PUBP 601: Theory and Practice of Regional Economic Development.** 3 credits.

Helps students develop real-world skills to be a successful economic developer, consultant, policymaker, or change agent in this rapidly changing environment. Designed to provide a framework for understanding regional and national economic growth and prosperity, and provide tools to conduct concrete analyses to help decision makers, clients, and constituents make better-informed decisions. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 602: Regional Economic Development: Strategies and Applications.** 3 credits.

Introduces range of methods for tracking the performance of metropolitan economies, identifying opportunities for economic development, and assessing effectiveness of public and private investments designed to achieve region's economic growth. Also examines strategies and case results of economic development plans and projects. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 605: State and Local Government Policy and Economic Development.** 3 credits.

Examines state and local government policies and processes to promote local economic development, including institutional arrangements, financing and tax incentives, nonfinancial strategies and approaches, land use, environmental and other relevant regulations, and relationships across government and nongovernmental organizations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

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**PUBP 610: Organizations, Management, and Work: Theory and Practice.** 2 credits.

This introduction to organizations, management, and work examines ideas and practices from two perspectives: conventional ones that go back to the industrial age and scientific management; and contemporary ones that have to do with organizing knowledge-work. Covers contributions of a range of writers and deals with foundations of OD from the standpoint of both theory and practice. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 611: Critical Infrastructure Protection in Theory, Policy and Practice.** 2 credits.

Introduces critical infrastructure protection as a policy field, examines its institutional framework, and considers its foundations in political and economic theory. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 650: International Conflict and Crisis Response.** 3 credits.

First course of two-semester sequence on international peace operations. Focuses on emerging theory of peace operations, including peacemaking activities of United Nations and other diplomatic initiatives; peace-building activities of international organizations and nongovernmental organizations; and peace support provided by international militarys. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 651: Peace and Stabilization Operations.** 3 credits.

Second course of two-semester sequence on international peace operations. Focuses on application of emerging theory of peace operations, including peace-making activities of United Nations and other diplomatic initiatives; peace-building activities of international...
organizations and nongovernmental organizations; and peace support
provided by international militaries. Several guest lectures from past and
present peace operations provide practical information for future staff of
peace operations. Offered by Schar School of Policy & Govt (p. 906). May
not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 652: Strategies for Peace and Stabilization Operations. 4 credits.
This course concentrates on the institutional mindsets, characteristics,
and behaviors of the actors involved in peace operations. Readings, role-
plays, and research underpin the class. Special attention is also paid to
developing students’ graduate-level research and writing skills. Offered by
Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 653: Interagency Operations in Conflict and Post-Conflict Settings. 3
credits.
Examines the U.S. Interagency process as it relates to peace operations.
Various departments and agencies maintaining equities in overseas
missions will be identified and explored. Case studies highlight instances
of success or failure in application of a "whole-of-government" approach
to intervention. Examines significant problems hampering Interagency
cooperation today and recent policy directives, frameworks, and
initiatives developed to address this situation. Offered by Schar School of
Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 654: Analysis for Peace Operations. 3 credits.
Examines theories of human behavior and social systems as they
relate to conflict at the interpersonal, community, and international
level. The class provides a foundation of academic thinking about the
role of conflict in violent and peaceful social change. At the end of the
course, students should be able to think systematically and critically
about conflict, and engage in practical application of conflict analysis
techniques to peace operations. Offered by Schar School of Policy & Govt
(p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

700 Level Courses

PUBP 700: Theory and Practice in Public Policy. 1-4 credits.
Theories of public policy emphasizing historical intellectual development,
and role theory and ethics may play in public policy making. Assumptions
made by policy professionals examined against broad range of
philosophical, social, political, and economic imperatives affecting public
policy environment. Offered by Schar School of Policy & Govt (p. 906).
May not be repeated for credit.

Registration Restrictions:
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
PUBP 702: *Comparing Political Institutions*. 3 credits.
Examines political institutions and processes from comparative and international perspectives, and role of political environment in economic trade and investment policy decisions. Examines how generalizability, objective knowledge and understanding, and nature of evidence impact public policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

Graduate-level introduction to statistical methods and techniques used in policy sciences. Topics include descriptive statistics, sampling and probability theory, graphical data display, estimation and significance testing, contingency tables, bivariate regression and correlation, and multiple regression, with introduction to computer based statistical analysis. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

Covers classical regression methods and their application to public policy analysis. Includes simple and multiple regression, analysis of variance, time series, and simultaneous equation structural models. Problems associated with applications include specification error, multicollinearity, qualitative variables, heteroskedasticity, serial correlation, and structural identification. Course develops analysis skills by discussing sample empirical studies and models using advance statistical computer software. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUBP 612.

**Registration Restrictions:**
Required Prerequisites: PUBP 511B, GOVT 511B or PUBP 511B.

B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

Studies analytical concepts and techniques used in public-sector overall budgetary and specific project decision making. Includes conceptual concerns and quantitative techniques used in benefit-cost analysis, capital budgeting, financial analysis, and various specialty applications, such as economic and fiscal impact analysis. These are all interrelated by the desire to measure the benefits versus the costs of various alternative public decisions. Attention is given to measuring results over time and the use of present value techniques. Assesses strengths and weaknesses of analytical techniques. Emphasizes the process of defining the appropriate stakeholders affected by decisions, the sources and quality of data, and the rigor of conducting studies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

PUBP 709: *Professional Writing for Policy*. 3 credits.
Professional Writing teaches effective writing for the professions. The course includes the fundamentals of writing – grammar, word usage and paragraphing – and instruction in selected genres, including news stories, editorials, and research writing. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Post-Baccalaureate or Non-Degree Undergraduate degrees may not enroll.

Enrollment limited to students in the Schar School of Policy and Government.

**Schedule Type:** Lecture

PUBP 710: *Topics in Public Policy*. 1-3 credits.
Focuses on selected topics in public policy not covered by fixed-content public policy courses. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 15 credits.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

Introduces analytical models and analysis to support decisions. Primary emphasis on understanding techniques of operation research and management science, cost benefits, and cost effectiveness for public decision making. Using mathematical details of algorithms to solve models not emphasized except as it contributes to understanding reliability and validity of methodologies. Through case studies and computer solutions, offers appreciation of when, where, and how to use models. Students demonstrate their understanding of techniques by applying them to term research project on government program. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

PUBP 713: *Policy and Program Evaluation*. 3 credits.
Examines how programs of public agencies are proposed, established, operated, and evaluated. Covers role of research in program evaluation process, including alternative methodologies for policy assessment. Considers demand estimation, supply and pricing of publicly produced goods and services, and role of subsidies in nonmarket environments.
Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 646.

**Registration Restrictions:**

**Required Prerequisites:** PUBP 511\(^b\), GOVT 511\(^b\) or PUAD 511\(^b\).

\(^b\) Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 714:** Topics in Transportation Policy, Operations, and Logistics. 1-3 credits.

Issues in transportation policy, operations and logistics in United States and abroad. Includes practical applications of theories and analysis to policy problems, and emphasizes competence in improving policy in selected domains. May be taken up to three times and simultaneously for sections addressing different subject matter. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 9 credits.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 715:** Introduction to Transportation Systems. 3 credits.

Transportation is a service that contributes substantially to well-being of advanced economies. Resource requirements and byproducts of transportation also pose sobering environmental challenges for society. Course examines history and development of transportation systems; contribution to and impact on society; institutions and practices that govern planning, design, construction, operation, maintenance, and retirement from service; and policy and managerial challenges, and tools and techniques for addressing them. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 716:** Transportation Operations and Logistics. 3 credits.

Provides survey of issues, methods, problems, and strategies. Topics include origins of logistics, industry structure, pricing, underwriting, rate making, compliance, inventory effects, just-in-time inventory management (JIT), materials requirements planning (MRP), customer service and order processing operations, sales functions and operations, dispatch and fleet manager functions and operations, rate-setting among three parties, typical electronic and paper document flow, routing and scheduling, route selection, satellite load tracking through dispatch-customer web inquiry, role of ITS in route selection, toll system use, congestion, training activities, and logistics markets. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 717:** Analysis for Transportation Managers. 4 credits.

Introduces basic methods of transportation analysis and evaluation relating them to policy framework. Covers descriptive statistics, hypothesis testing, contingency tables (Chi-Square analysis), regression, optimization, demand elasticities, and gravity model. Also covers sources of transportation data and research design. Teaches mathematical base and logic of each technique, but primary emphasis is applying methods to relevant policy and management problems. Students required to complete series of assignments along with research proposal focused on applying one or more methods to problem of their own interest. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 718:** Transportation Planning and Policy. 3 credits.

Introduces highway, rail, air, and water transport planning in United States. Teaches legislative, organizational, fiscal, legal and political environment within which planning for transportation facilities and services takes place. Introduce technical and analytical methods for transportation planning. Focus is largely on public sector, but also considers commercial transport planning and role of private sector in helping to design, manage, and finance transport systems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 719:** Transportation Law. 3 credits.

Examines legal environment of transportation. Topics include basic legal concepts and institutions, history and evolution of price and service regulation, environmental law and regulation, labor relations, and property. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 720:** Managerial Economics and Policy Analysis. 3 credits.

Introduces microeconomics theory and its application in analyzing public policy issues. Provides capability to understand economic literature and theories. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
PUBP 721: Transportation Economics. 3 credits.
Provides basis for understanding economics of transport system, and how transportation relates to urban and regional development. Treats transport generically, but includes case studies of specific modes. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 722: Practicum in Transportation Policy, Operations, and Logistics. 3 credits.
In-depth field study of ongoing transportation policy, operations, or logistics situations; and design and delivery of actions to manage or resolve problems and opportunities. Range of application areas depends on interests of student body and opportunities faculty identify for “clients” or real-world projects. Illustrative domain areas include surface transportation (highways and transit), airports, and aviation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 723: Metropolitan Transportation Policy. 3 credits.
Recent changes in federal legislation have led to renewed importance for transportation policy and planning. Considerations of clean air, economic development, congestion management, and changing urban form have greatly increased importance of well-planned transportation facilities and policies. Course introduces basic methods of transportation policy analysis and evaluation. Topics include data collection, simplified demand estimation techniques, transportation choice modeling, transportation supply analysis, and ex-ante and ex-post evaluation methods. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 726: Telecommunications Policy. 3 credits.
Examines salient issues associated with telecommunications and electronic commerce in context of public policy questions facing decision makers in government, education, and business. Examples include privacy, electronic signatures, digital divide, bandwidth auctions, IP telephony, CRM, Bluetooth, and Internet taxation. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 730: US Institutions and the Policy Process. 3 credits.
Explores the United States constitutional system of government, including the principal governmental and non-governmental institutions shaping American public policy. Investigates the national policy making process and the interplay between politics and policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 731: Macroeconomic Policy Assessment. 3 credits.
Covers monetary theory, theories of consumption and saving, budget deficits, economic growth, international finance, and monetary and fiscal policy. Investigates national income and product accounts, savings, employment, and investment, and alternatives to Keynesian principles. Evaluates theories of inflation, investment, capital accumulation, and nonproportional growth. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 732: Labor Markets and Policies. 3 credits.
Analysis of labor market issues and policies, including those affecting employment, wages, working conditions, and unemployment – issues central to current policy debates on job creation, inequality, discrimination, immigration, education, and social programs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 733: Urban Politics and Policy. 3 credits.
This course explores the factors that guide and affect urban politics and policy including, but not limited to, housing, public education, criminal justice, employment, and economic development. It is designed to provide students with an introduction to the major theories and some of the significant research in urban politics and policy. The primary focus will be on large American cities. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 734: Administrative Law and Public Policy. 3 credits.
Covers administrative discretion, rule-making and agency proceedings, public participation, political accountability, regulatory processes, oversight, formal adjudication and informal action, lobbying agency administrators, and political and legal nature of the administrative
process. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 735:** **Lobbying and Interest Representation.** 3 credits.
To work effectively within a democratic political environment, policy analyst must understand contemporary methods used to influence policy. Course focuses on roles and techniques of organized influence, and its impact on policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 736:** **International Migration and Public Policy.** 3 credits.
Examines demographic, economic, political, and social forces driving international migration on a global basis in the twenty-first century. Considers policy responses within sending and receiving countries and at the global level, including the role of international cooperation and institution-building. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 737:** **Cases and Concepts in E-Government.** 3 credits.
Electronic government has become a significant public policy issue worldwide. It offers the prospect of dramatic improvements in delivering government services, but also portends major debate about government intrusion. Course covers emerging public policy issues associated with electronic government: job displacement in public sector, privacy, procurement and supply chain management, voter profiling, scope of government services, challenges to "digital democracy," Internet-based voting, land management, the "digital divide," and others. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 739:** **Media and Public Policy.** 3 credits.
Explores complex relationship between media and public policy. Examines how these forces collide in our modern media, how coverage decisions regarding public policy are made in newsrooms, how advocates use and rely on the media to advance message, and how different media reflect different strengths and vulnerabilities. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 740:** **U.S. Foreign Policy: Formulation and Practice.** 3 credits.
Focuses on policy formulation and policy implementation. The principal arenas of foreign policy are explored, including the White House, the State Department, the defense and intelligence communities, and the Congressional committees. These arenas are both affected by and influential upon the exogenous systems, such as the media, public opinion, interest groups, foreign governments, and international organizations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 741:** **U.S. Financial Policy Processes and Procedures.** 3 credits.
Examines design and operation of expenditure and revenue systems at federal, state, and local levels of U.S. government. Stresses mobilizing and allocating resources through planning, adoption, and execution of budget. Includes theory and policy objectives of tax and spending regimes and review of financial controls, performance measurement, cash and debt management, and accounting and financial reporting systems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Recommended Prerequisite:** PUBP 720.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 742:** **Transportation Safety and Security.** 3 credits.
Examines transportation safety and security from multimodal perspective for both passenger and freight. Topics include historical context and policy framework, regulation, institutional issues, new security arrangements for preventing organized terrorist attacks, infrastructure design, vehicle design, operating protocols, and information systems. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**PUBP 743:** **National Security Management and Policy.** 3 credits.
Examines hierarchies in national security from the president to military establishment, including National Security Council, secretary of defense, joint chiefs of staff, commanders-in-chief of unified and specified commands, and intelligence agencies. Covers policies involving national defense, peace-keeping operations, embargoes and other sanctions, defense conversion, and military acquisition policy. Also covers significant legislation affecting national security, such as National
Regulation of American government, U.S. Congress, executive branch from White House to agencies, and role of interest groups and political parties. Special attention to implementing legislation, regulatory process, and intergovernmental relations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 744: Federal Institutions and Management. 3 credits.
Covers management and policy in federal government, examining policy problems within context of national system of governance, including political environment, evolution and constitutional framework of American government, U.S. Congress, executive branch from White House to agencies, and role of interest groups and political parties. Special attention to implementing legislation, regulatory process, and intergovernmental relations. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 745: Transportation and the Environment. 3 credits.
Multidisciplinary examination of implications of transportation and ways public policy has attempted to handle them, and how policy may move in the future. Explores all modes of transportation and most environmental ramifications. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 747: Air Transportation Policy, Operations and Logistics. 3 credits.
Reviews evolution of various forms of air transport such as airlines, general aviation, and military aviation; and includes basics of airline economics, especially as they intersect with airline operations and the management of hub and spoke networks; air traffic control technologies and operations and their intersection with airline economics; safety and security technologies and regulations; future of various elements of air transportation; and effects of deregulation on air travel. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

PUBP 748: Public Transportation Policy, Operations and Logistics. 3 credits.
Provides general system description for components comprising typical publicly funded transit property. Topics include organizational structure, historical context, budget development including operating and capital budgets, personnel and labor relations, regulatory framework, operations management (bus and commuter rail), reporting structure, customer service, and contracted operations. Also discusses current topics of interest, such as security of transit systems and transit's role in air quality. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
governing bodies. Larger issues, such as war and peace, just and unjust wars, capital punishment, medical and legal ethics, and communitarian vs. individual liberties are also included, with emphasis on how they affect public policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 754:** Geographic Information Systems and Spatial Analysis for Public Policy. 3 credits.
Introduces GIS including analytical tools to manipulate and study spatial data. Run mainly as a laboratory, with extensive hands-on experience. Focuses on public policy applications. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**PUBP 755:** National Security Decision-Making Policy. 3 credits.
Applies behavioral, economic, strategic, and other decision theories to U.S. government and other actors in historical national security crisis cases and current policy issues. Explores tension in decisions between rational goal seeking by actors vs. organizational process, and aims to develop usable decision tools. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 756:** Global Medical Systems Policy Analysis. 3 credits.
Equips students with knowledge and skills to critically analyze structures, functions, governing policies, and performance of healthcare systems; to identify problems and solutions; and to devise alternative courses of action and reform policies that would contribute to achieving goals. Prepares students in policy analysis rooted in systems analysis, while linking issues, objectives, and solutions with the larger context in which a system is embedded. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 757:** Public Policy in Global Health and Medical Practice. 3 credits.
Introduces international medical policy. Covers globalization of health and medical policies directed at removing disparities, financing, ethical considerations of biomedical research, and use of emerging technologies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 758:** Global Threats and Medical Policies. 3 credits.
Explores medical and health governance, biosecurity and biosafety, health and natural and human-made disasters, humanitarian and emergency assistance, vaccine development, behavior and health, critical infrastructures, bioethics and resource allocations in global context. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**PUBP 759:** National Security Law and Public Policy. 3 credits.
Introduces legal and policy issues concerning current U.S. national security. Its emphasis is on developments since 9/11. It focuses on the legal rules governing the formulation and execution of U.S. national security policy. It examines U.S. and international law as well as general domestic and foreign policy considerations. In particular, the course considers the principal cases, legislation and treaties impacting U.S. national security. Special emphasis is on the interplay of national security concerns and civil liberties in this age of global and transnational terrorism. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 760:** Science and Technology Policy in the 21st Century. 3 credits.
Investigates roles dynamic scientific research and technological innovation play in contemporary society. Focuses on design and analysis of alternative public policies intended to influence rate and direction of technological change in societies, and use of scientific and technical knowledge in public policy making. Uses historical and international comparative approaches to assess politics and pragmatics of science and technology policy. Includes material from policy evaluation and analysis, organization theory, economics of innovation, and sociology of science and technology. Applications focus on areas of concern to "new economy" such as biotechnology, networked telecommunications and computing, and globalization of technology-based production. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 761:** Social Entrepreneurship and Public Policy. 3 credits.
This course is about people who start new ventures with the explicit objective of creating social as well as private value. As societies and the challenges they face become ever more complex, existing institutions
and incentive structures may or may not be adequate to address new generations of problems. Social entrepreneurs innovate new organizational forms with the objective of finding solutions in the public interest. Students in this course will be challenged to integrate elements of business strategy and policy analysis toward the objective of crafting a practical plan for the launch of a novel and needed social venture. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 762: Social Institutions and Public Policy.** 3 credits.
Limited government involvement in social policies changed drastically during the 1960s, with an explosion of social programs designed to ameliorate poverty, reduce crime, and eliminate racial segregation. These new social policies affect many institutions, including family, schools and colleges, criminal justice system, and government agencies. Many of these policies have been controversial, with debates over efficacy and whether they have cured or exacerbated social problems. Course examines evolution and status of selected American social policies, including civil rights policies, education reform, family policy, crime prevention, and other topics chosen by students. Readings and discussions on policy issues linked to readings and discussions on social theories and value systems that underpin social policies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 763: Illicit Trade.** 3 credits.
Examines the role that illicit trade assumes in international trade and commerce. Studies diverse international forms of illicit trade, the role that it assumes in perpetuating conflicts and the most pervasive forms of this illicit trade. Examines the actors who perpetrate this trade and the policies which are needed to stem its growth. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 764: Transnational Crime and Corruption.** 3 credits.
Provides an overview of transnational crime and corruption and its effects on the political, economic, and social development of countries globally. Focuses on the growing problem of transnational crime in conflict regions. The course addresses the links among crime groups, corruption and terrorism. It analyzes diverse range of activities of transnational crime groups in both the legitimate and illegitimate economy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 765: Human Smuggling and Trafficking.** 3 credits.
Examines the rapidly growing phenomenon of human smuggling and trafficking. Addresses the reasons for the growth of these phenomena and their far-reaching and diverse social, political and economic consequences globally. Transnational crime dimensions of the problem are a central component of the class. The phenomenon is examined in conflict regions, developing, diverse developed as well as transitional societies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 766: Modern Counterinsurgency: Theory and Practice.** 3 credits.
This course is intended to give students a broad understanding of the nature of counterinsurgency, the policy implications of the U.S. becoming involved in an insurgency, and the multifaceted, interagency approach that is required to successfully combat an insurgency. The course includes case studies, a review of contemporary U.S. counterinsurgency practices, and insights on what the future might hold in this important type of conflict. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 767: Global Comparative Medical Practices, Ethics and Law.** 3 credits.
Examines major ethical issues raised in medical practice around the world. Studies issues comparatively and applies various ethical frameworks to study them. Considers various legal and policy solutions derived to deal with them. Principles of biomedical ethics as well as consideration of several major schools of thought in political philosophy, including utilitarianism, libertarianism and communitarianism will be considered. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 768: Education and Public Policy (Topic Varies).** 3 credits.
Explores current issues and policy initiatives in education policy at federal, state, and local levels, with emphasis on education reform. Issues and topics vary. Typical policy issues include raising academic standards, high-stakes testing, alternative governance including school choice and voucher policies, teacher quality and certification, role of school resources in academic outputs, and equity topics. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**PUBP 769: Political Violence and Terrorism.** 3 credits.
Examines the persistent threat of terrorism and political violence to international stability generally, and U.S. national security interests in particular. Provides students with a long-term analytical and substantive foundation to deepen their knowledge and effectiveness as policy-makers in national security, diplomacy, homeland security, law enforcement, humanitarian law, peace operations, postconflict reconstruction, development assistance, public diplomacy and other related areas. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 770: Global Health and Medical Policy Analysis.** 3 credits.
Prepares students in global health and medical policy analysis with a focus on processes, roles, expenditures, alternatives and tradeoffs in different country settings. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 775: Economics of Electronic Commerce.** 3 credits.
Focuses on gaining competitive advantage through electronic commerce implementation; identification and growing of new market opportunities and electronic enabling of existing business relationships; and business-to-consumer relationships and economics of strategic procurement, ERP hosting, customer relationship management, catalog hosting, portal operations, and supplier management. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 777: Critical Infrastructure Protection: Policy and Practice.** 3 credits.
Introduces critical infrastructure protection and resilience as a policy field, examines its governance framework, and considers its foundations in institutional theory and risk analysis. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 780: Evolution of the Washington Metropolitan Economy.** 3 credits.
Includes historical context, role of federal spending, tourism, technology sector, international business, regional organizations, local government policies, and forecasts. Evaluates development patterns in Washington, D.C., Northern Virginia, and suburban Maryland. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 781: Entrepreneurship and Economic Development.** 3 credits.
A knowledge spillover theory of entrepreneurship is employed to link between theories of entrepreneurship and theories of innovation and regional development. Other interconnections are explored at the regional level as firms forge networks, clusters, and specialized markets. The public policy issues of these constructs, including competition policy, industrial policy, and cluster policy, are examined within a regional and global context. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**PUBP 782: International Financial Policy.** 3 credits.
Addresses theory of international finance, application to financial policy such as exchange rate regimes, and institutions of international finance. Covers operations of International Monetary Fund and World Bank, development of European Monetary Union, and debate over “international financial architecture.” Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**PUBP 783: Global Governance.** 3 credits.
Surveys important issues in global governance given changes in contemporary world. Explores dynamics and complexity of formal and informal actors, institutional arrangements, organizations, and roles in process of governance in international sphere. Considers states, governmental and nongovernmental organizations, international regimes, social movements, regional associations, and multinational corporations as actors bearing on transnational authority. Examines various vehicles for international coordination and conflict in terms of relevance and opportunities for global governance. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
PUBP 784: Entrepreneurship, Economics, and Public Policy. 3 credits.
To demonstrate that global capitalism is a process driven by entrepreneurship, students study the Austrian school of economics, which views capitalism as a process of creative destruction, as well as other economists who emphasize entrepreneurship and change. The course reviews the history of capitalism, focusing on the so-called industrial revolutions in Britain, Germany, Japan, and the United States, and on particular historical and current entrepreneurs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Teaches how to analyze the framing of policy questions and examine culture and organization at group, organizational, interorganizational, and societal levels. Covers case study research, open-ended interviewing, participant-observation, social network analysis, and historical and archival research. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

PUBP 794: Internship. 1-6 credits.
Open only to students in a Schar degree program requiring internship. Contact appropriate program director one semester before enrollment. Work-study programs with specific employers. Notes: Credit determined by appropriate degree program. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: 12 PUBP credits or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

PUBP 795: Final Project. 1-3 credits.
Project developed drawing on key themes of the program, in consultation with the program director. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

PUBP 796: Directed Readings and Research. 1-3 credits.
Independent reading and research at master's or doctoral level on specific topic related to public policy as agreed to by student and faculty member. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

PUBP 799: Master's Thesis. 1-6 credits.
Individualized section form required. Original research endeavor related to student’s program concentration. Research must result in document meeting public policy and university standards. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree.

Recommended Prerequisite: Degree candidacy in a Public Policy Master's program, completion of required credits of graduate course work, and approval of a thesis proposal by the faculty advisor, two committee members, and the program director.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

800 Level Courses

PUBP 800: Culture and Public Policy. 1-4 credits.
Comparative analysis of the role of culture in shaping policy environments and outcomes. Introduces analytical methods for studying culture, including measurement of social and cultural change, surveys, and field studies. Presents major findings and research issues regarding
the role of culture in democracy, ethnic and gender relations, economic growth and other policy issues. Focuses on differences among national and regional cultures, and their policy implications. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

**PUBP 801: Research Design for Public Policy.** 1-4 credits.
Provides an introduction to the theory and practice of research in public policy. Gives students an understanding of issues in the philosophy of science and different approaches to social science research. Provides broad overviews of quantitative and qualitative methodologies, with a major emphasis on research design, including conceptualization, the role of theory, hypothesis generation, inference and bias. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUBP 720 and PUBP 730, or their equivalents strongly recommended.

Registration Restrictions:
Enrollment is limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

**PUBP 802: The Logic of Policy Inquiry.** 1-4 credits.
Defines policy research problems, questions, and hypotheses. Explores modes of policy research, analysis, and rhetoric, including interdisciplinary research strategies. Uses information sources to emphasize written communication of policy research results. Also discusses professional practice issues. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

**PUBP 804: Multivariate Statistical Analysis in Public Policy.** 4 credits.
Explores multivariate techniques of contingency table analysis, reliability and validity assessment, factor analysis and scaling, multivariate regression and path analysis, analysis of variance and covariance, and other selected multivariate techniques. Emphasizes applying these techniques to real policy data using sophisticated statistical packages. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUBP 704 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

**PUBP 805: Foundations of Social Science for Public Policy.** 4 credits.
Grounds doctoral students in core concepts of political science and economics through critical analysis of classic sources, old and new. Topics may include theory of the state, state-market relations, democratic governance, markets and economic institutions, and other relevant frameworks for public policy research. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUBP 730 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

**PUBP 806: Advanced Management Science for Public Organizations.** 3 credits.
Primary emphasis is to understand techniques of operations research and management science, cost benefits, and cost effectiveness for public policy decision making. Some familiarity with elementary calculus and linear algebra helps with understanding mathematical basis of algorithms used to solve models, and reliability and validity of these techniques. Case studies and computer solutions help students understand when and how to use OR models. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUBP 712 or equivalent.

Registration Restrictions:
Enrollment is limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

**PUBP 810: Regional Development and Transportation Policy.** 4 credits.
Introduces and critiques theory and methods used in regional and transportation policy analysis. Explores central place, growth pole, and economic base theories as well as other theoretical constructs used in regional policy analysis. Introduces and examines methodological tools such as regional econometric modeling, multiobjective programming, shift-share analysis, economic base analysis, location quotient analysis, and input-output analysis. Examines selected regional and transportation public issues using theoretical and methodological constructs. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Government.

Schedule Type: Seminar

PUBP 811: Applied Methods in Regional Development and Transportation Policy. 4 credits.
Students develop research papers that investigate aspects of regional development and transportation policy, with a goal of producing publishable papers. Students are expected to prepare two-page proposal followed by a detailed proposal and finally, completed paper. Each is critiqued in the seminar, which is organized to conform to the process of review and critique. Instructor works with students individually as well as in seminar sessions. Offered by Schar School of Policy & Governance. May not be repeated for credit.

Registration Restrictions:
Enrollment limited to graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Government.

Schedule Type: Seminar

PUBP 817: Policy Research Topics: Transportation Policy. 3 credits.
Research workshop examining development of policy research and relevant methodologies linked directly to faculty and student interests. Students identify cutting-edge policy concerns and execute research program. The 4-credit version of course requires discussion section and research laboratory. Offered by Schar School of Policy & Governance. May not be repeated for credit.

Registration Restrictions:
Enrollment limited to graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Government.

Schedule Type: Lecture

Explores how political and economic institutions and cultural values shape pace, direction, costs, and benefits of technological innovation and scientific research. Special emphasis on interaction between national institutions, and values and processes of globalization. Offered by Schar School of Policy & Governance. May not be repeated for credit.

Registration Restrictions:
Enrollment limited to graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Government.

Schedule Type: Seminar

Covers major methodological approaches to study of technology, science, innovation, and public policy. Focuses on analytical inputs to policy making, and assesses practical consequences in such areas as security, energy, environment, and health. Offered by Schar School of Policy & Governance. May not be repeated for credit.

Registration Restrictions:
Enrollment limited to graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Government.

Schedule Type: Seminar

PUBP 830: Comparative Socioeconomic Policy. 1-4 credits.
Throughout the past century, numerous socioeconomic theories have competed for primacy. This course compares, contrasts, and analyzes some of the leading socioeconomic theories and policies and places them in a global context. The role of these theories in shaping current public policy is explored. Offered by Schar School of Policy & Governance. May not be repeated for credit. Equivalent to ECON 676.

Registration Restrictions:
Enrollment limited to graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Government.

Schedule Type: Lecture

PUBP 833: Topics in Public Policy. 1-4 credits.
Focuses on selected topics in public policy not covered in fixed-content public policy courses. Offered by Schar School of Policy & Governance. May be repeated within the term for a maximum of 9 credits.

Registration Restrictions:
Enrollment limited to graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Government.

Schedule Type: Lecture

PUBP 834: Entrepreneurship, Growth, and Public Policy. 1-4 credits.
Focuses on a closer consonance among entrepreneurship, geography, and economic growth. Studies the creation and incubation of new knowledge and features three theoretical fields: the new growth theory, the new economic geography, and the new economics of innovation. Develops a knowledge spillover theory of entrepreneurship. Examines public policy issues arising from these constructs, including competition, within a regional and global context. Offered by Schar School of Policy & Governance. May not be repeated for credit.

Registration Restrictions:
Enrollment limited to graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.
Enrollment limited to students in the Schar School of Policy and Government.

**Schedule Type:** Seminar

**PUBP 835: Entrepreneurship, Creativity, and Innovation.** 1-4 credits.
Provides multidisciplinary foundation for the study of entrepreneurship, creativity, and innovation, and their effects on regional and national economic growth. Draws from seminal thinkers and emphasizes creativity and innovation. Examines how organizational change, institutional structure, and geographic clustering drive the development of regional and national economies. Explores these issues through the lens of the three Ts of economic growth: technology, talent, and tolerance. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Government.

**Schedule Type:** Seminar

Examines major institutions that formulate and implement policy at national level. Emphasizes presidency, Congress, and executive branch bureaucracies. Also considers agenda-building institutions such as media, interest groups, political parties, and elections. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 840.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Government.

**Schedule Type:** Seminar

**PUBP 841: U.S. Policy-Making Processes.** 4 credits.
Analyzes major U.S. public policy processes. Attention to major instruments for implementing policy, including regulation, grants, tax policy, and market-based mechanisms; and how different methodologies are appropriate for understanding aspects of policy inquiry. Covers ethical and accountability aspects of policy, including federalism, intergovernmental relations, and state and local governance. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit. Equivalent to PUAD 841.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Government.

**Schedule Type:** Seminar

**PUBP 860: Social Theory, Culture, and Public Policy.** 4 credits.
Covers major social and cultural theories that underlie public policies. Selections from classical and contemporary social theorists relevant to understanding social change, social capital, and social organization. Focuses on the interplay among culture, social institutions, social processes, and policy. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Government.

**Schedule Type:** Seminar

**PUBP 861: Culture and Social Policy Analysis.** 4 credits.
Applies social and cultural theories to policy topics, including sociological approaches and empirical studies. Emphasizes linkage between theory and empirical research, and methods appropriate for social policy study. Policy topics may include poverty and inequality, family, education, crime and corruption, immigration, and health. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Government.

**Schedule Type:** Seminar

**PUBP 862: Institutional Analysis and Policy.** 4 credits.
Policy analysts are increasingly cognizant of the influence of societal institutions in shaping public policy, not only in terms of policy design, but also as a determinant of implementation. This course reviews the growing literature regarding institutional analysis; furthermore, it considers the ways in which institutions shape the policies that emerge within a given society and the context by which they are evaluated. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to Graduate level students.
Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Seminar

PUBP 870: Organizational and Policy Aspects of Informatics. 1-4 credits.
Examines effects of informatics on national and international policy; setting international policy on informatics; ethical and social change in governments and organizations; shaping national policy in informatics; industry growth; and research methods from various scientific disciplines. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

PUBP 871: Organizational and Information Technology Challenges of the Knowledge Society. 4 credits.
Explores links of policy, managing organizations, and information technologies in postmodern era. Includes issues related to contradictions among conventional models of organizational and process design, policy and regulatory structures, ideologies, and information technologies. Provides framework for becoming a sophisticated analyst of policy, organizations, and information technology. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: PUBP 870.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Seminar

PUBP 872: Managing Knowledge-Based, Information-Intensive Organizations. 4 credits.
Deals with challenges of planning, creating, integrating, and managing contemporary information-technology enabled public and private sector organizations, and managing relationships between public and private enterprises enabled by information technology initiatives. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Seminar

PUBP 880: Global and International Public Policy I. 4 credits.
Explores multiple dimensions of globalization and internationalization relative to public policy processes and consequences. Offers substantive insight into contemporary public policy dynamics from global and comparative perspectives. Accordingly, it examines a broad range of international cultural, political, technological, and economic policy issues, and their interactions and implications at all levels of analysis. Engages relevant theoretical and methodological approaches and debates to provide tools for analyzing various world problems and policies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

PUBP 881: International Trade Policy. 4 credits.
Addresses international trade theory, trade policy analysis, regional economic integration, and institutional arrangements governing world trade. Covers World Trade Organization (including constituent agreements in goods, services, intellectual property and trade-related investment measures), regional trade agreements such as NAFTA, dispute settlement regimes, and relations between trade and the environment. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Lecture

900 Level Courses

PUBP 997: Field Statement. 1 credit.
Requires work on field statement in preparation for field exam. Notes: Must register in semester during which field exam will be taken. Does not apply to credit degree requirements. Note: Restricted to public policy PhD students. Students must contact program coordinator for permission and CRN number to register via Patriot Web. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: Permission of field committee chair.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Schar School of Policy and Gov college.

Schedule Type: Independent Study

PUBP 998: Research/Proposal for Dissertation. 1-9 credits.
Requires work on research proposal that forms basis for doctoral dissertation. Notes: No more than 24 credits of PUBP 998 and 999 may...
be applied to doctoral degree requirements. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree.

**Registration Restrictions:**
Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Dissertation

**PUBP 999: Dissertation.** 1-9 credits.
Requires research on approved dissertation topic under director on dissertation committee. Notes: No more than 24 credits of PUBP 998 and 999 may be applied to doctoral degree requirements. Offered by Schar School of Policy & Govt (p. 906). May be repeated within the degree.

**Registration Restrictions:**
Enrollment limited to students in a class of Advanced to Candidacy.

Enrollment limited to students in a Doctor of Philosophy degree.

**Schedule Type:** Dissertation

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**Reading (EDRD)**

**300 Level Courses**

**EDRD 300: Literacy and Curriculum Integration.** 3 credits.
Introduces K-12 content area reading, writing, and language arts. Emphasizes integration of reading and other language arts across curriculum. Notes: Intended as an introduction to educational issues and is not applicable in Mason’s graduate-level teacher education programs. School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**EDRD 301: Facilitating Literacy in School or Community Settings.** 3 credits.
Provides knowledge, teaching strategies, and support for students working with developing readers and writers. Emphasizes implementation strategies that foster literacy development, incorporation of trade books and technology resources into individual and small group work; and reflection. Note: Requires 45 hours of school-based field experience during course. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**400 Level Courses**

**EDRD 419: Literacy in the Content Areas.** 3 credits.
Assists students in understanding the language and literacy process as it applies to teaching in middle and high schools. Focuses on instructional strategies to support literacy development, including adaptations for culturally diverse and exceptional learners. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDRD 619.

**Recommended Prerequisite:** EDCI 473 and EDCI 483.

**Recommended Corequisite:** EDCI 490.

**Registration Restrictions:**
Enrollment limited to students with the Undergrad Teacher Licensure attribute.

**Schedule Type:** Lecture

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**500 Level Courses**

**EDRD 501: Literacy and Curriculum Integration, PK-12.** 3 credits.
Introduces PK-12 content area reading, writing, and language arts. Emphasizes integration of reading and other language arts across curriculum; instructional planning; needs of diverse learners. Field experience in public schools required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDRD 515: Language and Literacy in Global Contexts.** 3 credits.
Focuses on the relationship of language to reading and the connection between language structure and how we learn to read. Theories of language acquisition, the complexity of language development, and that of the reading process are examined. Key facets that influence and enhance language learning and development are explored. Introduces literacy instruction and literacy assessment for all learning and learners, and sociocultural perspectives on literacy are explored. Requires 20 hours of PK-12 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDRD 525.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**EDRD 525: Emergent Literacy for English Language Learners, PK-12.** 3 credits.
Provides an introduction to emergent reading/writing processes in first and second languages. Focuses on developing reading skills in five areas: phonemic awareness, phonics, fluency, vocabulary, and text comprehension. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDRD 515.

**Recommended Prerequisite:** EDCI 510, EDCI 516, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree, Undergraduate or Washington Consortium level students.

**Schedule Type:** Lecture

**EDRD 558: Literacy in the Content Areas, PK-12.** 3 credits.
Focuses on research-based introduction to PK-12 content area reading, writing, and language arts that meet state and national guidelines.
Enables teachers to understand literacy needs of their students in content areas, and provide appropriate instruction. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:**
for credit. Equivalent to EDRD 419.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDRD 597:** Special Topics in Education. 1-6 credits.
Provides advanced study on selected topic or emerging issue in American or international education. Notes: May be repeated for credit with GSE permission. Offered by Graduate School of Education (p. 155). May be repeated within the degree.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**EDRD 610:** Content Literacy for English Language Learners, PK-12. 3 credits.
Focus on research-based instruction for teaching reading and writing in the content areas. Emphasizes similarities and differences between reading and writing in two or more languages, vocabulary development, reading fluency, and strategies for text comprehension. Requires 20 hours of PK-12 classroom fieldwork. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDRD 515 and EDCI 519.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDRD 619:** Literacy in Content Areas. 3 credits.
Offers understanding of language and literacy process as it applies to teaching in secondary schools. Emphasizes reading and writing in content areas, and instructional strategies to support students’ literacy development. Focuses on ways reading, writing, speaking, and listening are developed and used in learning discipline-specific curriculum, including adaptations for culturally diverse and exceptional learners. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDRD 419.

**Recommended Prerequisite:** EDCI 567, 569, 572, or 573.

**EDRD 620:** Reading/Writing in Foreign/World Languages. 3 credits.
Introduces reading and writing processes in foreign and second languages, research on reading comprehension, and effective teaching and assessment approaches for students in PK-12 schools. Topics include reading goals and standards for foreign language learning, sociocultural perspectives, multimedia computer-assistance, research on related strategies and skills, and performance-based assessments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDCI 516 and 519, or permission of instructor or advisor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**EDRD 630:** Literacy Foundations and Instruction for Diverse Populations: Birth through Middle Childhood. 3 credits.
Study of literacy theory, research, and practice as it relates to younger learners. Includes teaching of reading to English Language Learners and language acquisition for diverse populations (Special Education students who access the general curriculum). Addresses sociocultural, cognitive, linguistic, psychological, and developmental influences on children’s literacy. Includes reading, writing, and oral communication. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the literacy emphasis, or permission of program coordinator.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Lit Reading Specialist, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - LIT PK12 Cslrm Teachers, ASTL - Science, Curriculum and Instruction or Literacy: K-12 Reading Speclst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
Schedule Type: Lecture

EDRD 631: Literacy Foundations and Instruction for Diverse Populations: Adolescence Through Adulthood. 3 credits.
Study of literacy theory, research, and practice as it relates to adolescents and adults. Addresses sociocultural, cognitive, linguistic, psychological, and developmental influences on literacy. Includes reading, writing, and oral communication. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRD 630, admission to literacy emphasis or permission of the program coordinator.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Lit Reading Specialist, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - LIT PK12 Clsrm Teachers, ASTL - Science, Curriculum and Instruction or Literacy: K-12 Reading Speclst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDRD 632: Literacy Assessments and Interventions for Groups. 3 credits.
Provides literacy assessments and interventions for groups of learners. Includes exploration of assessment tools for classrooms and large populations. Class members conduct related practice in their own classrooms or specified field settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRD 630 and 631; admission to literacy emphasis, or permission of the program coordinator.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Lit Reading Specialist, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - LIT PK12 Clsrm Teachers, ASTL - Science, Curriculum and Instruction or Literacy: K-12 Reading Speclst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDRD 633: Literacy Assessments and Interventions for Individuals. 3 credits.
Provides literacy assessments and interventions for individuals. Includes diagnosis and remediation for learners who find reading and writing difficult. Requires assigned practicum experience. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRD 630, 631, and 632; admission to literacy emphasis; or permission of program coordinator.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Lit Reading Specialist, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - LIT PK12 Clsrm Teachers, ASTL - Science, Curriculum and Instruction or Literacy: K-12 Reading Speclst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDRD 634: School-Based Leadership in Literacy. 3 credits.
Prepares reading specialist as a school leader. Expands knowledge of literacy gained in prerequisite courses, and applies it to professional development work with teachers at their own site. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRD 630, 631, 632, 633, and admission to the literacy emphasis or permission of the program coordinator.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Lit Reading Specialist, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - Science, Curriculum and Instruction or Literacy: K-12 Reading Speclst.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDRD 635: School-Based Inquiry in Literacy. 3 credits.
Capstone course in literacy emphasis focusing on research-based inquiry related to literacy in school settings. Includes review of literature and teacher inquiry project. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRD 630, 631, 632, 633, and 634; admission to literacy emphasis; or permission of program coordinator.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL - History, ASTL-Instructional Technology, ASTL - Lit Reading Specialist, ASTL - Mathematics, ASTL-NBPTS Preparation Core, ASTL - Science, Curriculum and Instruction or Literacy: K-12 Reading Speclst.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDRD 637: Supervised Literacy Practicum. 2-3 credits.
Supervised literacy practicum that requires students to conduct assessments of and provide instruction to struggling readers. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRD 630, 631, 632.

Recommended Corequisite: EDRD 633.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in ASTL-Alternative Education, ASTL-Early Childhood Educ, Gifted Child Education, ASTL-History, ASTL-Instructional Technology, ASTL-Lit Reading Specialist, ASTL-Mathematics, ASTL-NBPTS Preparation Core, ASTL-LIT PK12 Cslrm Teachers, ASTL-Science, Curriculum and Instruction or Literacy: K-12 Reading Specisl.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

700 Level Courses

EDRD 797: Advanced Topics in Education. 1-6 credits.
Advanced study of selected topics in education for students preparing for doctoral studies or who have been admitted to the PhD program in education. Notes: May be repeated for credit with CEHD approval. Offered by Graduate School of Education (p. 155). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

800 Level Courses

EDRD 829: Advanced Foundations of Literacy Education. 3 credits.
Explores advanced foundational theory, research, and methodology across the broad field of literacy both nationally and internationally. Includes analysis of historical and current trends, research, practice, and policy in literacy. Individual projects will connect literacy to students’ areas of interest. Appropriate for PhD in Education students in any specialization. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 800, EDRS 810, or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRD 830: Theory, Research, and Practice in Literacy: Birth through Middle Childhood. 3 credits.
Explores emergent through intermediate literacy. Topics include literacy acquisition and development in academically and linguistically diverse young children; historical and current trends in theories of literacy development; cognitive, linguistic, sociocultural, and instructional influences on literacy development; and assessment. Implications for teacher education and policy are explored. Individual research projects will connect literacy to students’ areas of interest. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 800 and EDRS 810.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRD 831: Theory, Research, and Practice in Literacy: Early Adolescence through Young Adulthood. 3 credits.
Explores youth culture and socio-historical constructions of adolescence; literacy in the lives of culturally and linguistically diverse learners; multimodal literacy; international literacy contexts; adolescent literacy policy and leadership; content area and disciplinary literacy; literacy needs of special learners; and adult literacy. Individual projects will connect adolescent literacy to students’ areas of interests. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 800 and EDRS 810.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDRD 832: Research Methodologies and Trends in Literacy. 3 credits.
Develops knowledge and skills in the application of research methodologies in literacy to current national and international trends. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDUC 800, EDRS 810, permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

Real Estate Development (REAL)

500 Level Courses

REAL 500: Real Estate Development Fundamentals. 3 credits.
A comprehensive study of the main elements of the real estate development process. Examines the intricacies between residential, commercial and mixed-use development, and approaches to optimizing each. The value of market research and analysis, determining value propositions of prospective deals, zoning considerations, design and construction issues, and asset management will also be examined. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**REAL 502: Real Estate Client Leadership and Project Management.** 3 credits. A study of the challenges faced by developers, both in terms of client (owner) challenges as well as project challenges. Examines assessment approaches and frameworks to assess clients, including analyzing the maturity of a representative client and identify key approaches to optimizing the relationship of that client. Examines specific project challenges-project assessment frameworks, and improvement approaches. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** REAL 500 (or CEIE 580), or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**600 Level Courses**

**REAL 610: Management of Real Estate Design and Development.** 3 credits. Course develops a framework for understanding and managing processes associated with design and construction of real estate assets. Course focuses on the specific phases comprising a real estate development project and integration of these elements to achieve success. Topics include developing and coordinating service providers relationships, managing stages involved in the development cycle, understanding and controlling risks, and resolving disputes. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MSREAL Program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**REAL 615: Real Estate Market Analysis and Research.** 3 credits. The course will provide an introduction to the methods used in analyzing real estate markets from the perspective of decision-makers who are considering potential development, investment, or financing decisions. The courses will focus on sources and analysis of data for examining project feasibility and scope, timing and phasing of development, and communicating with prospective financial partners. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to the MSREAL Program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**REAL 620: Real Estate Entrepreneurship.** 3 credits. This course explores real estate development from an applied, entrepreneurial perspective. Emphasis is placed on understanding the unique challenges, risks, and opportunities faced by entrepreneurial developers as opposed to those operating in a larger, institutional context. Students explore strategies to evaluate opportunities, successfully structure deals, harness entrepreneurial competitive advantages such as flexibility and innovation, and ultimately create wealth through development. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to MS-BU-REAL program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**REAL 630: Innovative Land Use, Approvals and Real Estate Development.** 3 credits. Examines the challenges in designing innovative uses for land and balancing those prospective uses with local urban policies and the land development/zoning process. Introduces the entitlements process, the legal considerations of planning and zoning in America, and the language of zoning. Explores the impacts of the different forms of government on the entitlement process. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admissions to the MSRED program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
REAL 690: *Topics in Real Estate Development*. 1-6 credits.
Explores contemporary issues and challenges in the management and
development of real estate. Topics not covered in the regular real estate
development offerings. Course content may vary each semester. Course
may be repeated with change in topic. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Admissions to the MSRED program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

### 700 Level Courses

REAL 750: *MSRED Capstone*. 3 credits.
The Capstone Project will be the culmination of the master’s program,
offered at the end of the program. The course will combine the theoretical
teachings from the program with real world, practical situations. Students
will apply concepts learned to current development and construction
projects in the Washington, D.C. metropolitan area. One of the sample
cases involves the potential future uses of a plot of land in the metro
area, a mixed-use high-density area that is slated to undergo significant
transformation. The case will request project teams to explore the
various options, employing a decision-tree approach to fully analyze the
options, and examining the SWOT, local urban management policies,
future valuation streams, and environmental impacts of each. A site visit
will be required, as well as visits to various developers engaged in similar
projects. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admissions to the MSRED program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Non Degree.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

### Recreation (RECR)

#### 100 Level Courses

RECR 100: *Brazilian Jiu-Jitsu: Intro*. 1 credit.
Instructs students in self defense Brazilian Jiu-Jitsu techniques.
Appropriate for students who have no prior experience in martial arts or
Brazilian Jiu-Jitsu. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 138.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

Teaches students beginner-to-intermediate-level techniques in Brazilian
Jiu-Jitsu. Focuses on specific defensive techniques to be used against
an attacker along with escapes and submissions from a variety of
different attacks. Requires participation in basic sparring with particular
attention to safety and intensive training and conditioning routine.
Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 100.

**Schedule Type:** Studio

Introduces basic body mechanics of throwing, sweeping, grappling, and
submission skills used in Judo and for self-defense. Presents the history
of Judo, rules of the sport and proper safety and falling techniques.
Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 145.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 100.

**Schedule Type:** Studio

RECR 103: *Judo: Intermediate*. 1 credit.
Emphasizes the execution of proper skills and movements rather than
the contact itself. Incorporates both offensive and defensive movements.
Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 169.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 102 or permission of instructor.

**Schedule Type:** Studio

RECR 104: *Karate: Introduction*. 1 credit.
Emphasizes techniques, forms (kata), and sets (drills) from the American
Kenpo Karate, which combines art and science. Relates techniques with
motion and principles and builds on the previous skills to create a web of
knowledge. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 163.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

Reviews information and refines skills developed in the introductory
class. Introduces new forms and techniques to increase skill

**Recommended Prerequisite:** RECR 104.

**Schedule Type:** Studio
performance at the next level. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 164.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 104.

**Schedule Type:** Studio

**RECR 106:** Krav Maga: Introduction. 1 credit.
Introduces students to the principles and practice of Krav Maga, an Israeli system of self-protection. Involves knowledge of threat response, skill training in self-protection, and mental preparation for defensive tactics. Prepares students in appropriate protective action in situations of threat or attack. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 179.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 106.

**Schedule Type:** Studio

**RECR 107:** Krav Maga: Intermediate. 1 credit.
Continues training in Krav Maga skills for experienced students. Explores multiple opponents, defending third parties, decision making skills, using & defending against weapons, and fight strategy. Notes: Students with injuries or pre-existing conditions that affect performance must inform the instructor. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 183.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 106.

**Schedule Type:** Studio

**RECR 108:** Self Defense: Introduction. 1 credit.
Teaches beginner level of self-defense such as defensive techniques to be used against an attacker along with escapes and submissions from a variety of different attacks. Requires participation in basic sparring with particular attention to safety. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 134.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 108.

**Schedule Type:** Studio

**RECR 109:** Self Defense: Intermediate. 1 credit.
Teaches more advanced defensive and offensive techniques, building on the student's previous training. Emphasizes continuous improvement in physical and mental fitness. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 135.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 108.

**Schedule Type:** Studio

**RECR 110:** Taekwondo: Introduction. 1 credit.
Develop basic skills of Taekwondo, a Korean martial art that predominantly emphasizes kicking. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 136.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 111:** Taekwondo: Intermediate. 1 credit.
Develops intermediate-level skills of Taekwondo, building on basic skills learned in the introduction course. Continues to focus on the student's mental development, as well as physical training. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 137.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 110.

**Schedule Type:** Studio

**RECR 112:** Taekwondo: Advanced. 1 credit.
Continues to enhance skills of Taekwondo, focusing on the student's mental development as well as physical training. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 147.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 111.

**Schedule Type:** Studio

**RECR 113:** Fencing. 1 credit.
Gives the beginning student basic knowledge of the sport of fencing and teaches the fundamental movements so students can fence at a novice level. Teaches basic officiating and etiquette of the sport. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 103.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 118:** Aerobics/Basic Conditioning. 1 credit.
Introduces and provides aerobic conditioning for fitness. Covers cardiovascular endurance, cardiovascular diseases, body composition, nutrition, and weight management. Teaches the use of cardiovascular equipment and designing an aerobic fitness program. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 105.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 119:** Fitness Walking. 1 credit.
Introduces students to cardiovascular exercise as it relates to a healthy lifestyle and improved quality of life. Covers design, implementation, and evaluation of a personal walking plan based on current fitness levels. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 175.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 120:** Weight Training/Body Conditioning. 1 credit.
Introduces students to fitness and healthy lifestyles. Provides students with an overview of the various types of weight training, with an emphasis on circuit weight training method. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 108.
**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 121: *Backpacking: Introduction.* 2 credits.
Introduces practical and experiential activities for students with starting knowledge of backpacking. Involves discussions, demonstrations, and activities that teach the basics of backpacking. Covers equipment selection, map and compass skills, backcountry cooking, staying healthy in the outdoors, safety and emergency procedures, backcountry ethics (Leave No Trace), and natural history. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 120.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 122: *Exploring Outdoor Adventure.* 2 credits.
Provides students an introduction to leadership theory and practice in planning outdoor adventure activities. Focuses on building skills necessary to engage in a wide range of individual outdoor adventure activities such as orienteering, geocaching, canoeing, rock climbing, and challenge course team building. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 110.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 123: *Geocaching.* 1 credit.
Introduces geocaching using a map, compass, and GPS to navigate to a location. Involves discussion, practical application, and research. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 3 credits. Equivalent to PRLS 183.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 124: *Horsemanship: Introduction.* 1 credit.
Introduces the basics of horseback riding and horsemanship. Emphasizes how to care for a horse, tack a horse, and basic riding skills such as walking, trotting, and jumping small obstacles. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 122.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 125: *Horsemanship: Intermediate.* 1 credit.
Builds the intermediate skills of horseback riding and horsemanship. Emphasizes technical riding and advancing basic horseback riding skills (e.g. figure S’s, serpentines, and change of direction). Focuses on how equitation affects the horse and horse behavior affects riding and safety. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 192.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 124.

**Schedule Type:** Studio

Introduces entry-level skills and knowledge necessary to navigate rapids up to Class II difficulty and plan and execute trips on moving water. Covers content such as paddle strokes and maneuvers, boat handling, basic terminology, equipment, proper clothing, kayak design, trip planning, river safety, self and group rescue techniques, water reading, river etiquette, and environmental ethics. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 170.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 127: *Coastal Kayaking: Intro.* 2 credits.
Provides instruction on core skills and knowledge necessary to safely paddle sea/coastal kayaks and plan trips on non-whitewater rivers and coastal environments. Includes instruction in, but not limited to, boat handling, terminology, kayak design, trip planning, marine hazards and safety, rules of the Nautical Road, weather and tides and environmental ethics. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 173.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 129: *Downhill Skiing.* 1 credit.
Teaches and refines basic skills and techniques of downhill skiing including becoming familiar with use of ski equipment, terminology, and safety rules. Includes lecture and field experience to improve downhill skiing skills. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 190.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 131: *Mountain Biking.* 2 credits.
Provides students with the fundamentals of mountain biking through skills aimed to master techniques in descending and ascending hills, negotiating obstacles, and stopping. Skills in maintaining a bike and appreciation of terrain, navigation, and safety will also be covered. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 184.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 132: *Snowboarding.* 1 credit.
Teaches and refines basic skills and techniques of snowboarding including becoming familiar with use of ski equipment, terminology, and safety rules. Includes lecture and field experience to improve snowboarding skills. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 191.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

RECR 133: *Indoor Rock Climbing: Intro.* 1 credit.
Introduces equipment, techniques, safety, and planning related to basic rock climbing. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 116.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio
RECR 134: Rock Climbing: Introduction. 2 credits.
Teaches basic climbing terms, techniques, equipment, and safety practices for top rope belay climbing and rappelling. Builds on communication skills and trust. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 117.

Specialized Designation: Physical Activity Course
Schedule Type: Studio

RECR 135: Rock Climbing: Intermediate. 2 credits.
Provides advanced instruction into techniques and knowledge including climbing movements, knots and basic rope systems, rappelling, bouldering, introduction to sport climbing, and climbing history. Involves outdoor rock climbing sessions at local site. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 187.

Specialized Designation: Physical Activity Course
Recommended Prerequisite: RECR 133 or 134.
Schedule Type: Studio

RECR 136: Pistol Marksmanship. 1 credit.
Introduces students to marksmanship skills in Olympic sport and target shooting. Increases students’ knowledge of shooting safety, position shooting, equipment care and maintenance, and shooting sports competition methods and techniques. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 124.

Specialized Designation: Physical Activity Course
Schedule Type: Studio

RECR 137: Trap and Skeet Shooting: Intro. 2 credits.
Designed to educate the student on gun and range safety. Includes hands-on learning of the games trap and skeet, where competitors fire at clay targets (approximately 4 1/4 inches in diameter and 1 1/2 inches in height) launched from a trap at varying angles. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 119.

Specialized Designation: Physical Activity Course
Schedule Type: Studio

RECR 138: Trap and Skeet Shooting: Intermediate. 2 credits.
Increases the skill competencies in trap shooting. Includes hands-on learning of the different trap games (16-yard, handicap, doubles, and Olympic trap shoot on a wobble trap) where competitors fire at clay targets (approximately 4 1/2 inches in diameter and 1 1/2 inches in height) launched from a trap at varying angles. Emphasizes gun and range safety. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 121.

Specialized Designation: Physical Activity Course
Recommended Prerequisite: RECR 137 or permission of instructor.
Schedule Type: Studio

RECR 139: Archery: Introduction. 1 credit.
Introduces students to competitive archery. Provides instruction for shooting safety, proper form and technique, equipment maintenance, and rules for competing in Olympic style FITA tournaments. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Activity-Based

RECR 141: Basketball: Introduction. 1 credit.
Introduces the basic elements of basketball, including dribbling, passing, shooting, tactics, and strategy. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 120.

Specialized Designation: Physical Activity Course
Schedule Type: Studio

RECR 143: Soccer: Introduction. 1 credit.
Introduces the basic elements of soccer including dribbling, kicking, passing, trapping, tactics, and strategy. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 102.

Specialized Designation: Physical Activity Course
Recommended Prerequisite: RECR 143.
Schedule Type: Studio

RECR 144: Soccer: Intermediate. 1 credit.
Prepares the experienced soccer player in the aspects of the competitive game. Applies skills-training to competitive and recreational play. Covers strategies of offense and defense and variation of different systems of play. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 182.

Specialized Designation: Physical Activity Course
Schedule Type: Studio

RECR 145: Volleyball: Introduction. 1 credit.
Introduces students to fundamental knowledge and basic skills of volleyball. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 174.

Specialized Designation: Physical Activity Course
Schedule Type: Studio

RECR 151: Badminton: Introduction. 1 credit.
Introduces the fundamental skills, rules, and strategies of badminton. Covers basic techniques and etiquette of both singles and double play. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 177.

Specialized Designation: Physical Activity Course
Schedule Type: Studio

RECR 153: Racquetball: Introduction. 1 credit.
Introduces basic racquetball terms, rules, scoring, safety, and techniques for the forehand, backhand, overhead, and serve, as well as singles and doubles strategies. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 165.

Specialized Designation: Physical Activity Course
Schedule Type: Studio
RECR 154: Racquetball: Intermediate. 1 credit.
Teaches intermediate skills, including ceiling shots, kill shots, passing shots, back wall strokes, advanced serves, court positions, and tactics and strategies for singles and doubles. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 166.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 153 or permission of instructor.

Schedule Type: Studio

RECR 155: Tennis: Introduction. 1 credit.
Teaches tennis terms, rules, scoring, techniques for the forehand and backhand ground strokes, volley, overhead, and serve, as well as basic strategy for singles and doubles. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 151.

Specialized Designation: Physical Activity Course

Schedule Type: Studio

RECR 156: Tennis: Intermediate. 1 credit.
Prepares experienced tennis player in advanced skills: point play, control of pace, direction, and depth of forehand and back hand, ground strokes, and topspin and underspin. Instructs tactical use of volley, styles of play, and strategies for singles and doubles. Introduces principles to refereeing. Applies skills-training to competitive and recreational play. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 153.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 155.

Schedule Type: Studio

RECR 157: Bowling: Introduction. 1 credit.
Teaches the sport of 10-pin bowling. Covers topics such as bowling etiquette, history of bowling, playing rules for league members, scoring, different approaches to the game, and the appropriate equipment for these approaches. Appropriate for inexperienced and experienced bowlers. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 162.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 157.

Schedule Type: Studio

RECR 158: Swimming: Advanced. 1 credit.
Builds on intermediate-level swimming skills by providing practice to refine and perfect swimming strokes, so that students swim with more ease, efficiency, power, and smoothness over greater distances. Focuses on developing a higher level of fitness and maintaining better physical conditioning. Introduces other aquatic activities to enrich the class and broaden the horizons of the participant. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 159.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 155.

Schedule Type: Studio

RECR 159: Golf: Introduction. 1 credit.
Teaches basic golf terms, rules, and techniques for the full swing, putting, chipping, and pitching, as well as playing on a golf course. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 140.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 159.

Schedule Type: Studio

RECR 160: Latin Dance. 1 credit.
Provides knowledge base of dance fundamentals and skill development in various Latin dances and will include basic rhythms, dance positions, floor alignments, techniques of leading and following, and maintenance of terminal positions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 111.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 159.

Schedule Type: Studio

RECR 161: Scuba Diving: Basic. 2 credits.
Provides training toward certification as an open water SCUBA diver. Emphasizes snorkeling (free diving introduction) and SCUBA skills. Covers safe diving skills, the physics of diving, equipment care and maintenance, diving fitness, underwater navigation, record keeping, and other basic SCUBA knowledge. With successful completion of the course, qualifies students for open water certification by Scuba Schools International (SSI). Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 255.

Specialized Designation: Physical Activity Course

Schedule Type: Studio

RECR 162: Swimming: Beginning. 1 credit.
Develops a knowledge base and basic swimming skills for the weak swimmer and non-swimmer, and makes them water safe. Includes, but are not limited to, locomotion and propulsive movements in a prone and supine position, breath control, rhythmic breathing, beginning diving techniques, personal safety, and rescue skills to maintain a water-safe environment. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 110.

Specialized Designation: Physical Activity Course

Schedule Type: Studio

RECR 163: Swimming: Intermediate. 1 credit.
Builds on basic-level swimming skills by providing practice for confidence, refinement of coordination, and improvement of other aquatic skills. Presents more advanced swimming strokes and focuses on physical conditioning and aquatic safety. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 150.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 162.

Schedule Type: Studio

RECR 164: Swimming: Advanced. 1 credit.
Builds on intermediate-level swimming skills by providing practice to refine and perfect swimming strokes, so that students swim with more ease, efficiency, power, and smoothness over greater distances. Focuses on developing a higher level of fitness and maintaining better physical conditioning. Introduces other aquatic activities to enrich the class and broaden the horizons of the participant. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 159.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 155.

Schedule Type: Studio

RECR 165: Golf: Intermediate. 1 credit.
Teaches intermediate skills, including ceiling shots, kill shots, passing shots, back wall strokes, advanced serves, court positions, and tactics and strategies for singles and doubles. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 166.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 164.

Schedule Type: Studio

RECR 166: Golf: Advanced. 1 credit.
Builds on intermediate-level skills by providing practice to refine and perfect intermediate skills. Focuses on developing a higher level of fitness and maintaining better physical conditioning. Offers a variety of courses and formats for different skill levels. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 159.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 165.

Schedule Type: Studio

RECR 167: Golf: Introduction. 1 credit.
Teaches basic golf terms, rules, and techniques for the full swing, putting, chipping, and pitching, as well as playing on a golf course. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 140.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 166.

Schedule Type: Studio

RECR 168: Golf: Advanced. 1 credit.
Builds on intermediate-level skills by providing practice to refine and perfect intermediate skills. Focuses on developing a higher level of fitness and maintaining better physical conditioning. Offers a variety of courses and formats for different skill levels. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 159.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 167.

Schedule Type: Studio

RECR 169: Golf: Beginner. 1 credit.
Designed for students with basic golf knowledge and skills. Includes course strategies, course management, the proper use of the rules, club selection, speed of play, skill building, and different golf formats. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 140.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 168.

Schedule Type: Studio

RECR 170: Ham: Introduction. 1 credit.
Teaches the sport of 10-pin bowling. Covers topics such as bowling etiquette, history of bowling, playing rules for league members, scoring, different approaches to the game, and the appropriate equipment for these approaches. Appropriate for inexperienced and experienced bowlers. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 162.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 170.

Schedule Type: Studio

RECR 171: Latin Dance. 1 credit.
Provides knowledge base of dance fundamentals and skill development in various Latin dances and will include basic rhythms, dance positions, floor alignments, techniques of leading and following, and maintenance of terminal positions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 111.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 170.

Schedule Type: Studio

RECR 172: Latin Dance. 1 credit.
Provides knowledge base of dance fundamentals and skill development in various Latin dances and will include basic rhythms, dance positions, floor alignments, techniques of leading and following, and maintenance of terminal positions. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 111.

Specialized Designation: Physical Activity Course

Recommended Prerequisite: RECR 171.

Schedule Type: Studio
of dance frame in partner dancing. Introduces dances which may include but not restricted to Merengue, Mambo, Samba, Salsa, and Bachata. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 113.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 172:** Social Dance. 1 credit.
Provides a knowledge base of dance fundamentals and skill development in various ballroom dances and includes basic rhythms, dance positions, floor alignments, techniques of leading and following, and maintenance of dance frame in partner dancing. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 127.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 173:** Social Dance II. 1 credit.
Provides an introduction to the tango and additional patterns for popular social dance that may include the fox trot, waltz, cha-cha, rumba, and Eastern swing. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 127.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 174:** Competitive Latin and Ballroom Dance. 1 credit.
Increase knowledge base of dance fundamentals and skill development in the competitive style of Latin and Ballroom dances. Focuses on alignments, techniques of leading and following, and maintenance of dance frame in partner dancing in competitive dances. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 193.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 171 or 172 or 173.

**Schedule Type:** Studio

**RECR 181:** Meditation: Introduction. 1 credit.
Introduces students to philosophical foundations of meditation. Guides in the practice of meditation and its application to daily mental focus and concentration. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 181.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 182:** Pilates: Introduction. 1 credit.
Provides the history and basic foundations of Pilates including an introduction to beginning Pilates exercises and their proper execution; exploration of modifications for certain exercises and the various props which may be used in the group class setting. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 131.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 183:** Pilates: Intermediate. 1 credit.
Provides students with advanced knowledge and skills in Pilates techniques and exercises. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 178.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 182.

**Schedule Type:** Studio

**RECR 184:** Tai Chi: Introduction. 1 credit.
Increase awareness of the mind and body. Introduces basic principles of Chi (energy) and Yin Yang (polarity) and how they apply to the body through practicing the Tai Chi movements. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 149.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 185:** Tai Chi: Intermediate. 1 credit.
Teaches Tai Chi Weapon (Tai Chi Straight Sword), as well as basic principles of Tai Chi. Increases awareness of the mind and body. Indicate number. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 160.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 184.

**Schedule Type:** Studio

**RECR 186:** Yoga: Introduction. 1 credit.
Introduces students to the practice of Hatha yoga. Emphasizes yoga asanas (postures) and pranayama (breathing exercises) to enhance physical fitness and mental concentration. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 129.

**Specialized Designation:** Physical Activity Course

**Schedule Type:** Studio

**RECR 187:** Yoga: Intermediate. 1 credit.
Emphasizes mastery of yoga asanas (postures) and pranayama (breathing techniques) to enhance physical fitness and mental concentration. Focuses on 10 new yoga poses and practice of the complete Sun Salutation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PHED 130.

**Specialized Designation:** Physical Activity Course

**Recommended Prerequisite:** RECR 186.

**Schedule Type:** Studio

**Rehabilitation Science (RHBS)**

**200 Level Courses**

**RHBS 201:** Introduction to Rehabilitation Science. 3 credits.
Introduces the field of rehabilitation science. Surveys various topics within rehabilitation science including development of the field, models of disablement-enablement, facilitators and barriers to enablement across
the lifespan. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Schedule Type:** Lecture

**RHBS 270: Applied Human Anatomy and Physiology I.** 4 credits.
Develops a comprehensive understanding of the interrelationships of anatomy and physiology as observed in the human organism, and introduces application of knowledge to health, disease and dysfunction. Emphasis on musculoskeletal, nervous, cardiovascular, respiratory and integumentary systems. Offered by Rehabilitation Science (p. 266). May not be repeated for credit. Equivalent to HHS 270.

**Schedule Type:** Laboratory, Lecture

**RHBS 271: Applied Human Anatomy and Physiology II.** 4 credits.
Develops a comprehensive understanding of the interrelationships of anatomy and physiology as observed in the human organism, and introduces application of knowledge to health, disease and dysfunction. Emphasis on digestive, endocrine, lymphatic, genitourinary, and reproductive systems. Offered by Rehabilitation Science (p. 266). May not be repeated for credit. Equivalent to HHS 271.

**Recommended Prerequisite:** RHBS 270.

**Schedule Type:** Laboratory, Lecture

**300 Level Courses**

**RHBS 340: Health, Disease and Dysfunction.** 3 credits.
Focuses on basic epidemiology, health promotion and disease prevention, as well as impairments in normal function of the individual resulting in disease and dysfunction. Exploration of the individual and societal impact of health and disease. Introduces current rehabilitation and intervention strategies as well as classification of disease and disability. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Schedule Type:** Lecture

**RHBS 345: Applied Biomechanics in Rehabilitation.** 3 credits.
Introduces basic concepts and principles of biomechanics in the study and analysis of functional human movement. Discusses the biomechanical principles as applied in both healthy and clinical populations. Develops an understanding of the scientific and clinical applications of biomechanics to rehabilitation interventions. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** College level physics or permission of instructor.

**Schedule Type:** Lecture

**RHBS 350: Clinical Physiology and Human Performance.** 3 credits.
Investigates the study of human physiology and how it relates to physical activity, health, and functional ability. Specifically, examines the metabolic, locomotive, endocrine, cardiovascular, and pulmonary responses to physical activity and their contributions and limitations to human performance. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** College-level chemistry or permission of instructor or department chair.

**Schedule Type:** Lecture

**RHBS 355: Gait and Functional Movement Analysis.** 3 credits.
Analyzes human gait and common structural impairments associated with functional performance. Provides the fundamental terminology, techniques, and data interpretation methods used in gait analysis and assessing human physical function. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** RHBS 270 and RHBS 271 or similar courses in human anatomy and physiology.

**Schedule Type:** Lecture

**RHBS 380: Neural Basis of Movement.** 3 credits.
Introduces major topics in sensory and motor neurophysiology as they relate to motor control and motor learning. Includes organization of sensory and motor systems, neural mechanisms of learning and memory, and current neurophysiological testing techniques. Special emphasis is placed on the implications for motor impairment and recovery following nervous system disease or injury. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** RHBS 270 and RHBS 271 or equivalent anatomy and physiology course.

**Schedule Type:** Lecture

**400 Level Courses**

**RHBS 390: Clinical Assessment of Functional Capacity.** 3 credits.
Examines the scientific basis and theory for exercise assessments in healthy persons and those with chronic disease and disability. Covers cardiorespiratory fitness measurements, cardiac function, body composition, muscular strength and endurance. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate course in anatomy and physiology or permission of instructor.

**Schedule Type:** Lecture

**RHBS 410: Physical Activity and Public Health.** 3 credits.
Investigates the basic principles and concepts of epidemiology and the influence of exercise and physical activity on the most common risk factors for prevalent chronic diseases in the United States of America. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Schedule Type:** Lecture

**RHBS 415: Clinical Movement Science I.** 3 credits.
Describes how the human nervous and musculoskeletal systems work together to move the human body, with special emphasis on movement disorders and disabilities. Topics include movement and motion principles, muscle force production, physiology, and adaptation, along with the measurement of muscle activity, body movements, and body forces. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** College-level physics or permission of instructor or department chair.

**Schedule Type:** Lecture

**RHBS 416: Clinical Movement Science II.** 3 credits.
Describes how the human nervous and musculoskeletal systems work together to move the human body, with a special emphasis on movement disorders and disabilities. Topics include movement control,
adaptation, and learning; experimental and clinical assessment of body movements and forces, treatment of abnormal movement, and rehabilitation technologies. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** RHBS 415 or permission of instructor or department chair.

**Schedule Type:** Lecture

**RHBS 418:** Exercise Endocrinology. 3 credits.
Explores the role of the endocrine system in the coordination and regulation of the body's internal environment under acute and chronic exercise conditions. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** RHBS 270 and RHBS 271 or similar course in human anatomy and physiology.

**Schedule Type:** Lecture

**RHBS 420:** Adult Health and Function. 3 credits.
Approaches the study of function and normal development, how it is attained and how it is optimized with a multi-systems viewpoint. Focuses on the components of functional movement. Addresses strategies for assessing, promoting and maintaining functional independence. Highlights current treatment approaches of disease and dysfunction. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Schedule Type:** Lecture

**RHBS 450:** Psychosocial Adaptation in Rehabilitation. 3 credits.
Examines the psychosocial impacts of rehabilitation and disability. Provides a disability perspective from the individual and society and explores the interaction between them. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** Completed RHBS 201 or permission of instructor.

**Schedule Type:** Lecture

**RHBS 455:** Research in Rehabilitation Science. 3 credits.
Describes central principles of scientific method and ethical and regulatory responsibilities of rehabilitation science researchers. Explores application of scientific method in basic, interventional, clinical and translational research. Develops ability to read literature critically and make appropriate scientific inferences. Introduces basics of grant writing. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** STAT 250 or equivalent.

**Schedule Type:** Lecture

**RHBS 489:** Introduction to Clinical Research. 1 credit.
Provides students with a basic understanding of what clinical research is and the scientific principles on which it is based. Starts with a historical perspective on clinical research and then goes on to explore the following topics: purpose of clinical research, ethical and regulatory implications of clinical research, and the roles and responsibilities of all parties involved in clinical research. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** Course is open to honors college students only or by permission of instructor.

**Schedule Type:** Seminar

**RHBS 490:** RS: Clinical Research Internship. 3 credits.
Practical experience in a clinical research setting under the direction of a mentor. Each student is required to work with an experienced clinical investigator who agrees to provide the trainee mentorship. Clinical research embraces a spectrum of scientific disciplines that use a variety of study methods. Therefore, the multidisciplinary approach to clinical research is emphasized during didactic interactions. Note: In addition, an application must be submitted in the semester prior to enrollment in the course. During the semester prior to entry, students may be asked to acquire certain competencies/certifications in order to fully participate at their research site (for example, human subjects research protections training, lab safety certification, HIPAA training). Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** Course is open to honors college students only.

**Schedule Type:** Internship

**RHBS 491:** Directed Research. 1-3 credits.
Engages students in a directed research project under the guidance of a faculty member. Offered by Rehabilitation Science (p. 266). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Permission of the instructor.

**Schedule Type:** Independent Study

**RHBS 499:** Senior Capstone in Rehabilitation Science. 3 credits.
Combines the student’s academic training and professional experiences in order either to develop a community-based activity, intervention, program, or product designed to impact the overall health or performance of the target group or population or to complete an independent research project. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Mason Core:** Capstone (p. 135)

**Specialized Designation:** Writing Intensive in the Major

**Schedule Type:** Seminar

### 600 Level Courses

**RHBS 506:** Clinical Exercise Physiology. 3 credits.
Examines acute and chronic alterations and adaptations associated with exercise and training. Covers role of exercise therapy in preventing and rehabilitating from disease across lifespan. Particular emphasis on role of exercise therapy in cardiorespiratory, musculoskeletal, and metabolic diseases. Offered by Rehabilitation Science (p. 266). May not be repeated for credit. Equivalent to GCH 506, RHBS 506.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**RHBS 610: Scientific Basis for Pain and Fatigue.** 3 credits.
Reviews the scientific literature describing the theories of the initiation and perpetuation of pain, fatigue and suffering. Describes the methodologies used to evaluate these symptoms. Students will apply the theories of pain, fatigue and suffering to further their understanding of specific clinical problems. Offered by Rehabilitation Science (p. 266). May not be repeated for credit. Equivalent to RHBS 510.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**RHBS 620: Psychosocial Aspects of Rehabilitation.** 3 credits.
Explores social and psychological impacts of disability. Processes by which people with disabilities adapt to limitations will be examined, as will the influence society has in promoting independence/dependence among people with disabilities. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**RHBS 650: Foundations of Rehabilitation Science.** 3 credits.
Examines the field of rehabilitation science with emphasis on the core theories and models of this emerging discipline. Surveys various topics within rehabilitation science including the history and development of the field, assistive technologies, pathology and impairment research, functional limitations research, disability research, translational research, and ethical considerations in clinical and research settings. Offered by Rehabilitation Science (p. 266). May not be repeated for credit. Equivalent to RHBS 550.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

### 700 Level Courses

**RHBS 702: Biobehavioral Aspects of Health.** 3 credits.
Examines the biological, psychological, and social factors that interact with and affect efforts people make in promoting good health and preventing illness and the recovery, rehabilitation, and psychosocial adjustment of patients with serious health problems. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** GCH 601 or equivalent, or a graduate-level research methods course.

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

### 702 Level Courses

**RHBS 720: Principles of Clinical Trials.** 3 credits.
Provides a practical overview of the fundamental principles of clinical trial design and management, ethical and regulatory factors in the conduct of clinical trials, and their role in clinical practice, public health and decision making. Topics include clinical trial design, biostatistics, ethics and regulatory affairs, study management and oversight, and current concepts. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

**Recommended Prerequisite:** Graduate level statistics/methods

**Registration Restrictions:**
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**RHBS 746: Movement Control and Learning.** 3 credits.
Describes how the human nervous and musculoskeletal systems work together to move the human body, with a special emphasis on movement disorders and disabilities. Topics include movement and motion principles, muscle force production, physiology, and adaptation, along with the measurement of muscle activity, body movements, and body forces. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.
Recommended Prerequisite: RHBS 710

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

RHBS 750: Physiology of Clinical Exercise Interventions. 3 credits.
Critiques current knowledge of exercise prescription in both healthy and clinical populations. Examines physiological effects of exercise interventions, with emphasis on chronic disease and disability. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

Recommended Prerequisite: RHBS 606.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

RHBS 754: Movement Disorders: Etiology, Assessment, and Analyses. 3 credits.
Applies concepts of neuromechanics to the assessment and analysis of normal and pathological movement using both existing clinical assessments and laboratory-based measures of body kinematics, kinetics, muscle activity, and perception/cognition interactions with movement. Discusses benefits and limitations of assessment and analysis techniques as well as current research with regard to advancing these techniques. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

Recommended Prerequisite: RHBS 746.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

RHBS 760: Rehabilitation Science Colloquium. 1 credit.
Public forum for the presentation and discussion of contemporary issues in the field of rehabilitation science. Notes: May be repeated for credit; however a maximum of three credits may be applied to the rehabilitation science PhD. Offered by Rehabilitation Science (p. 266). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

RHBS 761: Aging and Health Behavior. 3 credits.
Examines age-related changes in health and health behavior along with the impact of structural factors, societal, and personal attitudes toward aging. The successful aging paradigm will frame discussion of strategies for facilitating optimal health behaviors. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

Recommended Prerequisite: RHBS 620.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

RHBS 772: Applied Biomechanics in Rehabilitation. 3 credits.
Describes concepts and principles of biomechanics for the study and analysis of functional human movement within the scope of rehabilitation science. Describes the biomechanical principles as applied in both healthy and clinical populations. Develops an understanding of the scientific and clinical applications of biomechanics to rehabilitation interventions. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

RHBS 776: Movement Analysis of Function. 3 credits.
Applies biomechanical principles to record and analyze functional activities, including walking, sit-stand, and reaching. Focuses on data acquisition, processing, and compiling of kinematic and kinetic data including motion capture, center of pressure, and electromyography. Evaluates movement from a joint, total body, and muscular perspective related to performance. Addresses how age and injuries affect functional performance. Offered by Rehabilitation Science (p. 266). May not be repeated for credit. Equivalent to RHBS 670.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

800 Level Courses

RHBS 808: Outcomes Measurement. 3 credits.
Examines the principles of measurement applied to both assessment and outcome measures commonly used in rehabilitation. The student will become familiar with the state of outcomes research in the field of rehabilitation science. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

Recommended Prerequisite: RHBS 550 and RHBS 551.
Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

RHBS 816: Rehabilitation Efficacy and Effectiveness Research. 3 credits.
Examines the theory and methods of comparative effectiveness studies and their relationship to developing Rehabilitation Science and other disciplines to effect better clinical practice by identifying benefits/harms of prevention and treatment and explores the implications of evidence for comparative effectiveness in developing health care policy. Offered by Rehabilitation Science (p. 266). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

RHBS 850: Teaching Practicum. 3 credits.
Prepares students for teaching role as an academic through direct teaching experiences in undergraduate courses in Rehabilitation Science under the supervision of a graduate faculty member, including syllabus development, lecture preparation, presentation skills, grading, and course evaluation. Offered by Rehabilitation Science (p. 266). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment limited to students in the PHD Rehabilitation Science program.

Enrollment is limited to Graduate level students.

Schedule Type: Internship

RHBS 894: Special Topics in Rehabilitation Science. 3 credits.
In-depth study of contemporary topics in Rehabilitation Science. Course topics vary each semester. Notes: Students may take up to 9 credits of RHBS 894 with permission of program director. Offered by Rehabilitation Science (p. 266). May be repeated within the term for a maximum 9 credits.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

RHBS 960: Directed Research. 1-6 credits.
Research on a pertinent topic in rehabilitation science. Must be arranged with instructor before registering. Offered by Rehabilitation Science (p. 266). May be repeated within the term for a maximum 24 credits.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

RHBS 998: Doctoral Dissertation Proposal. 1-9 credits.
Work on research proposal that forms basis for doctoral dissertation. Offered by Rehabilitation Science (p. 266). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Advancement to PhD candidacy.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

RHBS 999: Dissertation Research. 1-9 credits.
Dissertation research on a specific topic under the direction of a faculty member. Offered by Rehabilitation Science (p. 266). May be repeated within the degree for a maximum 24 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to students with a major, minor, or concentration in Rehabilitation Science.

Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Religious Studies (RELI)

100 Level Courses

RELI 100: The Human Religious Experience. 3 credits.
Examines main forms of religious expression as embodied in several important religious traditions in contemporary world. Investigates religious experience; myth and ritual; teachings and scripture; ethical, social, and artistic aspects of religion; and nature and function of religion in human society. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture
RELI 110: Introduction to Jewish Ethics. 3 credits.
Brief overview of Judaism and its classical texts. Examines a number of current ethical issues including artificial insemination, stem cell research, transplantation, abortion, homosexuality, capital punishment, from a Jewish perspective. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

200 Level Courses
RELI 211: Religions of the West. 3 credits.
Focuses on Judaism, Christianity, and Islam from historical, comparative, and cross-cultural perspectives. May also include modern developments of those faiths such as Mormonism and Baha'i, as well as Zoroastrianism and religions of ancient Near Eastern cultures. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)
Specialized Designation: Non-Western Culture

Schedule Type: Lecture

RELI 212: Religions of Asia. 3 credits.
Surveys religions of India, Hinduism, Jainism, Sikhism, Buddhism, and the religions of the Far East, China, and Japan, including Daoism, Confucianism, Shinto, from origins to present. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)
Specialized Designation: Non-Western Culture

Schedule Type: Lecture

RELI 235: Religion and Literature. 3 credits.
Explores the relationship between religion and literature in different times and cultures, the influence of religion on literary works, and how literature expresses major religious themes such as death and immortality, divine will and justice, suffering and human destiny, and religion and state. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Literature (p. 135)

Schedule Type: Lecture

RELI 240: Death and the Afterlife in World Religions. 3 credits.
Explores how selected world religions address the universal experience of death and express their beliefs in an afterlife. Focuses on the scriptures, beliefs, rituals and customs of selected world religions as they reflect each tradition's response to the most basic question about human destiny - how human beings face death and attempt to transcend it. Offered by Religious Studies (p. 476). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

RELI 272: Islam. 3 credits.
Introduces basic religious beliefs and practices of Islam, with view to diverse manifestations of Islamic culture in different ethnic and social contexts. Provides overview of essential rituals of Islamic life, mystical practices of Sufis, certain popular forms of religious practice, sources and application of Islamic law, and distinctive Islamic artistic and literary forms. Offered by Religious Studies (p. 476). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

300 Level Courses
RELI 313: Hinduism. 3 credits.
Introduces Hindu religion and thought, beliefs, rituals, ethics and religious practices. Emphasis on classical Hinduism, but also covers Hinduism and modernity, modern Hindu movements, and Hinduism as a global religion. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)
Specialized Designation: Non-Western Culture

Schedule Type: Lecture

RELI 314: Chinese Philosophies and Religious Traditions. 3 credits.
Surveys major religious traditions and philosophical themes of China including Confucianism, Taoism, and Chinese Buddhism and Neo-Confucianism. Examines foundation of Chinese world view and spirituality by investigating diverse religious traditions that have created tensions and harmony among them. Offered by Religious Studies (p. 476). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Recommended Prerequisite: RELI 212 or permission of instructor.

Schedule Type: Lecture

RELI 315: Buddhism. 3 credits.
Surveys Buddhist religious traditions. Includes historical development of Buddhism in India, China, and Japan, examining both Theravada and Mahayana traditions; philosophical and religious significance of Buddhism; and social and political implications of Buddhist traditions in South Asian and East Asian countries. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)
Specialized Designation: Non-Western Culture

Schedule Type: Lecture

RELI 316: Modern Christian Thought. 3 credits.
Examines influential Christian thinkers and Christian intellectual trends of the modern period, from the Enlightenment through the present. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 317: Daoism. 3 credits.
Explores philosophical ideas, spiritual orientation, religious practice, and social and political values in Daoist tradition reading classic Daoist texts including Dao De Jing, Chuang-tzu, and other sources. Discusses Daoism in light of comparative and cross-cultural studies for global understanding of issues on concepts of nature, human nature, and good and evil. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture
RELI 320: Religion and Revolution in Latin America. 3 credits.
Explores the intersection between Christian and revolutionary thought, such as Marxism and existentialism, in Latin America after the 1960s that formed liberation theology. Emphasis on historical, philosophical and interdisciplinary issues. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

RELI 322: Religions of Africa. 3 credits.
Explores traditional religious practices and world views in Africa south of the Sahara, the spread of African religions to the Caribbean and the Americas, the forms that religions imported or imposed from the north have taken in Africa south of the Sahara, and the interaction among the religious cultures of Africa, European Christianity and Islam. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

RELI 330: Religion, Fantasy and Imagination. 3 credits.
Explores the worlds of religion, fantasy and imagination, presented in selected writings of 20th century fantasy authors, including Lewis, Tolkien, Pullman, Rowling. Covers ideas of quest for enlightenment, redemption or salvation, conflict between good and evil, worlds of the supernatural, parallel dimensions and their inhabitants. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 331: Religion in America. 3 credits.
Religious heritage in American culture, growth of denominations and sects, and interrelationship of religion and sociopolitical life. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 332: Mormonism. 3 credits.
Examines the origins and development of Mormonism, as embodied in the Church of Jesus Christ of Latter-day Saints and other related churches. Introduces students to a critical analysis of Latter-day Saint scriptures, rituals, and history. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 333: Spiritual Autobiography. 3 credits.
Investigates the genre of autobiography as employed by religious authors, both classical and modern. Introduces students to personal, historical, and religious doctrinal contexts that shape the autobiographical literature. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Literature (p. 135)

Schedule Type: Lecture

RELI 337: Mysticism: East and West. 3 credits.
Comparative treatment of major expressions of mysticism in East and West through exploration of various ways of understanding mystical experience. Readings and discussion emphasize one or more of the Eastern (Hinduism, Buddhism, Taoism, Zen) and Western (Judaism, Christianity, Islam) traditions. Offered by Religious Studies (p. 476). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

RELI 341: Global Perspectives on Spirituality and Healing. 3 credits.
Cross-cultural investigation of human understandings of relationship between spirituality and health. Beliefs about spiritual causes of sickness and health and spiritual techniques of healing in variety of world cultures placed in context of religious beliefs of those cultures. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding, Encore:Well-Being (p. 135)

Recommended Prerequisite: 30 credits or permission of instructor.

Schedule Type: Lecture

RELI 350: Religion and History of Ancient Israel. 3 credits.
Examines religion and history of ancient Israel from origins around 1250 BCE to Babylonian Exile in 587 BCE. Topics include debate on historical value of biblical narratives, extra-biblical texts mentioning Israel, move from polytheism to monotheism, archaeology and artifacts, and development of Israel's unique religious and historical self-understanding. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 352: Judaism from Exile to Talmud. 3 credits.
Examines Jewish religion, history, and literature from the Babylonian Exile to third century C.E. Special attention to development of Hebrew Bible, Apocalyptic and Apocryphal literature, belief in resurrection and final judgment, Dead Sea Scrolls, Jewish sects, and emergence of Christianity and Rabbinic Judaism. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 353: Jewish Political Tradition. 3 credits.
Explores Jewish thinkers' attitudes towards politics and state. Topics include traditional sources, theological and political crisis of modern times, liberal Jewish thought, Zionist ideology, Israel as a separate state, relationship between religion and politics in modern Israel. Offered by Religious Studies (p. 476). May not be repeated for credit.

Recommended Prerequisite: RELI 211, 251 or 252, or permission of instructor.

Schedule Type: Lecture

RELI 355: Sufism. 3 credits.
Examines the tradition of Islamic mysticism, Sufism, through an exploration of the literature produced by Sufis themselves. Provide general introduction to Sufism and its spiritual perspective and investigates various genres of Sufi literature, including hagiography, symbolic scriptural exegesis, spiritual autobiography, didactic allegory and love poetry. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture
RELI 356: Jesus and the Gospels. 3 credits.
Examines Gospel accounts of Jesus in context of first-century Christianity. Applies variety of historical and literary methods to gain understanding of Jesus and history and theology of early church. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 357: Gender and the Body in Judaism. 3 credits.
Explores distinctively Jewish approaches to questions of gender, sexuality, and the body as described in the legal, religious, ethical, and literary material in the Jewish tradition. Topics include the "body of God," circumcision, laws of purity, rites of passage, the synagogue, feminist theology, and masculine and feminine stereotypes. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 360: Religion and Politics. 3 credits.
Explores the roles of religion in contemporary political life in the United States and abroad. Emphasizes religion in current political debates. Includes history, political theory, sociology, and theology to present a comprehensive understanding of the topic. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 361: Evangelical America. 3 credits.
Introduces the intellectual and social sources of evangelical Protestant traditions in the United States. Examines varieties of evangelical beliefs and practices. Surveying a range of themes, including science, sexuality, politics, and environmentalism, students examine how evangelicals have defined themselves in opposition to secular society but also have engaged the secular in an effort to convert souls, manage personal behavior, and transform American society in their image of Christian community. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 362: Religion and Film. 3 credits.
Surveys representations of religious beliefs, practices, persons, and institutions in popular film. Focuses on the media consumption of box office movies in the United States. Examines how religion is imaged in film and how that religious imagination relates to social constructions of national, ethnic, racial, gender, and sexual identities. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 363: Catholicism. 3 credits.
Focuses on the beliefs of the over one billion Roman Catholics in today's world. Probes the history, doctrine, symbols, rituals, practices, and material culture of the world's largest church. Considers Catholicism's dialog with secularism and discusses controversies and challenges facing the church today. Offered by Religious Studies (p. 476). May not be repeated for credit.

Recommended Prerequisite: 3 credits in religious studies or philosophy or permission of instructor

Schedule Type: Lecture

RELI 364: Religion and Law in the United States. 3 credits.
Explores issues relating to law and religion. Focuses on the legal doctrines that have arisen in cases under the Establishment and Free Exercise Clauses of the First Amendment. Topics include religion and public schools, government aid to religious institutions, including school vouchers, government endorsement of religious symbols, freedom of religious expression, and freedom of religious practice. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 365: Muhammad: Life and Legacy. 3 credits.
Examines life and character of the founder of Islam, as remembered and understood by Muslims, as well as explores influence of his paradigmatic life and teachings on Islamic religious discourse and culture. Addresses Western critical studies of the accounts of Muhammad's life and contemporary controversies regarding Muhammad. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

Specialized Designation: Non-Western Culture

RELI 370: Judaism. 3 credits.
Studies Judaism from origins to present. Includes origins of Judaism B.C.E.; Rabbinic Judaism; Jews in the Middle Ages; Hasidic and Mystical Judaism; Enlightenment; persecution and Holocaust; contemporary American Judaism; and Jewish, Christian, and Muslim relations. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 372: American Judaism. 3 credits.
Surveys Jewish religious life focusing on various types of American Judaism such as orthodox, conservative, reform, reconstructionist, as they have developed historically and continue to evolve. Emphasizes issues and challenges facing contemporary Judaism. Offered by Religious Studies (p. 476). May not be repeated for credit.

Recommended Prerequisite: 3 credits in RELI or PHIL or permission of instructor.

Schedule Type: Lecture

RELI 374: Islamic Thought. 3 credits.
Examines Islamic views on fundamental issues in religious thought, such as nature of God, nature of man, and relationship between God and man as reflected in both divine revelation and human religious vocation. Investigates intellectual approaches to these problems within Islamic tradition, including those of theological, philosophical, and mystical thinkers. Offered by Religious Studies (p. 476). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Specialized Designation: Non-Western Culture

Recommended Prerequisite: RELI 211, 3 credits in religious studies, or permission of instructor.

Schedule Type: Lecture

RELI 375: Qur'an and Hadith. 3 credits.
Explores two primary sources of Islamic belief and practice: Qur’an and Hadith. Discusses thematic structure and literary quality, and examines theological and moral issues. Also introduces various methods of
of the secular, liberal, and technical age. Offered by Religious Studies (p. 476). May not be repeated for credit.

Schedule Type: Lecture

RELI 387: Islam, Democracy, and Human Rights. 3 credits. Evaluates the political and religious goals of Muslim societies and governments, and whether these goals are conducive to the development of democratic institutions to promote democratic cultures and explicit support for human rights, as well as to these societies' full integration in an international order founded upon secularism and modernism. Offered by Religious Studies (p. 476). May not be repeated for credit.

Specialized Designation: Non-Western Culture

Schedule Type: Lecture

400 Level Courses

RELI 401: Death and the Afterlife in World Religions. 3 credits. Examination of the rituals, practices, and beliefs regarding death and the afterlife in world religions past and present. Emphasis placed on crosscultural and comparative aspects. Offered by Religious Studies (p. 476). May not be repeated for credit.

Recommended Prerequisite: 60 credits including six credits in Religious Studies, or permission of instructor.

Schedule Type: Lecture

RELI 403: Scripture and Authority in World Religions. 3 credits. Examines origins, development, and role of Scripture (religious texts) in world religions, concentrating on issues of divine inspiration, authority, authenticity, and canon. Offered by Religious Studies (p. 476). May not be repeated for credit.

Recommended Prerequisite: 60 credits including 6 credits of Religious Studies or permission of instructor.

Schedule Type: Lecture

RELI 405: Religion, Values, and Globalization. 3 credits. Explores diverse value systems, ethical norms, and teaching found in different religious traditions and cultures. Examines assumption that globalization is attempt to universalize Western culture. Offered by Religious Studies (p. 476). May not be repeated for credit.

Recommended Prerequisite: 60 credits, including 6 credits in Religious Studies or permission of instructor.

Schedule Type: Lecture


Recommended Prerequisite: 60 credits; 6 credit hours in Philosophy or Religious Studies.

Schedule Type: Lecture

RELI 420: Seminar. 3 credits. Senior seminar on a specific topic of relevance to religious studies. Content varies. Notes: May be repeated when topic varies. Students with other majors may be take the course if the topic is sufficiently close to
their field of study. Offered by Religious Studies (p. 476). May be repeated within the term for a maximum 12 credits.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** Major in religious studies with 60 credits including 9 credits or permission of instructor.

**Schedule Type:** Lecture

**RELI 425: Directed Readings in Religious Studies.** 1-3 credits. Individual readings and research in religious studies on a topic selected in consultation with instructor. Offered by Religious Studies (p. 476). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Major in religious studies with 60 credits including 9 credits in religious studies.

**Schedule Type:** Independent Study

**RELI 426: Religious Studies Internship.** 3 credits. Course rubric to be used for acquiring academic credit in Religious Studies for religious studies related internships. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Recommended Prerequisite:** The completion of 60 undergraduate credits and 12 credits toward the Religious Studies major or minor.

**Schedule Type:** Internship

**RELI 490: Comparative Study of Religions.** 3 credits. Cross-cultural examination of comparative aspects of religious phenomena. Examines significance of religious phenomena from diverse religious and cultural perspectives, and investigates patterns of religious phenomena that have appeared in world cultures and civilizations. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Mason Core:** Synthesis (p. 135)

**Specialized Designation:** Non-Western Culture

**Recommended Prerequisite:** 9 credits in religious studies including RELI 211 and RELI 212, or permission of instructor.

**Schedule Type:** Lecture

**500 Level Courses**

**RELI 591: Special Topics in Religious Studies.** 3 credits. Topics in religious studies selected by importance in the field and pertinent to the role of religion in society and culture. Emphasis on historical, interdisciplinary, and cross-cultural issues. Notes: May be repeated when topic is different with permission of department. Offered by Religious Studies (p. 476). May be repeated within the term for a maximum 12 credits.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**RELI 630: Approaches to the Study of Religion.** 3 credits. Examines study of religion as academic discipline. Evaluates various intellectual approaches and methods used in study of religious phenomena. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**RELI 631: Sacred as Secular in Modern Spirituality.** 3 credits. Investigates nature of sacred and categories of sacred and secular in human experience. Both duality and interconnectedness of sacred and secular explored to facilitate fresh understanding of essential unity of human religiosity and spirituality. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture


**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**RELI 633: Ethical Perspectives of World Religions.** 3 credits. Examines how perceptions of ultimate reality shape ethical values and behaviors of various religious traditions. Addresses problems in interpretation of authoritative foundational teachings in contemporary contexts. Special attention to non-Western religions. Offered by Religious Studies (p. 476). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**RELI 635: World Religions in Transition and Transformation.** 3 credits.
Explores transitions and transformations in selected world religions as they respond to and influence forces of cultural change, social values, and the crises of history. Fresh or modified constructions of the sacred and their relationship to world and humans will be examined. Offered by Religious Studies (p. 476). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**RELI 636: Religion and the Natural Environment.** 3 credits.
Explores contemporary religious thought on the morality and ethics of environmental responsibility. Begins with an exploration of this issue in Western Christian thought and examines religious approaches to the environment in the traditional and contemporary thought of other major world religions, including Judaism, Islam, Hinduism, Buddhism, and the Chinese traditions. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**RELI 640: Religion and Law.** 3 credits.
Focuses on United States Supreme Court decisions on religion clauses over the last 50 years. Provides a close reading of court's opinions and considers material from religious legal traditions. Covers contemporary political debates on issues like prayer in public schools, displays of religious symbols, ceremonial references to God, and public aid to religious schools. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**RELI 642: Sacred Language, Scripture, and Culture.** 3 credits.
Explores how sacred languages and scriptures develop in major global religious traditions: study of grammar, syntax, and morphology of sacred languages; issues of inspiration, authority and canon. Also examines cultural dimensions of sacred language. Notes: May be repeated once when languages are different. Offered by Religious Studies (p. 476). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**RELI 644: Islamic Texts and Contexts.** 3 credits.
Introduces foundational Islamic texts; scholarly traditions of commentary, criticism and analysis on these texts; and application and significance of these texts in contemporary Islamic discourses. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**RELI 645: Muslim Comparative Theologies: Sunni-Shi`i Religious Thought.** 3 credits.
Compares and analyzes Sunni and Shi‘ite theologies, with particular attention to the historical development of Muslim creed in the context of social and political conditions, and the essential differences between the Sunni and Shi‘ite schools of thought. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**RELI 646: Islam and Human Rights.** 3 credits.
Compares the conception of human rights in international human rights documents and accords with conceptions of human rights in classical Islamic theological, legal, and ethical texts. Examines various relevant issues, including but not limited to religious and gender discrimination, slavery, freedom of religion and belief and apostasy, and questions of punishment. Offered by Religious Studies (p. 476). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

RELI 660: Islamic Biomedical Ethics. 3 credits.
Examination of the foundations of religious ethics and ethical principles developed by Muslims to solve bioethical problems. Relates ethical principles to the moral experience of contemporary Muslims, and explores the role of human experience and intuitive reasoning in deriving ethical decisions. Offered by Religious Studies (p. 476). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

Russian (RUSS)

100 Level Courses

RUSS 101: Elementary Russian I. 3 credits.
For students with no knowledge of Russian. Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Lab work required. Notes: Students may not receive credit for RUSS 101 and RUSS 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to RUSS 110.

Schedule Type: Lecture

RUSS 102: Elementary Russian II. 3 credits.
Continuation of RUSS 101. Notes: Students may not receive credit for RUSS 102 and RUSS 110. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to RUSS 110.

Recommended Prerequisite: RUSS 101 or permission of department.

Schedule Type: Lecture

RUSS 110: Elementary Russian. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Notes: Students may not receive credit for RUSS 110 and RUSS 101, 102. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to RUSS 101, RUSS 102, RUSS 109.

Schedule Type: Lecture

RUSS 199: Russian Language and Culture for Students and Professionals. 3 credits.
Designed for English-speaking specialists in humanities, sciences, and business studies in Russia. Covers range of topics, including elementary Russian phonetics and grammar, basic conversation, and Russian etiquette. Course theme is language needs of foreigners who happen to be traveling and conducting business activities in Russia. Acquaints students and professionals with cultural framework that forms indispensable backdrop to daily activities in Russia. Students become increasingly confident and effective in their ability to engage Russians from all walks of life in daily informal and professional conversation in the Russian language. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture

200 Level Courses

RUSS 201: Intermediate Russian I. 3 credits.
Further development of skills in listening, speaking, reading, and writing. Notes: RUSS 201 and 202 must be taken in sequence. Students may not receive credit for RUSS 201 and RUSS 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to RUSS 210.

Recommended Prerequisite: RUSS 102, appropriate placement score or permission of instructor.

Schedule Type: Lecture

RUSS 202: Intermediate Russian II. 3 credits.
Application of language skills to reading, composition, and discussion. Notes: Students may not receive credit for RUSS 202 and RUSS 210. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to RUSS 210.

Recommended Prerequisite: RUSS 201, appropriate placement score, or permission of instructor.

Schedule Type: Lecture

RUSS 210: Intermediate Russian. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Russian-speaking regions. Lab work required. Notes: Students may not receive credit for RUSS 210 and RUSS 101, 102. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to RUSS 201, RUSS 202, RUSS 209.

Recommended Prerequisite: RUSS 110, or appropriate placement score.

Schedule Type: Lecture

RUSS 250: Gateway to Advanced Russian. 3 credits.
Integration of advanced intermediate-level Russian grammar, reading, writing, listening and speaking skills with the development of research skills and critical thinking about authentic texts from contemporary media. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Russian

Recommended Prerequisite: RUSS 210.

Schedule Type: Lecture

300 Level Courses

RUSS 302: Russian Conversation and Composition. 3 credits.
Develops in students ability to express themselves orally on topics of current interest and everyday situations. Provides practice in more
difficult forms of written expression. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Russian, Writing Intensive in the Major

**Recommended Prerequisite:** RUSS 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**RUSS 303:** *Russian Advanced Conversation.* 3 credits.
Development of oral proficiency. Includes current colloquial expressions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Russian

**Recommended Prerequisite:** RUSS 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**RUSS 300: Readings in Russian Literature.** 3 credits.
Readings of Russian literary works in original language with lectures, discussions, and exam in Russian. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Russian

**Recommended Prerequisite:** RUSS 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**RUSS 310: Contemporary Russian Short Fiction.** 3 credits.
Reading and discussion of recent short stories by best-known Russian writers of today. Notes: Readings in original language. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Russian

**Recommended Prerequisite:** RUSS 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**RUSS 325: Major Russian Writers.** 3 credits.
Study of works of major Russian writers in translation. Writers to be studied vary. Notes: May be repeated once for credit when course content is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 9 credits.

**Mason Core:** Literature (p. 135)

**Specialized Designation:** Taught in English, Non-Western Culture

**Recommended Prerequisite:** 60 credits and completion or concurrent enrollment in all other required Mason Core courses.

**Schedule Type:** Lecture

**RUSS 354: Contemporary Post-Soviet Life.** 3 credits.
Social life, art, economics, education, view of life, and personal aspirations of Russian citizen today. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Taught in English, Non-Western Culture

**Recommended Prerequisite:** 54 hours or Permission of Instructor.

**Schedule Type:** Lecture

**RUSS 382: Advanced Russian I.** 3 credits.
Comprehensive study of the more difficult characteristics of contemporary standard Russian in areas of grammar, style, and vocabulary usage. Emphasizes developing fluency in oral and written expression. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Russian

**Recommended Prerequisite:** RUSS 202, 250 or equivalent; appropriate placement score; or permission of instructor.

**Schedule Type:** Lecture

**RUSS 383: Advanced Russian II.** 3 credits.
Comprehensive study of the more difficult characteristics of contemporary standard Russian in areas of grammar, style, and vocabulary usage. Emphasizes developing fluency in oral and written expression. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.
Recommended Prerequisite: RUSS 202, 250 or equivalent; appropriate placement score; or permission of instructor

Schedule Type: Lecture

400 Level Courses
RUSS 401: Readings in the Social Sciences. 3 credits.
Reading, translation, and discussion of Russian materials in fields of history, politics, geography, and sociology. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Russian

Schedule Type: Lecture

RUSS 407: Russian Drama and Theater. 3 credits.
Development of Russian theater including directing techniques in Moscow Art Theater. Reading and discussion of major Russian plays of 19th and 20th centuries. Notes: Course work in English; knowledge of Russian not required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in English

Recommended Prerequisite: 60 hours or permission of instructor.

Schedule Type: Lecture

RUSS 410: Russian Poetry. 3 credits.
Historical development of Russian poetry and representative works of major poets. Notes: Reading in Russian; course work in English and Russian. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Lecture

RUSS 470: Topics in (Post) Soviet Film. 3 credits.
Russian, Soviet, and post-Soviet films selected by type, period, or director with emphasis varying from year to year. Required viewings, student discussion, and written critiques. Notes: May be repeated once with permission of department or film studies adviser. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

Specialized Designation: Taught in English

Schedule Type: Lecture

RUSS 480: Fourth-Year Russian. 3 credits.
Advanced work in major grammatical and lexical topics of Russian. Application of theoretical principles in guided written and oral exercises. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: RUSS 380 and 381 or permission of instructor.

Schedule Type: Lecture

RUSS 481: Fourth-Year Russian. 3 credits.
Advanced work in major grammatical and lexical topics of Russian. Application of theoretical principles in guided written and oral exercises. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: RUSS 380, 381, or equivalent.

Schedule Type: Lecture

RUSS 490: Independent Study. 1-3 credits.
Research and analysis of selected problem in language, literature, or culture in consultation with member of Russian studies faculty. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: Russian studies major with 84 hours and permission of Instructor.

Schedule Type: Independent Study

RUSS 491: Independent Study. 1-3 credits.
Research and analysis of selected problem in language, literature, or culture in consultation with member of Russian studies faculty. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Independent Study

RUSS 499: Seminar on Russian Literary and Critical Bibliography. 3 credits.
Comprehensive bibliographic survey of major primary and secondary works of Russian literature and criticism. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Seminar

School of Management (SOM)

300 Level Courses
SOM 301: Business Models: A Communication Approach. 3 credits.
Introduces fundamentals of business models, and writing as learning tool. Interrelationships among accounting, finance, information systems, marketing, and operations are subject of several "learning by writing" deliverables. School of Business students will not be permitted to make more than three attempts to achieve a C or higher in SOM 301. Those who do not successfully complete this course within three attempts will be terminated from their major and will not be eligible to receive a degree from the School of Business. For more information about this, see the "Termination from the Major" section under Academic Policies. Notes: Taught in lecture/recitation format; requires attendance at weekly lecture and weekly recitation. Offered by School of Business (p. 846). Limited to three attempts.

Specialized Designation: Writing Intensive in the Major

Registration Restrictions:
Enrollment limited to students with a class of Freshman, Junior, Sophomore, Senior Plus or Senior.
Non-Degree level students may not enroll.

undefined

Schedule Type: Laboratory, Lecture

Social Work (SOCW)

100 Level Courses
SOCW 110: Global Perspectives on Human Rights. 3 credits.
Explores awareness about human rights issues around the world. Students will become familiar with current debates about human rights, especially whether rights should be culturally determined. The role of
the United Nations, governmental and nongovernmental organizations, including social service organizations will be presented. Emerging issues including the rights of children; the rights to food, shelter, and health care; and racial and economic equality will be emphasized. Notes: Open to social work and nonsocial work majors; does not count toward the social work degree requirements. Offered by Social Work (p. 271). May not be repeated for credit.

Schedule Type: Lecture

**200 Level Courses**

**SOCW 200:** *Introduction to Social Work*. 3 credits.
Introduces historical roots of social work profession and social welfare. Person-in-environment perspective discussed as framework for social work knowledge, values, and skills. Initial course in social work curriculum introduces social work profession, professional values, ethics, fields of practice, and settings in which social workers are employed. Highlights profession's commitment to diverse and at-risk populations and social and economic justice. Presentations by social work professionals in different fields of practice supplement classroom lecture, discussion, and small-group exercises. Notes: Open to all majors. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 200.

**Registration Restrictions:**
Enrollment is limited to students with a major in Social Work. Students cannot enroll who have a minor in Social Work.

**Schedule Type:** Lecture

**Specialized Designation:** Discovery of Scholarship

**300 Level Courses**

**SOCW 311:** *Building Professional Social Work Skills*. 3 credits.
Apply basic social work concepts and the planned change process to beginning-level professional generalist practice. Develop a professional sense of self, and how to work in a social work setting. Practice course material in an agency setting through a 40 hour service learning experience. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 200.

**Registration Restrictions:**
Enrollment is limited to students with a major in Social Work. Students cannot enroll who have a minor in Social Work.

**Schedule Type:** Lecture

**SOCW 312:** *Knowledge Building for Helping Professionals*. 3 credits.
Integrates critical thinking skills with an understanding of how knowledge is created and associated with the scientific paradigms that are used to study and understand individuals in the context of the environment. Examines ways of knowing used in the social sciences and social work by being actively engaged in exercises and activities. Offered by Social Work (p. 271). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** SOCW 200.

**Schedule Type:** Lecture

**SOCW 357:** *Methods of Social Work Intervention I*. 3 credits.
Social work practice from systems perspective. Particular emphasis on problem-solving activities with microsystems. Analyzes common core of knowledge, values, and skills essential to social work practice to gain insight into social work functions and role of social worker as change agent. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 200, SOCI 101, PSYC 100, or permission of the instructor.

**Recommended Corequisite:** SOCW 361.

**Registration Restrictions:**
Students cannot enroll who have a minor in Social Work.

**Schedule Type:** Lecture

**SOCW 358:** *Methods of Social Work Intervention II*. 3 credits.
Continues generic problem-solving model, focusing on group and macro intervention systems, settings, and skills. Emphasizes working with both treatment and task groups. Group processes, such as goal formulation, contract setting, composition, and termination necessary for effective worker intervention, are part of knowledge base. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 200, 357, and 361

**Recommended Corequisite:** SOCW 362.

**Registration Restrictions:**
Enrollment is limited to students with a major in Social Work. Students cannot enroll who have a minor in Social Work.

**Schedule Type:** Lecture

**SOCW 359:** *Junior Seminar*. 1 credit.
Provides opportunity to integrate theory, research, and practice in area of group work. Time is allotted to process successes and obstacles, and to share issues, knowledge, and skills learned in service-learning site. Notes: Forty hours of service learning are required. Offered by Social Work (p. 271). May not be repeated for credit. Equivalent to SOCW 362.

**Recommended Prerequisite:** SOCW 301.

**Recommended Corequisite:** SOCW 358.

**Registration Restrictions:**
Enrollment is limited to students with a major in Social Work.

**Schedule Type:** Seminar

**SOCW 361:** *Methods of Social Work Intervention I: Laboratory*. 2 credits.
Develop proficiency in social work and communication skills. Increase competency in practice knowledge and behaviors through experiential learning in the classroom laboratory. Apply knowledge of biological, psychological, social, spiritual, and cultural influences to those who need and those who give help. Examine personal behavioral and learning patterns, values, ethics, and attitudes to increase ability to understand and help clients. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 200.

**Recommended Corequisite:** SOCW 357.

**Registration Restrictions:**
Enrollment is limited to students with a major in Social Work. Students cannot enroll who have a minor in Social Work.

**Schedule Type:** Laboratory

**SOCW 362:** *Methods of Social Work Intervention II: Laboratory*. 2 credits.
Provides students the opportunity to integrate theory, research, and practice in the area of group work and family interventions. Classroom
simulation of group skills and how to work with families will occur. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Corequisite: SOCW 358.

Registration Restrictions:
Required Prerequisites: SOCW 200C, 357C and 361C.
C Requires minimum grade of C.

Enrollment is limited to students with a major in Social Work. Students cannot enroll who have a minor in Social Work.

Schedule Type: Laboratory

SOCW 375: Human Behavior and the Family Life Course. 3 credits. This course utilizes an integrative ecological approach to understanding individual human behavior in the context of the family and the transitions over the life course. The family life course perspective recognizes the interdependent nature of life course experiences and highlights the impact of life events, transitions and change, timing, and historical and social context. Offered by Social Work (p. 271). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Recommended Prerequisite: SOCW 200; BIOL 103; PSYC 100; SOCI 101.

Schedule Type: Lecture

SOCW 380: Changing Social Policies and Systems. 3 credits. Equips students with basic macro social work practice skills necessary to create change that will result in a more socially and economically just society. Examines the historical development, central concepts, and institutional nature of current social policies and systems and how to create change at various levels. Applies practice skills to developing strategies for change. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 200.

Schedule Type: Lecture

SOCW 390: Analytic Methods for Social Work Research. 3 credits. Provides a basic introduction to quantitative and qualitative analytic methods for the social worker. The course will emphasize a conceptual understanding of analyses so that students will be able to engage in social debates with the ability to both support their assertions with rigorously generated analyses, as well as question the generalizability and utility of others' analyses. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 200.

Schedule Type: Lecture

400 Level Courses

SOCW 400: Legal and Ethical Issues in Human Services. 3 credits. Overview of ethical and legal issues related to human services professions. Topics include responsibility, competence, duty to warn, confidentiality, professional relationships, and research. Emphasizes models of ethical decision making and critical thinking. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: 45 credits or permission of instructor.

Schedule Type: Lecture

SOCW 410: Alcohol and Substance Abuse: Policies and Programs. 3 credits. Primary issues related to alcoholism and drug abuse including key concepts, theories, policies, and research regarding use and abuse of alcohol and other drugs. Emphasizes impact of policies and programs on well-being of ethnic minority and disadvantaged service populations. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: 45 credits or permission of instructor.

Schedule Type: Lecture

SOCW 415: Child and Family Welfare. 3 credits. Emphasizes viewing human development and child and family welfare services critically, holistically, and contextually. Integrates ecological systems, human rights, and empowerment perspectives for understanding delivery systems and persons in relation to their environment across levels from individual to global. Provides overview of existing child welfare system with focus on current issues, challenges, and at-risk populations. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: 45 credits or permission of instructor.

Schedule Type: Lecture

SOCW 435: Introduction to Gerontology. 3 credits. Examines the social determinants of health and the application of this framework to social work and public health policy and practice interventions. Explore the many social justice factors that affect health and consider which community systems and social change approaches may decrease or eliminate health inequities. Offered by Social Work (p. 271). May not be repeated for credit. Equivalent to GCH 445.

Recommended Prerequisite: 45 credits or permission of the instructor.

Schedule Type: Lecture

SOCW 445: Social Determinants of Health. 3 credits. Examine the social determinants of health and the application of this framework to social work and public health policy and practice interventions. Explore the many social justice factors that affect health and consider which community systems and social change approaches may decrease or eliminate health inequities. Offered by Social Work (p. 271). May not be repeated for credit. Equivalent to GCH 445.

Recommended Prerequisite: 45 credits or permission of the instructor.

Schedule Type: Lecture

SOCW 471: Research in Social Work. 3 credits. Principles and theory underlying scientific inquiry. Emphasizes use of research in social work practice, steps in conducting research, and research efforts in developing and evaluating social work knowledge and skills. Notes: Must be completed with minimum grade of C. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: 45 credits or permission of the instructor.

Schedule Type: Lecture

Mason Core: Scholarly Inquiry, Writing Intensive in the Major

Specialized Designation: Scholarly Inquiry, Writing Intensive in the Major

Recommended Corequisite: SOCW 200; SOCW 312; ENGH 302.

Recommended Corequisite: SOCW 452; SOCW 453; Choose one of the following: SOCW 390, STAT 250, SOCI 313, or PSYC 300.
Both the field practicum and the associated seminar provide learning activities designed to facilitate the demonstration of competencies identified by the Council on Social Work Education. Requires faculty-agency visits. Offered by Social Work (p. 271). May not be repeated for credit. Equivalent to SOCW 452, SOCW 453.

Recommended Prerequisite: SOCW 200, 311, 312, 357, 358, 361, 362, 375, and 380 with a minimum grade of C and recommendation of faculty.

Registration Restrictions:
Enrollment is limited to students with a major in Social Work.

Schedule Type: Internship

SOCW 496: Field Practicum and Seminar II. 5 credits.
Continuation of supervised instruction begun in SOCW 495. Students continue to spend two days per week in a social work field practicum, which provides entry level generalist social work training. Both the field practicum and the associated seminar provide learning activities designed to facilitate the demonstration of competencies identified by the Council on Social Work Education. Requires faculty-agency visits. Offered by Social Work (p. 271). May not be repeated for credit. Equivalent to SOCW 454, SOCW 456.

Recommended Prerequisite: SOCW 495 with a minimum grade of C.

Registration Restrictions:
Enrollment is limited to students with a major in Social Work.

Schedule Type: Internship

Investigates research problem in field of social work. Offered by Social Work (p. 271). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: 60 credits and a research proposal approved by instructor before enrollment.

Schedule Type: Independent Study

600 Level Courses

SOCW 623: Human Behavior and Social Systems I. 3 credits.
Ecological approach to behavior of individuals, families, groups, organizations, and communities. Integrates and applies theories from psychology, sociology, biology, and anthropology to study of infants, children, and adolescents. Emphasizes human diversity. Offered by Social Work (p. 271). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 624: Human Behavior and Social Systems II. 3 credits.
Continues study of human behavior and diversity by exploring application of development theory and ecological principles to those in young adulthood, middle adulthood, and older adulthood. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 623.
Prevention and intervention, suicide prevention and intervention, international context. Possible areas of exploration include violence prevention, and intervention with communities in a local, national, or international context. Students use an ecosystems framework for assessment, risk-reduction, prevention, and intervention with communities in a local, national, or international context. Possible areas of exploration include violence prevention and intervention, suicide prevention and intervention, emergency response efforts, and behavioral health or wellness interventions at the community level. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 624, 652, 658, and 673.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 630: Forensic Social Work Practice. 3 credits. Explores the social work role in legal processes relating to such issues as family violence, child custody, behavioral health, disabilities, aging, and juvenile/criminal justice. Apply skills in forensic interviewing, risk assessment, expert testimony, mitigation, mediation, treatment, victim advocacy, and multidisciplinary collaboration. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 624, 652, 658, and 673.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 640: Advanced Clinical Practice. 3 credits. Prepares students at the advanced level to apply diagnostic, assessment, prevention, treatment, and intervention skills with individuals, families, and groups in clinical mental health and health settings. Trains students in differential diagnosis and assessment using the Revised Diagnostic and Statistical Manual (DSM IV-TR). Currently accepted treatment interventions within the context of contemporary social work theory are also presented. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: All foundation year coursework: SOCW 623, 624, 651, 652, 657, 658, 670, 671, 672, 673, and 680.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 645: Community-Centered Clinical Practice. 3 credits. Students use an ecosystems framework for assessment, risk-reduction, prevention, and intervention with communities in a local, national, or international context. Possible areas of exploration include violence prevention and intervention, suicide prevention and intervention, emergency response efforts, and behavioral health or wellness interventions at the community level. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 624, 652, 658, and 673.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 650: Forensic Social Work Practice. 3 credits. Explores the social work role in legal processes relating to such issues as family violence, child custody, behavioral health, disabilities, aging, and juvenile/criminal justice. Apply skills in forensic interviewing, risk assessment, expert testimony, mitigation, mediation, treatment, victim advocacy, and multidisciplinary collaboration. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 624, 652, 658, and 673.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 651: Social Policies, Programs, and Services. 3 credits. History of American social welfare policy and social work profession. Explores political, economic, social, cultural, and ideological influences on policy making with emphasis on consequences for populations at risk. Introduces historical policy analysis. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 651.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 652: Influencing Social Policy. 3 credits. Introduces students to the knowledge, skills, and values needed to influence policy outcomes. Explores the role of social workers in electoral politics and policy advocacy. Students gain skills in legislative research, coalition building, testifying, constituent organizing, and lobbying, while developing strategies for promoting social justice through policy change. Offered by Social Work (p. 271). May not be repeated for credit.

Recommended Prerequisite: SOCW 651.

Registration Restrictions: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCW 653: Immigration Policy. 3 credits. Prepares students for advocacy on behalf of immigrants from a human rights and social justice perspective. Explores policies, economic forces and historical precedence abetting global migration. Abets development of an in-depth knowledge of national and local policies as they pertain to
immigrants, and how issues relate to social work advocacy. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of all first-year graduate coursework or advanced standing.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 654: Social Policy for Children and Youth.** 3 credits.
Examines social policies, programs, and services on behalf of children and youth with implications for social work; including child welfare, child and adolescent health and mental health, juvenile justice, and school social work. Explores how societal norms regarding family and definitions of children’s well-being influenced these policies over time. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of MSW foundation coursework.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 655: Aging Programs and Policies.** 3 credits.
Analyzes the evidence-based benefits and challenges of social welfare and health care policy at the local, state, and federal levels on programs and services for older persons and their families. Fosters an understanding of the context of administrative structures, and legislative context of social policy and aging with attention to diversity and ethics. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 652 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 657: Direct Social Work Practice I.** 3 credits.
Introduces role of social workers as change agents and the core knowledge, values, and skills that guide social work practice with individuals, families, small groups, organizations, and communities. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Corequisite:** SOCW 672.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 658: Direct Social Work Practice II.** 3 credits.
Continuation of social work theory and practice with individuals, families, groups, organizations, and communities. Emphasizes intervention, evaluation, follow-up, and termination, with attention to incorporating social work knowledge, values, and skills. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 657.

**Recommended Corequisite:** SOCW 673.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 663: Global Human Rights Policy.** 3 credits.
Examines meaning and benefits of transforming social work policy practice to a global perspective and focus on a human rights-based rather than a needs-based approach. Demonstrates how human rights can serve as conceptual framework for policy practice to effect social change promoting human development and social and economic justice across levels, from the micro through macro and local through global. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of MSW Foundation curriculum or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Students in a Non-Degree Undergraduate degree may not enroll.

**SOCW 664:** Art Therapy and Social Work. 3 credits.
Explores the principles and techniques of art therapy for social work practice, examining assessment, intervention and evaluation strategies that supplement traditional social work treatment. Course covers theory, research, and interventions applied to individuals, families, groups, and communities. Notes: Previous training in the visual arts and/or artistic ability is not required. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of MSW Foundation curriculum or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 665:** Integrated Behavioral Health Policy. 3 credits.
Examines policy concerns and strategies for implementing integrated behavioral health care models. Identifies practice models that integrate substance abuse and mental health with primary health care. Provides an overview of the U.S. health care system, including legislation, financing, and health care disparities. Students will develop an understanding of access to health care as a social justice concern. Offered by Social Work (p. 271). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 667:** Social Work Program Planning, Communications, and Technology. 3 credits.
Studies various forms of written communication pertinent to social work practice. Examines impact of audience, status, culture, and purpose on effective professional writing. Offered by Social Work (p. 271). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 671:** Research Methods for Social Workers. 3 credits.
Examines role of scientific inquiry in social work. Emphasizes construction and use of measurement instruments, data collection, analysis, and interpretation, and application of computer technologies relevant to social work practice. Offered by Social Work (p. 271). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 672:** Generalist Field Practicum and Seminar I. 3 credits.
Provides supervised social work learning experience in human service agencies. Students complete 16 hours per week in field practicum, and attend bimonthly seminar in which they share learning and integrate theory with practice. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Corequisite:** SOCW 657.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**SOCW 673:** Generalist Field Practicum and Seminar II. 3 credits.
Continues the supervised social work learning experience begun in SOCW 672. Students spend 16 hours per week in field practicum, and attend bimonthly seminar in which they share learning, process experiences, and integrate theory with practice. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 672.

**Recommended Corequisite:** SOCW 658.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship
**SOCW 674: Psychopathology.** 3 credits.
Overview of adult and child psychopathology presented within the contexts of the lives of people experiencing mental disorders and the social contexts that can have a bearing on symptom maintenance. Learn to formulate competency-based assessments and DSM IV-TR-based differential diagnoses. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** All foundation year coursework (SOCW 623, 624, 651, 652, 657, 658, 670, 671, 672, and 673).

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to students with a major in Social Work.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 675: Selected Topics in Clinical Practice.** 3 credits.
In-depth study of special topics related to clinical social work practice at the individual, family, small group, or community level. Notes: May be repeated for credit when topic is different. Offered by Social Work (p. 271). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** 30 graduate credits or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to students with a major in Social Work.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 676: Selected Topics in Social Work and Social Change.** 3 credits.
Critical examination of special topics related to understanding and improving community and societal conditions through policy practice, program development, and social action. Notes: May be repeated for credit when topic is different. Offered by Social Work (p. 271). May be repeated within the term for a maximum 12 credits.

**Recommended Prerequisite:** 30 graduate hours or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to students with a major in Social Work.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 677: Family Therapy.** 3 credits.
Examines research and theory relevant for assessment and intervention with families. Students will learn to conduct a family assessment, taking cultural diversity, non-traditional family structures including single-parent and GLBTQ families, and socioeconomic factors into account. Students will develop skills in implementing an intervention based on the family's strengths and challenges. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of MSW foundation coursework.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to students with a major in Social Work.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 678: Trauma and Recovery.** 3 credits.
Explores complex traumatic stress disorders, the process of recovery, and the etiology of healing in contemporary North American culture. Diagnostic criteria, assessment strategies and evidence-based treatment options for complex traumatic stress disorders across diverse populations including sexual trauma, war, early childhood trauma and natural disasters will be addressed. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of MSW foundation coursework.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to students with a major in Social Work.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 679: Military Social Work.** 3 credits.
Examines research and theory relevant for social work practice with service members, veterans, and their families. The course addresses the military as a workplace culture, evidence-based approaches for post-traumatic stress and co-morbid conditions, clinical practice with military families, preventive care and the service delivery system in military and civilian settings. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of MSW foundation coursework.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to students with a major in Social Work.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 682:** Substance Abuse Interventions. 3 credits. Develops knowledge and skills for direct practice in the field of addictions. The course covers the knowledge base regarding evidence-based interventions at all stages in the process of intervention with individuals, families, and groups that promote recovery from addiction to drug and alcohol abuse. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** Completion of MSW foundation coursework.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

- Enrollment is limited to students with a major in Social Work.

- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 684:** Social Work and the Law. 3 credits. Students engage in close analysis of judicial opinions to explore the role of the courts in creating public policy. Areas of inquiry include the role of social workers in the legal system, the nature of legal proceedings, and how the law shapes policy in relation to issues affecting children, youth, families, older adults, women, minorities, people in poverty, and other vulnerable populations. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 624, 652, 658, and 673.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

- Enrollment is limited to students with a major in Social Work.

- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 685:** Organizational Leadership for Social Workers. 3 credits. Examines functions and structure of human service organizations in context of service delivery. Development of theoretical knowledge, professional ethics, and skills in administration, leadership, management, organization, and supervision. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 624, 652, 658, 673.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

- Enrollment is limited to students with a major in Social Work.

- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 688:** Program Evaluation for Social Workers. 3 credits. Explores social work intervention research, needs assessment, formative and summative program evaluation, and cost analyses. Discusses applications of systematic inquiry at the practice, organizational, and policy levels. Addresses ethical, pragmatic, and political considerations; qualitative approaches; quality performance; evidence from empirical research; and evaluation design. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 624, 652, 658, 671, 673. Open to degree seeking students only.

**Registration Restrictions:**
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

- Enrollment is limited to students with a major in Social Work.

- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 689:** Clinical Practice with Older Adults. 3 credits. Examines age-associated changes and challenges faced by older adults. Focus is strengthening assessment and intervention skills with older adults, their family members and caregivers within the community and long-term care facilities, determining the best standardized instruments to use, and developing effective questions for assessment. Attention is given to the resilience of elders, ethical issues and diversity. Offered by Social Work (p. 271). May not be repeated for credit.
**Recommended Prerequisite:** SOCW 674 or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCW 692:** Specialist Field Practicum and Seminar I. 3 credits.
Students participate in a supervised clinical social work field practicum for 20 hours per week. The clinical field seminar accompanies the clinical concentration year practicum. The seminar is designed to assist the student in critically analyzing their field experiences in the application of mental health assessment, risk reduction and interventions working with individuals, families, groups, and communities. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 623, 624, 651, 652, 657, 658, 670, 671, 672, and 673.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCW 693:** Specialist Field Practicum and Seminar II. 3 credits.
Students participate in a supervised clinical social work field practicum for 20 hours per week. The clinical field seminar accompanies the clinical concentration year practicum. The seminar is designed to assist students in critically analyzing their field experiences in the application of mental health assessment, risk reduction and interventions working with individuals, families, groups, and communities. The seminar continues the fall semester's social work knowledge, values, and skills from across the curriculum. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 623, 624, 651, 652, 657, 658, 670, 671, 672, 673, 684, 685, 688, and 692.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCW 694:** Specialist Social Change Field Practicum and Seminar I. 3 credits.
Students participate in a supervised clinical social work field practicum for 20 hours per week. The clinical field seminar accompanies the concentration year practicum. The seminar is designed to assist students in processing their field experiences and analyzing their successes and challenges. Students are expected to apply social work knowledge, values, and skills from across the curriculum. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 623, 624, 651, 652, 657, 658, 670, 671, 672, and 673.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCW 695:** Specialist Social Change Field Practicum and Seminar II. 3 credits.
Students continue to work in a supervised social work field practicum for 20 hours per week. At the end of this semester students will have completed 300 hours of field work to meet the total number of 600 hours required for the concentration year practicum. The field seminar accompanies the concentration year practicum. The seminar is designed to assist students in processing their field experiences and analyzing their successes and challenges. Students are expected to apply social work knowledge, values, and skills from across the curriculum. Offered by Social Work (p. 271). May not be repeated for credit.

**Recommended Prerequisite:** SOCW 623, 624, 651, 652, 657, 658, 670, 671, 672, 673, 684, 685, 688, and 694.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Social Work.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCW 697:** Thesis Project Seminar. 3 credits.
Provides structured opportunity for students to work with each other and faculty in developing their final MSW thesis projects. Integrates and applies learning from all previous course work, emphasizing knowledge, skills, and values related to research, clinical practice, policy, community practice, and organizational leadership. Social work ethics, empowerment of populations at risk, and systems transformation will be explored. In addition to group meetings, students will meet individually with their faculty mentors. Offered by Social Work (p. 271). May not be repeated for credit.
**300 Level Courses**

**SOCI 300: Social Control and Freedom.** 3 credits.
Explores ways in which individuals are both architects and prisoners of society. Offers a foundational course for examining the "invisible" social forces that shape our lives and the individual and collective capacity to make choices, including social and cultural change. Includes topics such as youth and culture, deviance and crime, social inequalities, and global change. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 301: Criminology.** 3 credits.
Focuses on causes and meaning of crime, with emphasis on adults. Patterns of criminal behavior, including property crimes, violent crimes, organized crime, white-collar crime, and victimless crime. Critical assessment of criminal justice system as a response to crime. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 302: Sociology of Delinquency.** 3 credits.
Examines social factors involved in development of delinquency, including family, political economy, schooling, community environment and culture. Examines various theories of delinquency; rates of delinquency in relation to age, race, gender and social class; and legal system that addresses causes, consequences, and policies of punishment and rehabilitation. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 303: Methods and Logic of Inquiry.** 3 credits.
Actively engages students in original inquiry meaningful to themselves and their communities. Demonstrates the reciprocal relationship between theory and empirical research. Explores the complementarity of interpretive and explanatory logics, employing basic sociological methods. Guides students to formulate research problems; design research; gather and analyze evidence; and organize, frame, and revise arguments, culminating in a public presentation of their projects to the sociology faculty. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** SOCI 101, SOCI 102, or permission of instructor.

**Schedule Type:** Lecture

**SOCI 304: The Future of Work.** 3 credits.
Introduces the basic concepts of economic sociology. Explores how the world of work has changed due to globalization, deindustrialization, new technologies, and economic crisis. Focuses on providing students with a better understanding of how markets and corporations work, and about new economic approaches to create new, potentially less alienating work environments. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 307: Social Movements and Political Protest.** 3 credits.
Explores processes for organizing resistance to current social and power arrangements, from terrorism to nonviolent civil resistance to create alternative institutions, policies, or leadership that promote human rights and social justice. Uses historical and contemporary case studies of local...
and global change to explore, how, why, and to what effect individuals have organized to protest the status quo and create social change. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 308: Race and Ethnicity in a Changing World.** 3 credits.
Explores how race and ethnicity have been shaped by policies and practices in Western and non-Western societies. Explores the evolution of racial and ethnic attitudes from a global and historical perspective. Examines how changing demographic racial patterns may affect definitions of race and ethnicity and the ways in which people individually and collectively act to create new futures. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 309: Marriage, Families, and Intimate Life.** 3 credits.
Uses a sociological framework to analyze and understand the diverse forms of contemporary families—traditional marriages, cohabitation, domestic partnerships, single-parents families, stepfamilies, and gay and lesbian families. Explored are topics such as changes in sexual mores, reflected in new dating practices; shifting parenting roles; effects of social class, race and ethnicity; and the outcomes of divorce for couples and children. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 310: Sociology of Deviance.** 3 credits.
Analyzes macro- and microlevel deviance-producing processes, meaning and control of deviance, and major theoretical approaches to deviance. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 311: Classical Sociological Theory.** 3 credits.
Explores sociological tradition through readings and discussions of ideas drawn from writings of selected sociological thinkers such as Comte, Marx, Weber, Durkheim, and others. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** 6 credits of upper level (300 or 400 level) sociology courses, or permission of instructor.

**Schedule Type:** Lecture

**SOCI 312: Qualitative Research Methods.** 3 credits.
Introduces ethnography, field work methods, interviewing, life histories, and other qualitative methods to generate data about cultures in which various groups and classes are immersed. Students learn by applying qualitative methods to term projects, developed under guidance of instructor. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** 9 credits of Sociology including SOCI 101 or SOCI 102 or permission of instructor.

**Schedule Type:** Lecture

**SOCI 313: Statistics for the Behavioral Sciences.** 4 credits.
Fundamentals of applied statistics as used in behavioral science to include descriptive statistics, inferential statistics, correlation regression, analysis of variance, factor analysis, nonparametric statistics, and practical experience with calculators in applying statistical analysis to actual problems of the behavioral sciences. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Mason Core:** Quantitative Reasoning (p. 135)

**Recommended Prerequisite:** SOCI 101 or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**SOCI 314: Sociology of Culture.** 3 credits.
Examines how culture, encompassing high art or participatory culture, expressive agency or traditional constraint, is produced and reproduced in everyday social practices and across a wide range of social institutions. Explores the role of culture in public life and political discourse. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 315: Contemporary Gender Relations.** 3 credits.
Examines the meaning and significance of gender relations in the US and other societies around the globe. Examines the concepts and processes of privilege, power, and difference to understand how they shape the meaning and construction of feminine and masculine roles and identities and why gender difference (which conceptually does not imply inequality) translates into gender inequality. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit. Equivalent to WMST 301.

**Schedule Type:** Lecture

**SOCI 320: Social Structure and Globalization.** 3 credits.
While focusing on nature and process of change in human society, considers social impact of political, economic, and environmental change and how lives are shaped by complexities of global social forces. Examines specific global issues such as conflict and security; economic disparity; ecological deterioration; populations and migration; legitimation of commerce; diffusion of innovations; and impact of class, status, and power in modern societies. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Mason Core:** Global Understanding, Encore:Sustainability (p. 135)

**Specialized Designation:** Green Leaf Course

**Schedule Type:** Seminar

**SOCI 321: Sociology of Post-Socialism.** 3 credits.
Explores the end of socialism, and how the former Soviet Union and Eastern Europe, as well as the rest of the world, transformed since 1989. Examines art, music, criminality, oligarchs, workers, gender, commodification, nationalism, violence, the self, religion, public health, and the environment during socialism and afterwards. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Seminar

**SOCI 326: Conflict, Violence, and Peace.** 3 credits.
Explores the sociology of conflict, violence, and peace to examine these crucial issues from a scholarly viewpoint. Focuses on the causes and consequences of violence. Examines a wide variety of remedies from conventional deterrence and arms control strategies to alternative perspectives from nonviolent civil resistance to peacebuilding, international law, and restorative justice, as well as...
conflict transformation and resolution strategies. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Lecture

SOCI 330: US Immigrants and Immigration. 3 credits.
Explores theoretical, empirical, and policy-related issues pertaining to immigration. Examines case studies of immigrant communities and their adaptation patterns, paying particular attention to immigrants from Latin America, Asia, the Caribbean, and the Middle East. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Seminar

SOCI 332: The Urban World. 3 credits.
Examines cities and the people who live in them in the United States and around the world. Includes topics such as: social and economic development, inequality, political protests, urban democracy, and the environment. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

SOCI 340: Power, Politics, and Society. 3 credits.
Analyzes how power is defined, attained and sustained in society. Students analyze political power as related to social realities such as democratic elections, class conflict, elite networks, power sharing, protest, and revolution. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Lecture

SOCI 341: Sociology of Aging. 3 credits.
Examines aging from a sociological perspective. Topics include demographic trends and aging population in America, social construction of life stages and creation of “old age,” cultural labeling, and human resistance. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit. Equivalent to SOCI 441.

Schedule Type: Lecture

SOCI 352: Social Problems and Solutions. 3 credits.
Examines contemporary social problems and their solutions using sociological perspectives. Topics may include housing and homelessness, student debt, mass incarceration, hunger and food insecurity, environment and sustainability, human rights, wealth and global poverty, war and peace. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

SOCI 355: Social Inequality. 3 credits.
Studies class structures and implications for individuals and groups in modern society. Explores issues of race and ethnicity, language and immigration status, sex and gender, social class, age, and sexual orientation. Examines critically the theory and research that explore the construction, experience, and meaning of such differences. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

SOCI 360: Youth Culture and Youth Culture. 3 credits.
Introduces sociology of youth and youth culture. Investigates social, economic, and political realities of youth as a group and different groups of youth, including youth cultural production, formation of youth culture, and youth identities in variety of social settings. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Lecture

SOCI 373: The Community. 3 credits.
Examines small to moderate-size communities ranging through village, rural community, small town, and city subcommunity. Latter category includes city localities, ethnic villages, and suburban communities. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Lecture

SOCI 377: Art and Society. 3 credits.
Introduces the many ways in which art reflects social tendencies, comments on social problems, and contributes to discussions about a wide range of social issues. Students attend theatrical performances and visit exhibition spaces on campus, and learn to analyze what they experience through both aesthetic and sociological approaches. Explores contemporary issues such as debates about artistic freedom and public morality, commercialization of art, and relationship between cultural and social hierarchies. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Recommended Prerequisite: 3 credits of ARTH.

Schedule Type: Lecture

SOCI 382: Education in Contemporary Society. 3 credits.
Examines classrooms and schools as social institutions that function as socializing agents for both stability and societal change. Emphasizes the influence of inequality on educational processes and outcomes and critically examines the social organization of the U.S. public school system. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Lecture

SOCI 385: Sociology of Religion. 3 credits.
Studies places of religious consciousness in human action and institutional and organizational networks created to sustain religious beliefs. Emphasizes comparative and historical analysis of role religion has played in human society. Examines theories of nature of religious experience, religious symbolism, and basis of religious community. Explores changing demographics in relation to older traditional religious faits and newer nontraditional faits. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Lecture

SOCI 388: Violence and Religion. 3 credits.
Explores the relationship between religion and violence, especially warfare, cross-culturally and historically from a sociological, transdisciplinary, and global politics perspective. Examines the interface between politics and morality and the interface between national and transnational governance institutions (nations states, the UN, etc.) and
cultural and religious institutions, NGOs, and social movements. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Seminar

**SOCI 390:** Sociology of Health, Illness, and Disability. 3 credits.
Examines social context of health, illness, and disability; relationships of health care professionals and patients; and structure and delivery of health care in different medical systems. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Lecture

**SOCI 394:** Sociology of Human Rights. 3 credits.
Provides an overview of sociological, theoretical, and methodological approaches to understanding human rights. Examining connections between inequality, conflict, social justice, governance, and human rights, the course focuses on the contexts of meaning within which human rights are invoked and practiced as well as the role that non-state actors play in shaping the development and institutionalization of human rights. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Schedule Type:** Seminar

**SOCI 395:** Special Topics in Sociology. 3 credits.
Introduces the research interests of the faculty, offering new courses that reflect current issues not yet incorporated into the curriculum. Offers, in addition, advanced study into topics covered in the standing curriculum. Topics change by semester. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** 90 hours, including 12 hours of SOCI.

**Schedule Type:** Lecture

**SOCI 399:** Independent Study. 1-3 credits.
Individual study of sociological topic of interest to student. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** 6 hours of Sociology and approval of a written proposal.

**Schedule Type:** Independent Study

### 400 Level Courses

**SOCI 405:** Analysis of Social Data. 4 credits.
Overview of management and analysis of empirical social science data, including file construction, scaling and measurement, data transformation, and treatment of missing data. Emphasizes manipulation, management, and analysis of data sets using computers. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** 60 hours, SOCI 313, or Permission of Instructor.

**Schedule Type:** Laboratory, Lecture

**SOCI 410:** Social Surveys and Attitude and Opinion Measurements. 3 credits.
Surveys research methods and techniques to collect, measure, and analyze social data, attitudes, and opinions with special emphasis on using computer software, the Internet, and other information technologies for social research. Highlights ethical issues for social research, computing, and information technology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Mason Core:** Information Technology: Without Ethics (p. 135)

**Recommended Prerequisite:** SOCI 303 and 313, or equivalents, or Permission of Instructor.

**Schedule Type:** Lecture

**SOCI 412:** Contemporary Sociological Theory. 3 credits.
Presents for analysis and discussion the significant theorists and themes in contemporary sociological theory. Designed to enhance student's skills in reading and analyzing primary texts and to encourage reflection on contemporary social reality. Fulfills writing intensive requirement. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Writing Intensive in the Major

**Recommended Prerequisite:** SOCI 311 or permission of instructor.

**Schedule Type:** Lecture

**SOCI 416:** Internship in Sociology. 1-6 credits.
Intended to promote learning in application of sociological knowledge, and build skills in different work settings. Students work in approved settings as applied sociologists. Notes: Minimum 45 hours of work for each credit required. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Enrollment in or completion of SOCI 313 or permission of instructor.

**Schedule Type:** Internship

**SOCI 471:** Prevention and Deterrence of Crime. 3 credits.

**Recommended Prerequisite:** 60 hours, inservice status, or permission of instructor.

**Schedule Type:** Lecture

**SOCI 480:** Honors Seminar in Sociology I. 3 credits.
Develop research proposals and an appropriate bibliography for honors thesis under the guidance of a sociology faculty member. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Research Associated

**Recommended Prerequisite:** Admission to honors in the sociology major.

**Schedule Type:** Independent Study

**SOCI 481:** RS: Honors Seminar in Sociology II. 3 credits.
Pursue independent research and write honors thesis under the guidance of a faculty mentor. Present work in a colloquium at the end of the semester. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive
Recommended Prerequisite: Successful completion of SOCI 480.

Schedule Type: Independent Study

SOCI 483: The Sociology of Higher Education. 3 credits.
Exposes students to sociological theory and research on evolution of higher learning in United States. Explores social forces that have shaped the distinctively American approach toward higher education and have led to transformation of higher education in contemporary society. Particular attention to relation between universities and elites within surrounding society, linkage between education and industry, norms and values that are presupposed by educational institutions, and bearing of sports on values and traditions of higher education. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Schedule Type: Lecture

SOCI 485: RS: Sociological Analysis and Practice. 3 credits.
Provides an in-depth examination of historical and contemporary issues facing sociological scholars. Focuses on the philosophies, practices, and procedures used by individuals and organizations to answer sociological questions. Engages a variety of materials, experiences and resources to answer a specific research question. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Specialized Designation: Research/Scholarship Intensive

Recommended Prerequisite: SOCI 303.

Schedule Type: Seminar

SOCI 492: Sociology of Organizations. 3 credits.
Theories, analysis of types of organizations from informal voluntary associations to large complex ones. Explores nonprofit organizations and alternatives to bureaucracies, such as feminist collectives, cooperatives, self-help groups, and social movement organizations. Students do field work in organizations applying theories and concepts to observations. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Schedule Type: Lecture

Investigation of sociological problem according to individual interest, with emphasis on research. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 8 credits.

Recommended Prerequisite: 18 hours of SOCI including SOCI 303, 311, 313 and 412; a 3.0 GPA in SOCI; and a research proposal approved by instructor and department chair prior to enrollment.

Schedule Type: Independent Study

500 Level Courses
SOCI 516: Internship in Sociology. 1-6 credits.
Learning experience in the application of sociological knowledge and skills in different work settings. Students work in approved setting as applied sociologists. Notes: Minimum 45 hours of work for every 1 credit. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 21 hours of SOCI, including research methods, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

SOCI 599: Issues in Sociology. 1-3 credits.
Contemporary topics in sociology including sociological theory, crime and delinquency, advanced research methods, social and cultural change, urban sociology, medical sociology, sociology of aging, and rural sociology. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

600 Level Courses
SOCI 601: Proseminar in Public and Applied Sociology. 3 credits.
Core course devoted to the philosophical, historical, theoretical, and methodological dimensions of public and applied sociology within the United States. Traces the evolution of the field during the 20th century, from its inception in the Chicago school and the studies of W.E.B. DuBois to more recent formulations, as these bear on the interplay between social scientific knowledge and public decisions and debates. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit. Equivalent to SOCI 801.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

SOCI 602: Writing for the Social Sciences. 3 credits.
Develops strategies for successful social scientific writing, self-evaluation, and managing anxiety around the production of written work. Provides practice in different types of writing undertaken by social scientists including research reports, scholarly journal articles, and research proposals. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 605: Gender and Social Structure. 3 credits.
Reviews theories explaining the development and maintenance of gender. Using historical and comparative data, examines perceived, prescribed, and actual sex differentiation in social, political, and economic roles. Begins with gender as a social structure and then examines contemporary research as support or refutation for variety of theoretical paradigms. Includes discussion of gender in intimate relationship and the public sector. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

SOCI 607: Criminology. 3 credits.
Crime and crime causation. Topics include social basis of law, administration of justice, and control and prevention of crime. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 608: Juvenile Delinquency. 3 credits.
Sociology of adolescent behavior. Sociological factors that determine which behaviors and social categories of adolescents are likely to be labeled and treated as delinquent. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 610: Methods and Logic of Social Inquiry. 3 credits.
Emphasizes gathering, interpreting, and evaluating scientific evidence. Covers logic of scientific inquiry, including the application of various research designs and data collection methods. Develops critical-thinking skills by using set of rules and logical criteria for evaluation of social science research. Focuses both on how results are obtained and disseminated via research reports. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: Undergraduate statistics and research methodology, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 611: Sociology of Conflict. 3 credits.
Deals with sociology of conflict. Presents major sociological theories of conflict such as those of Marx, Weber, Simmel, Dahrendorf, Coser, and Collins. Stresses role that sociological conflict theory plays in undergirding conflict management practices. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: Graduate standing in sociology or conflict analysis and resolution, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 613: Racial and Ethnic Relations: American and Selected Global Perspectives. 3 credits.
Covers demographic purview of U.S. and other global racial and ethnic groups and racial and ethnic groups as human-social-minority and dominant groups. Explores factors contributing to dominant and minority status and means of altering dominant groups assessment of minority
group status. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 624: International Migration in the Age of Globalization. 3 credits.
Focuses on theoretical, methodological, and policy-related issues on international migration from a sociological perspective. Explores case studies of immigrant communities and their adaptation patterns, paying particular attention to immigrants from Latin America, Asia, and the Caribbean. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Schedule Type: Seminar

SOCI 631: Survey Research. 3 credits.
Introduces theory, method, and practice of survey research design and analysis. Students complete survey research project. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: SOCI 530 and 531, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 632: Evaluation Research for Social Programs. 3 credits.
Studies methodological issues related to evaluation of social programs. Explores conceptual and research design issues in relation to social programs, particularly delivery of social services. Includes examination of methods used to assess need for programs, impact of delivery systems, and efficiency and effectiveness of social programs. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Recommended Prerequisite: SOCI 530 and 531, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 633: Special Topics in Sociology. 3 credits.
Specialized inquiry of topics of contemporary sociological research and scholarship. Content varies. Notes: May be repeated for credit when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the term for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Seminar

SOCI 634: Qualitative Research Methods. 3 credits.
Examines basic research methods involving observational techniques and procedures used in description and analysis of patterns, configurations, ethnics, structures, functions, and styles typical of whole societies and cultures. Emphasizes case studies, unobtrusive methods, participant observation, longterm residence, choices of observer status role, recording data, uses of technical equipment, key informants, interviewing techniques, and ethical considerations in employing such methods and procedures. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 635: Environment and Society. 3 credits.
Overview of human ecology and environmental sociology, emphasizing selected topics. Focuses on theory, since theory makes it possible to generalize from understandings derived in an analysis of a particular problem and apply them to other problems. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SOCI 636: Statistical Reasoning. 3 credits.
Intermediate treatment of quantitative analytic techniques used in sociology. Topics include sampling, inference, hypothesis testing,
Sociology & Anthropology (p. 482). May not be repeated for credit.

**SOCI 655: Ethnography.** 3 credits.
Introduces ethnography in sociology to graduate students. Teaches techniques for collecting, analyzing and writing-up ethnographic materials. Considers some of the central methodological issues relevant to doing ethnography. Explores some of the critical ethical and political questions that arise within ethnographic research practice. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate statistics and research methodology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCI 641: Micro Sociology: Inequality and Everyday Life.** 3 credits.
Analyze the relationship between everyday life and social inequalities, with a particular focus on examining theoretically and empirically the relationship between governing structures of society and the structure of situational and interactional terrains as it plays out in the lives of everyday people. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCI 660: Historical and Comparative Sociology.** 3 credits.
Seminar in theory and methods of historical and comparative sociology, primarily for students with background in sociological theory and methods. Examines basic approaches and research data of history and sociology, surveys development of field, and analyzes exemplary studies. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit. Equivalent to SOCI 860.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCI 670: New Media and Social Inequality.** 3 credits.
Examines the internet and other new technologies from a sociological perspective. Focuses on how technologies mitigate or exacerbate-transform or reproduce-existing and new forms of inequality. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCI 686: Sociology of Aging.** 3 credits.
Analyzes sociological issues in aging, including class and cultural factors, problems of work, retirement, attachment and loss, and ageism. Examines different theories of aging. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCI 690: Regression Analysis.** 3 credits.
Focus on how results are obtained and disseminated via research reports. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate statistics and research methodology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCI 656: Sociology of Aging.** 3 credits.
Examines the relationship between everyday life and social inequalities, with a particular focus on examining theoretically and empirically the relationship between governing structures of society and the structure of situational and interactional terrains as it plays out in the lives of everyday people. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate statistics and research methodology, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCI 660: Historical and Comparative Sociology.** 3 credits.
Seminar in theory and methods of historical and comparative sociology, primarily for students with background in sociological theory and methods. Examines basic approaches and research data of history and sociology, surveys development of field, and analyzes exemplary studies. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit. Equivalent to SOCI 860.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCI 670: New Media and Social Inequality.** 3 credits.
Examines the internet and other new technologies from a sociological perspective. Focuses on how technologies mitigate or exacerbate-transform or reproduce-existing and new forms of inequality. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

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Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SOCI 686: Sociology of Aging.** 3 credits.
Analyzes sociological issues in aging, including class and cultural factors, problems of work, retirement, attachment and loss, and ageism. Examines different theories of aging. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SOCI 690: Regression Analysis.** 3 credits.
Focus on how results are obtained and disseminated via research reports. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.


**SOCI 696: Independent Study.** 1-3 credits.
Theoretical and research literature chosen by student and instructor. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**SOCI 697: Independent Study.** 1-3 credits.
Theoretical and research literature chosen by student and instructor. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**700 Level Courses**

**SOCI 711: Classical Sociological Theory.** 3 credits.
In-depth examination of major issues in classical (pre-1930) sociological theory. Analyzes Durkheim, Marx, Weber, Mead, and others, and emphasizes social and intellectual context of their theories. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Sociology.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SOCI 712: Contemporary Sociological Theory.** 3 credits.
Examines schools in contemporary sociological theory such as structural-functionalism, conflict, exchange, symbolic interactionism, ethnomethodology, humanist sociology, and critical theory. Analyzes contemporary theorists in relation to schools. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Sociology.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SOCI 730: Analytic Techniques of Social Research.** 3 credits.
Introduces multiple regression and causal analysis to sociological researchers, with a focus on obtaining and disseminating results. Moves from linear regression to the general linear model with several variables, its extensions, assumptions, and regression diagnostics. Examines the use of dummy variable and the analysis of interaction effects. Considers systems of equations and nonlinear outcomes. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate statistics and research methodology, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**800 Level Courses**

**SOCI 803: Institutions and Inequality.** 3 credits.
Analyzes the interrelations between social inequalities and institutional structures, including markets, the press, prisons, mental institutions, cultural organizations, and corporations. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Seminar

**SOCI 804: Sociology of Globalization.** 3 credits.
Addresses the social, political, cultural, and economic process of globalization. Explores the limits on globalization during the precapitalist era, the relation between empire and the internal structure of imperialist societies, theoretical debates over the contemporary world system, the relation between cities and globalization, and the link between globalization and social inequality within both developed and developing societies. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.
SOCI 833: Special Topics in Sociology. 3 credits.
Specialized inquiry of topics of contemporary sociological research and scholarship. Content varies. Notes: May be repeated for credit when topic is different. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Have completed either 6 credits of coursework at the 600 level or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

SOCI 840: Work Organizations and Social Inequality. 3 credits.
Examines the social, organizational, and cultural processes that account for the differential distribution of job rewards along class, gender, and racial and ethnic lines. Topics include the historical evolution of the management worker relationship, job segregation by race and gender, the effect of new technologies on social inequality, the relation between gender and professional careers, the efficacy of governmental efforts to ensure equal opportunity, and the effect of organizational change on racial and gender inequalities at work. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Lecture

SOCI 844: Youth, Schooling, and Popular Culture. 3 credits.
Uses sociological perspectives to understand the various ways in which popular youth culture, schooling processes, and consumer culture intersect in contemporary American cultural life. Examines the social, economic, and political realities of youth as a group and the formation of distinct youth cultures within and outside formal school settings, including schooling and commodity culture, how markets promote and hinder particular educational ideologies, and how corner markets operate as spaces of cultural learning. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

SOCI 845: Society and Education. 3 credits.
Exposes students to the major theories, debates, and findings within the sociology of education, emphasizing the reciprocal influences of schooling and social inequalities within contemporary societies. Emphasis on the historical evolution of public schooling in the United States, the complex relation between schooling and economic institutions, class differences in educational opportunity, and the politics of educational reform. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

SOCI 850: Sociology of Development. 3 credits.
Analyzes socioeconomic and political change, focusing on the poor countries of Asia, Africa, and Latin America. Offers a basic descriptive understanding of processes of change in these countries and an introduction to major theoretical perspectives on development and globalization, from classical theories of comparative advantage to theories of imperialism, modernization, dependency, and globalization. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

SOCI 851: Globalization and Social Movements. 3 credits.
Analyzes current issues in the study of social movements, with an emphasis on the ways in which globalization shapes and in turn is shaped by social movements. Emphasis is placed on the relations among the strategies, identities, and organizations bound up with transnational social movements and the relation between the dynamics of global political and economic developments and protest movements in core and peripheral societies. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

SOCI 853: Cities in a Global Society. 3 credits.
Examines the scholarly literature on cities and globalization with a focus on the impact of globalization on urban environments and the effects of urbanization on the processes of globalization. Emphasis on the ways in which globalization restructures urban life in the core and periphery of the world economy with attention paid to the effects of spatial dispersion on the character of economic institutions within the advanced societies, the shifting nature of crime and security, immigration, and the cities of the Global South. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

SOCI 857: Sociology of Human Rights. 3 credits.
Examines the connections among inequality, conflict, social justice, and human rights in an age of globalization. Drawing from case studies from around the world, course examines institutional and structural violence and inequality as they relate to state, corporate, and military power; international law and order; welfare and social policy; global justice; regionalism, multilateralism, and transnationalism; environmental protection; gender inequality; ethnic conflict; resource wars; and national security policy before and after September 11, 2001. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Schedule Type: Seminar

SOCI 860: Historical and Comparative Sociology. 3 credits.
Seminar in theory and methods of historical and comparative sociology, primarily for students with background in sociological theory and methods. Examines basic approaches and research data of history and sociology, surveys development of field, and analyzes exemplary studies.
Sociology and Anthropology (SOAN)

500 Level Courses

SOAN 510: Culture and Globalization. 3 credits.  
Provides continuing exposure to the range of disciplinary perspectives necessary for understanding crucial issues in the global arena. Through case examples, focuses on the intersections of culture and globalization. Analyzes existing data and assesses alternative policy and program approaches, and illuminates interactions between globalization and culture. Offered by Sociology & Anthropology (p. 482). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

SOAN 670: Directed Readings Sociology. 3 credits.  
Intensive reading course to develop comprehensive understanding of specific field in sociology as agreed on with advisor. Notes: Content varies. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree.

Recommended Prerequisite: 6 credits of 600 level SOCI courses

Registration Restrictions:
Enrollment limited to Graduate level students.

Schedule Type: Independent Study

SOAN 880: Independent Study in Sociology. 3 credits.  
Reading and research on selected topic, resulting in a written project as agreed on with supervising faculty. Notes: Content varies. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree.

Recommended Prerequisite: 6 credits of 600 level SOCI courses

Registration Restrictions:
Enrollment limited to Graduate level students.

Schedule Type: Independent Study

900 Level Courses

SOCI 998: Doctoral Dissertation Proposal. 1-9 credits.  
Work on research proposal for doctoral dissertation. Notes: A maximum of 9 credits of 998 may be applied to the degree. Students may enroll in 998 in their final year of coursework while preparing for comprehensive exams. Contact department for approval and CRN to register. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree.

Recommended Prerequisite: Completion of all but final year of coursework and permission of graduate director.

Registration Restrictions:
Enrollment limited to Graduate level students.

Schedule Type: Dissertation

SOCI 999: Doctoral Dissertation. 1-12 credits.  
Doctoral dissertation research and writing on approved dissertation topic under direction of committee. Notes: Maximum of 12 credits may be applied toward degree. Offered by Sociology & Anthropology (p. 482). May be repeated within the degree.

Recommended Prerequisite: Successful completion of SOCI 998.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy. Enrollment is limited to Graduate level students.

Schedule Type: Dissertation

Software Engineering (SWE)

200 Level Courses

SWE 205: Software Usability Analysis and Design. 3 credits.  
Principles of user interface design. Concepts for objectively and quantitatively assessing the usability of software user interfaces. Outcomes include knowledge of quantitative engineering principles for designing usable software interfaces and an understanding that usability is more important than efficiency for almost all modern software projects, and often the primary factor that leads to product success. Major topics include cognitive models for human perceptions and needs, which are used as a basis for analytical and critical thinking about user interfaces; specific engineering principles for designing usable menus, forms, command languages, web sites, graphical user interfaces and web-based user interfaces. Assessments will include written analytical
evaluations of existing user interfaces, exams, and HTML-based design projects. Offered by Computer Science (p. 983). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisite:** ENGH 101

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**300 Level Courses**

**SWE 301: Internship Preparation.** 0 credits.
Preparation for Internship Educational Experience. Intended for, but not limited to, students planning internships in the Applied Computer Science Software Engineering Program. Internship employment opportunities. Basic interview skills. Techniques for applying academic knowledge to practical software development. Techniques for extracting knowledge from practical experience. Peer presentation from students who have completed internships. Offered by Computer Science (p. 983). Limited to two attempts.

**Recommended Prerequisite:** Limited to ACS or CS majors with junior standing or permission of instructor.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

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**SWE 321: Software Engineering.** 3 credits.
An introduction to concepts, methods, and tools for the creation of large-scale software systems. Methods, tools, notations, and validation techniques to analyze, specify, prototype, and maintain software requirements. Introduction to object-oriented requirements modeling, including use of case modeling, static modeling, and dynamic modeling using the Unified Modeling Language (UML) notation. Concepts and methods for the design of large-scale software systems. Fundamental design concepts and design notations are introduced. A study of object-oriented analysis and design modeling using the UML notation. Students participate in a project group on software requirements, specification, and object-oriented software design. Offered by Computer Science (p. 983). Limited to two attempts. Equivalent to CS 321.

**Registration Restrictions:**
**Required Prerequisites:** ((ENGH 302C) or ((HNRS 110C) and (HNRS 122C, 130C, 131C, 230C or 240C)) and (CS 310C)).

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**SWE 432: Design and Implementation of Software for the Web.** 3 credits.
Teaches how to develop software for web applications. Covers client-server computing, theories of usable graphical user interfaces, and models for web-based information retrieval and processing. Goals are to understand how to design usable software interfaces and implement them on web, learn how to build software that accepts information from users across web and returns data to user, and understand how to interact with database engines to store and retrieve information. Specific topics are HTML, CGI programming, Java, Java applets, Javascripts, and Java servlets. Offered by Computer Science (p. 983). Limited to two attempts.

**Registration Restrictions:**
**Required Prerequisites:** (MATH 125C) and (CS 310C).

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**400 Level Courses**

**SWE 401: Internship Reflection.** 1 credit.
Reflection on Internship Educational Experience. Intended for, but not limited to, students completing internships in the Applied Computer Science Software Engineering Program. Analysis of techniques for applying academic knowledge to practical software development. Analysis of techniques for extracting knowledge from practical experience. Student presentations summarizing internships relating them to academic program goals. Offered by Computer Science (p. 983). Limited to two attempts.

**Recommended Prerequisite:** Completion of internship.

**Registration Restrictions:**
Students with the terminated from VSE major attribute may not enroll.

**Schedule Type:** Lecture

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Students with the terminated from VSE major attribute may not enroll.
software changes. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (MATH 125\textsuperscript{C} and CS 310\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SWE 443: Software Architectures. 3 credits.
Teaches how to design, understand, and evaluate software systems at an architectural level of abstraction. By end of course, students will be able to recognize major architectural styles in existing software systems, describe a system’s architecture accurately, generate architectural alternatives to address a problem and choose from among them, design a medium-size software system that satisfies a specification of requirements, use existing tools to expedite software design, and evaluate the suitability of a given architecture in meeting a set of system requirements. Offered by Computer Science (p. 983). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: CS 321\textsuperscript{C}, 421\textsuperscript{C}, SWE 321\textsuperscript{C} or 421\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

500 Level Courses

SWE 510: Object-Oriented Programming in Java. 3 credits.
Introduces students to programming in the Java language. Topics include problem-solving methods and algorithm development, program structures, abstract data types, simple data and file structures and program development in a modular, object-oriented manner. Introductory use of OO language features, including data hiding, inheritance, polymorphism, and exception handling. Goals include design and development of Java classes and class type hierarchies. An introduction to Java servlets and applets is included. Emphasis on program development is reinforced through several programming projects. Notes: Credit cannot be applied to a graduate degree in the Volgenau School or the BS degree in computer science. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: Undergraduate courses or equivalent knowledge in programming in a high-level language.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses

SWE 619: Object-Oriented Software Specification and Construction. 3 credits.
In-depth study of software construction using modern, object-oriented language with support for graphical user interfaces and complex data structures. Specifications, design patterns, and abstraction techniques, including procedural, data, iteration, type, and polymorphic. Information hiding, classes, objects, and inheritance. Exception handling, event-based systems, and concurrency. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: SWE foundation courses or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SWE 620: Software Requirements Analysis and Specification. 3 credits.
In-depth study of object-oriented requirements modeling, including use case modeling, static modeling and dynamic modeling with Unified Modeling Language (UML) notation. Students participate in group project on software requirements and specification using modern method. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: SWE foundation courses or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SWE 621: Software Modeling and Architectural Design. 3 credits.
Concepts and methods for the architectural design of large-scale software systems are presented. Fundamental design concepts and design notations are introduced. Concepts of requirements analysis and specification are taught. Several design methods are presented and compared. In-depth study of object-oriented analysis and design modeling using the Unified Modeling Language (UML) notation. Students participate in a group project on software requirements, analysis, and design modeling. Offered by Computer Science (p. 983). May not be repeated for credit.

Recommended Prerequisite: SWE foundation courses or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 622: Distributed Software Engineering.** 3 credits.
Hands-on introduction to techniques and programming interfaces for distributed software engineering. Networking protocols at several layers. Construction of distributed and concurrent software using network protocol services. Applications of Internet and web-based software. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE foundation courses or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 625: Software Project Management.** 3 credits.
Lifecycle and process models; process metrics; planning for a software project; mechanisms for monitoring and controlling schedule, budget, quality, and productivity; and leadership, motivation, and team building. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE foundation courses or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 626: Software Project Laboratory.** 3 credits.
Covers requirements analysis, design, implementation, and management of software development project. Students work in teams to develop or modify software product, applying sound principles of software engineering. Uses both industrial and academic standards to assess quality of work products. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE 619,620, and 621; or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 631: Software Design Patterns.** 3 credits.

**Recommended Prerequisite:** SWE 621.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 632: User Interface Design and Development.** 3 credits.
Principles of user interface design, development, and programming. Includes user psychology and cognitive science, menu system design, command language design, icon and window design, graphical user interfaces, web-based user interfaces. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE 619, or CS 540 and 571, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 637: Software Testing.** 3 credits.
Students learn to test software effectively. Programmers learn practical ways to design high quality tests during all phases of software development. Students learn the theory behind criteria-based test design and to apply that theory in practice. Topics include test design, test automation, test coverage criteria, and how to test software in cutting-edge software development environments. Offered by Computer Science (p. 983). May not be repeated for credit.
**Recommended Prerequisite**: SWE 619, or permission of instructor.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**SWE 642: Software Engineering for the World Wide Web.** 3 credits.

Detailed study of engineering methods and technologies for building highly interactive web sites for e-commerce and other web-based applications. Presents engineering principles for building web sites that exhibit high reliability, usability, security, availability, scalability, and maintainability. Teaches methods such as client/server programming, component-based software development, middleware, and reusable components. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite**: SWE 619 or CS 540 and CS 571, or permission of instructor.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**SWE 645: Component-Based Software Development.** 3 credits.

Introduces concepts and foundations of software component and component-based software. Detailed study of engineering principles of modeling, designing, implementing, testing, and deploying component-based software. Also explores state-of-the-art component technologies. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite**: SWE 619 or CS 540 and CS 571, or permission of instructor.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**SWE 681: Secure Software Design and Programming.** 3 credits.

Theory and practice of software security, focusing in particular on some common software security risks, including buffer overflows, race conditions and random number generation, and on identification of potential threats and vulnerabilities early in design cycle. Emphasizes methodologies and tools for identifying and eliminating security vulnerabilities, techniques to prove absence of vulnerabilities, ways to avoid security holes in new software, and essential guidelines for building secure software: how to design software with security in mind from the ground up and integrate analysis and risk management throughout the software life cycle. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to ISA 681, SWE 781.

**Recommended Prerequisite**: SWE 619.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**SWE 699: Special Topics in Software Engineering.** 3 credits.

Special topics not occurring in regular SWE sequence. Notes: May be repeated for credit when semester topic is different. Offered by Computer Science (p. 983). May be repeated within the term.

**Registration Restrictions**: Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

**SWE 721: Reusable Software Architectures.** 3 credits.

Investigates software concepts that promote reuse of software architectures. Studies influence of object technology on software design and reuse. Investigates domain modeling methods, which model the application domain as a software product family from which target systems can be configured. Covers reusable software patterns including architecture patterns and design patterns, software components, and object-oriented frameworks. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite**: SWE 621.

**Registration Restrictions**: Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type**: Lecture

**700 Level Courses**

**SWE 862: Secure Software Design and Programming.** 3 credits.

Theory and practice of software security, focusing in particular on some common software security risks, including buffer overflows, race conditions and random number generation, and on identification of potential threats and vulnerabilities early in design cycle. Emphasizes methodologies and tools for identifying and eliminating security vulnerabilities, techniques to prove absence of vulnerabilities, ways to avoid security holes in new software, and essential guidelines for building secure software: how to design software with security in mind from the ground up and integrate analysis and risk management throughout the software life cycle. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to ISA 681, SWE 781.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 722: Service Oriented Architecture.** 3 credits.
This course covers the state-of-the-art approaches to building dependable Service-Oriented Architecture (SOA) software systems. A variety of relevant topics are covered, including SOA design principles, implementation platforms and standards, quality of service contracts, runtime management of service providers, and coordination and composition of services. The course includes a final project to exercise the concepts covered in class. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE 622 or instructor's permission.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 724: Program Analysis for Software Testing.** 3 credits.
Different methods for analyzing software, primarily for purpose of testing. Analysis techniques, algorithms, tools, and applications. Goals are to explore current research issues, learn how to build analysis tools, and understand how these techniques can be applied to software-related activities such as maintenance, reuse and optimization. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to SWE 824.

**Recommended Prerequisite:** A compiler class (e.g. CS 540) OR a testing class (e.g. SWE 637) or permission of the instructor.

**Schedule Type:** Lecture

**SWE 727: Quality of Service for Software Architectures.** 3 credits.
Builds on acquired skills for modeling architectures, and focuses on the relationship between architectural patterns and qualities of service (QoS). By the end of the course, students will be able to elicit the QoS preferences of stakeholder; recognize major architectural styles and the QoS tradeoffs that each presents; design for and reconcile competing QoS requirements; and evaluate a given architecture with respect to a set of QoS requirements. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE 621 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 737: Advanced Software Testing.** 3 credits.
Cutting edge concepts and techniques in software testing. An in-depth study of existing approaches to testing software as well as development of new approaches. Applications of existing concepts and techniques to new technologies. Advanced MS students learn in-depth knowledge for how to apply testing in difficult and challenging real-world scenarios. PhD students learn current research trends, both theoretical and practical. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE 637.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 760: Software Analysis and Design of Real-Time Systems.** 3 credits.
Background for students who want to conduct research in software engineering of real-time systems. Provides understanding of key real-time software system analysis, design concepts and methods, and how they are used in developing large-scale, real-time software systems. Also explores potential impact of emerging technologies. Includes term project in design and analysis of complex, real-time software system. Offered by Computer Science (p. 983). May not be repeated for credit. Equivalent to SWE 860.

**Recommended Prerequisite:** SWE 621.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 763: Software Engineering Experimentation.** 3 credits.
Detailed study of scientific process, particularly using experimental method. Examines how empirical studies are carried out in software engineering. Reviews distinction between analytical techniques and empirical techniques. Other topics include experimentation required in software engineering, problems that can be solved using experimentation, methods used to control variables and eliminate bias in experimentation, and analysis and presentation of empirical data for decision making. Offered by Computer Science (p. 983). May not be repeated for credit.

**Recommended Prerequisite:** SWE 621, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SWE 795: Advanced Topics in Software Engineering.** 3 credits.
Advanced topics not occurring in existing courses. Topics normally assume knowledge in one or more existing MS SWE courses. Notes: Repeatable within degree for credit when subject differs. Offered by
Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** 12 credits applicable toward MS.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SWE 796:** Directed Readings in Software Engineering. 3 credits.
Analysis and investigation of contemporary problem in software engineering. Requires prior approval by faculty member who supervises student's work. Written report also required. Offered by Computer Science (p. 983). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Research

**SWE 821:** Software Engineering Seminar. 3 credits.
Study of application of software engineering principles, design methods, and support tools through real-life problems extracted from faculty and industry projects. Notes: May be repeated with change in topic. Offered by Computer Science (p. 983). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** SWE 621

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

**Spanish (SPAN)**

**100 Level Courses**

**SPAN 101:** Elementary Spanish I. 3 credits.
For students with no knowledge of Spanish. Introduction to Spanish, including elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Lab work required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 110.

**Schedule Type:** Lecture

**SPAN 102:** Elementary Spanish II. 3 credits.
Continuation of SPAN 101. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 110, SPAN 115.

**Recommended Prerequisite:** SPAN 101, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture
SPAN 110: *Elementary Spanish*. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 101, SPAN 102, SPAN 105, SPAN 109, SPAN 115.

**Schedule Type:** Lecture

Reviews elements for students who have studied Spanish previously. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 102, SPAN 109, SPAN 110.

**Recommended Prerequisite:** Appropriate placement score, or permission of department.

**Schedule Type:** Lecture

### 200 Level Courses

**SPAN 201:** *Intermediate Spanish I*. 3 credits.
Further development of skills in listening, speaking, reading, and writing. SPAN 201 and 202 must be taken in sequence. Lab work required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 210.

**Recommended Prerequisite:** SPAN 102, 110, appropriate placement score or permission of department.

**Schedule Type:** Lecture

**SPAN 202:** *Intermediate Spanish II*. 3 credits.
Application of skills to reading, composition, and discussion. Lab work required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 210.

**Recommended Prerequisite:** SPAN 201, appropriate placement score or permission of department.

**Schedule Type:** Lecture

**SPAN 210:** *Intermediate Spanish*. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Spanish-speaking regions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 201, SPAN 202, SPAN 209.

**Recommended Prerequisite:** SPAN 102, 110, 115 appropriate placement score, or permission of department.

**Schedule Type:** Lecture

**SPAN 250:** *Gateway to Advanced Spanish*. 3 credits.
Integration of advanced intermediate-level Spanish reading, writing, listening, and speaking skills, as well as the development of critical thinking about authentic texts from around the globe. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 210, appropriate placement score, or permission of department.

**Schedule Type:** Lecture

### 300 Level Courses

**SPAN 301:** *Grammar and Syntax*. 3 credits.
In-depth review of Spanish grammar and syntax. Extensive practice in controlled and free writing with emphasis on fundamental difficulties and points of interference that exist between English and Spanish. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 202, 250, appropriate placement score, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 305:** *Spanish in Context I*. 3 credits.
Integrated content-based approach to the study of Spanish, designed to promote oral and written abilities, as well as critical understanding of Latin American, Latino, and/or Spanish histories and cultures. Includes vocabulary-building activities, grammar review and practice, assigned readings in a variety of genres, critical cultural analysis, in-class discussions, written essays, and the viewing of films. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 309, SPAN 315.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 250, or equivalent, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 306:** *Spanish in Context II*. 3 credits.
Continuation of SPAN 305. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 309, SPAN 315.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 305, or equivalent, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 309:** *Intensive Spanish in Context*. 6 credits.
Intensive content-based approach to the study of Spanish, designed to promote oral and written abilities, as well as critical understanding of Latin American, Latino, and/or Spanish histories and cultures. Includes vocabulary-building activities, grammar review and practice, assigned readings in a variety of genres, critical cultural analysis, in-class discussions, written essays, and the viewing of films. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 305, SPAN 306, SPAN 315.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 250, or equivalent, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 315:** *Spanish for Heritage Speakers*. 3 credits.
Designed for students who have some communicative ability in Spanish, normally acquired in the home, who want to improve their reading and writing abilities while developing a critical understanding of Latin American, Latino, and/or Spanish histories and cultures. Course components include orthography and vocabulary activities, grammar
review and practice, assigned readings in a variety of genres, critical
cultural analysis, in-class discussions, written essays, and the viewing
of films. Offered by Modern & Classical Languages (p. 414). May not be
repeated for credit. Equivalent to SPAN 305, SPAN 306, SPAN 309.

**Recommended Prerequisite:** Appropriate placement score or permission
of instructor.

**Schedule Type:** Lecture

**SPAN 321: Introduction to Spanish Culture.** 3 credits.
History, culture, economic and social development, and scientific and
artistic achievements that have contributed to the formation of modern
Spain. Offered by Modern & Classical Languages (p. 414). May not be
repeated for credit. Equivalent to SPAN 461.

**Specialized Designation:** Taught in English

**Recommended Prerequisite:** ENGL 101 or Permission of Instructor.

**Schedule Type:** Lecture

**SPAN 322: Introduction to Latin American Culture.** 3 credits.
History, culture, economic and social development, and scientific and
artistic achievements that have contributed to the formation of modern
Latin America. Offered by Modern & Classical Languages (p. 414). May not be
repeated for credit. Equivalent to SPAN 466.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Taught in English

**Recommended Prerequisite:** ENGL 101/ENGH 101 or permission of
instructor.

**Schedule Type:** Lecture

**SPAN 323: Field Study in Hispanic Culture.** 1-3 credits.
History, culture, economic and social development, and scientific and
artistic achievements that have contributed to the formation of modern
Spain. Offered by Modern & Classical Languages (p. 414). May not be
repeated for credit.

**Recommended Prerequisite:** 60 hours or Permission of Instructor.

**Schedule Type:** Lecture

**SPAN 324: Study Abroad in Spanish.** 3 credits.
Study at an academic institution in a Spanish-speaking country including
classroom studies with professors from the host country and field
experiences. Offered by Modern & Classical Languages (p. 414). May not be
repeated for credit.

**Recommended Prerequisite:** SPAN 250 (or equivalent) or permission of
instructor

**Schedule Type:** Lecture

**SPAN 325: Major Hispanic Writers.** 3 credits.
Study of the works of major Hispanic writers in translation. Writers
studied vary. Notes: May be repeated for credit when topic is different.
Offered by Modern & Classical Languages (p. 414). May be repeated
within the term for a maximum 6 credits.

**Mason Core:** Literature (p. 135)

**Specialized Designation:** Taught in English

**Recommended Prerequisite:** ENGH 101 or equivalent.

**Schedule Type:** Lecture

**SPAN 326: Treasures of Spanish American Literature.** 3 credits.
Introduction to the major themes, trends, and cultural context of Latin
American literature. Writers studied vary. Notes: May be repeated for
credit when topic is different. Offered by Modern & Classical Languages
(p. 414). May be repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** Advanced oral and written proficiency in
Spanish, to be determined by the instructor.

**Schedule Type:** Lecture

**SPAN 329: Special Topics in Spanish and Latin American Literature.** 3
credits.
Study of selected topics in Spanish or Latin American literature. Writers
and topics vary. Notes: Designed for students who are not pursuing
a concentration in Spanish. May be repeated when topic is different.
Offered by Modern & Classical Languages (p. 414). May be repeated
within the term for a maximum 6 credits.

**Specialized Designation:** Taught in English

**Recommended Prerequisite:** ENGH 101 or permission of instructor.

**Schedule Type:** Lecture

**SPAN 335: Topics for Proficiency: The Americas.** 3 credits.
Integrated content-based approach to conversational Spanish. Designed
to promote increased confidence and fluency in both formal and informal
Spanish registers, as well as critical understanding of Latin American
and/or Latino histories and cultures. Current events, films, literary texts,
and popular culture reflecting issues of Latin Americans and/or Latinos
serve as catalysts for class discussions, oral presentations, and debates.
Notes: May be repeated for credit when topic is different. Offered by
Modern & Classical Languages (p. 414). May be repeated within the
degree for a maximum 6 credits.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 250 (or equivalent) or permission of
instructor

**Schedule Type:** Lecture

**SPAN 336: Topics for Proficiency: Spain.** 3 credits.
Integrated content-based approach to conversational Spanish. Designed
to promote increased confidence and fluency in both formal and informal
Spanish registers, as well as critical understanding of Spanish history
and culture. Current events, films, literary texts and popular culture
reflecting Spanish issues serve as catalysts for class discussions, oral
presentations and debates. Notes: May be repeated for credit when topic is
different. Offered by Modern & Classical Languages (p. 414). May be
repeated within the degree for a maximum 6 credits.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 250 (or equivalent) or permission of
instructor
Schedule Type: Lecture

SPAN 351: Oral Spanish. 3 credits.
Development of oral expression on topics of current interest and everyday situations, including written assignments. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Spanish

Recommended Prerequisite: SPAN 250 or equivalent; appropriate placement score; or permission of instructor

Schedule Type: Lecture

SPAN 370: Spanish Writing and Stylistics. 3 credits.
Improves writing skills by covering formal and stylistic concepts of the Spanish language. Includes practice and exposure to different textual genres in an interdisciplinary fashion. Includes common doubts concerning spelling, expression, and style; business Spanish; journalistic Spanish; academic Spanish; and creative writing. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Spanish, Writing Intensive in the Major

Recommended Prerequisite: SPAN 306 or 309, or SPAN 315, or permission of instructor.

Schedule Type: Lecture

SPAN 375: Introduction to Spanish-Language Cinema. 3 credits.
Introduces the study of film as an art form and the academic discipline of film studies as they relate to the Spanish-speaking world. Focuses on students’ acquisition of knowledge on the material and principles of film form and their practice in film analysis of discrete Spanish language films and film genres of significance within the 20th and 21st centuries. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Spanish

Recommended Prerequisite: SPAN 305 and SPAN 306 or SPAN 309 or SPAN 315.

Recommended Corequisite: SPAN 370, SPAN 385, SPAN 388, SPAN 390.

Schedule Type: Lecture

SPAN 385: Introduction to Spanish Linguistics. 3 credits.
Introduces the study of Spanish linguistics, including phonetics, phonology, morphology, syntax, pragmatics, and sociolinguistics. Combines discussion of theoretical issues with linguistic analysis of Spanish. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Spanish

Recommended Prerequisite: SPAN 370 (may be enrolled concurrently) or permission of instructor.

Schedule Type: Lecture

SPAN 388: Introduction to Latina/o Studies. 3 credits.
Interdisciplinary approach to the study of U.S. Latina/o cultural production, designed to promote critical thinking in understanding Latina/o histories, literatures, and cultures. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Specialized Designation: Taught in Spanish

Recommended Prerequisite: SPAN 335 or 336, or SPAN 370, or permission of instructor.

Schedule Type: Lecture

SPAN 390: Introduction to Hispanic Literary Analysis. 3 credits.
Required course that prepares students for the study of Hispanic literatures. Introduces basic terminology of literary analysis and provides practice in the examination of texts in the major genres: poetry, narrative, and drama. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Specialized Designation: Taught in Spanish

Recommended Prerequisite: SPAN 370 (may be enrolled concurrently) or permission of instructor.

Schedule Type: Lecture

400 Level Courses

SPAN 400: Spanish for the Professions. 3 credits.
Advanced study of the language needed for use in a specific profession, such as translation, business, social service, or health professions. Notes: May be repeated when profession differs. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Taught in Spanish

Recommended Prerequisite: SPAN 385 or permission of instructor.

Schedule Type: Lecture

SPAN 425: Independent Study. 1-3 credits.
Research and analysis of a selected problem in literature or linguistics in consultation with a department member. Notes: Maximum of 6 credits of independent study may be applied to fulfillment of requirements for the major. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Spanish major with 90 credits, and permission of instructor.

Schedule Type: Independent Study

SPAN 426: Independent Study. 1-3 credits.
Research and analysis of a selected problem in literature or linguistics in consultation with a department member. Notes: Maximum of 6 credits of independent study may be applied to fulfillment of requirements for the major. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: Spanish major with 90 credits, and permission of instructor.

Schedule Type: Independent Study

SPAN 430: Spanish in the United States. 3 credits.
Covers both formal and sociolinguistic aspects of Spanish in the U.S. by discussing demographic aspects and a historical overview of the
varieties of Spanish spoken in the United States. Gives a foundation in issues such as linguistic variation, language choice, the relationship among race, ethnicity, and language; official language policies; individual and societal bilingualism; and language diversity in education. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 385, or advanced ability in Spanish, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 452: Advanced Written Spanish.** 3 credits. Development of skills required in writing Spanish. Guided and original compositions. Grammatical structures reviewed and supplemented with individual corrections. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** 9 hours of SPAN at the 300 level or permission of instructor.

**Schedule Type:** Lecture

**SPAN 455: Spanish-English Translation.** 3 credits. Introduction to the history, theory, analysis, and practice of Spanish-English and English-Spanish translation. Includes literal versus free translation; denotation and connotation; regional and social variation; intercultural pragmatic differences; interlanguage influence and calques; and genre and audience. Hands-on experience with literary works, newspaper articles, and advertisements, as well as legal, medical, and technical documents. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** SPAN 370 and ENGL 302/ENGH 302; or permission of instructor.

**Schedule Type:** Lecture

**SPAN 461: Spanish Civilization and Culture.** 3 credits. Survey of Spanish culture and civilization from the pre-Roman era to the 20th century. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 321.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 370 or permission of instructor.

**Schedule Type:** Lecture

**SPAN 466: Latin American Civilization and Culture.** 3 credits. Introduction to the study of Latin American civilization and culture from the pre-Columbian era to the 20th century. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit. Equivalent to SPAN 322.

**Mason Core:** Global Understanding (p. 135)

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 370 or permission of instructor.

**Schedule Type:** Lecture

**SPAN 472: Spanish Phonetics and Phonology.** 3 credits. Introduction to the analysis of the Spanish sound system, both phonetics and phonology. Topics include the articulatory system, sound production, the classification of vowels and consonants, phonetic transcription, the mental representation of sounds, variation and accent, and processes of sound change, among others. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** SPAN 385, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 474: Spanish Syntax and Semantics.** 3 credits. Investigates the knowledge Spanish speakers possess that enables them to understand and create expressions they have not heard before. Studies the system unconsciously used by Spanish speakers and writers to connect situations in the real world to the words and sentences that express each situation. Provides opportunities to analyze samples of language in actual use. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** SPAN 385, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 476: Teaching Spanish in the United States.** 3 credits. Introduction to second language acquisition theory and research, and the application to teaching Spanish as a second language and a heritage language. Includes a discussion of sociocultural and political issues surrounding the teaching of Spanish in the United States. Covers learning objectives, critical pedagogy, course design, grammar instruction, task-based language teaching, computer-assisted language learning, materials evaluation, and assessment. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** SPAN 385, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 480: Special Topics in Spanish.** 3 credits. Study of a selected theme in Hispanic literature, culture, or linguistics. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 385, 388 or 390, depending on topic, or permission of instructor.

**Schedule Type:** Lecture

**SPAN 481: Special Topics in Spanish.** 3 credits. Study of a selected theme in Hispanic literature, culture, or linguistics. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the term for a maximum 6 credits.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 385, 388 or 390, depending on topic, or permission of instructor.

**Schedule Type:** Lecture
SPAN 482: *Mass Media and Popular Culture in the Spanish-Speaking World.* 3 credits.
Critical examination of the significance of mass media and/or popular culture for the development of Spanish-speaking nation-states in the 19th, 20th, and 21st centuries. Forms studied may include but are not limited to: Newspapers, popular novels, lithography, photography, radio, film, television, public art, sport, performance, digital media. Students will use readings in critical theory to explore ways in which forms of mass and popular culture connect to social imaginaries. Enhancement of advanced analytical skills in Spanish through different modules of lecture, reading, discussion, and writing. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** SPAN 305/306 or 309 or 315, SPAN 370, SPAN 385, SPAN 390.

**Schedule Type:** Lecture

SPAN 483: *Medieval and Early Modern Literature of Spain.* 3 credits.
Examines the main periods, trends, genres, and most representative works of the Spanish peninsular literature from its beginnings to the end of the Golden Age. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 390 or permission of instructor.

**Schedule Type:** Lecture

SPAN 484: *Modern and Contemporary Literature of Spain.* 3 credits.
Examines the main periods, trends, genres, and most representative works of Spanish peninsular literature from the 18th century to the contemporary period. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 390 or permission of instructor.

**Schedule Type:** Lecture

SPAN 485: *Topics in Community-Based Spanish.* 3 credits.
Combined classroom and community-based learning experience with a focus on historical, social, cultural, political, and linguistic aspects of Spanish in the community. Topics change each semester and include education, immigration, healthcare, and language policy, among others. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** SPAN 385, advanced ability in Spanish, or permission of instructor.

**Schedule Type:** Lecture

SPAN 486: *Topics in Latin American Literature I: Pre-colonial to Mid-19th Century.* 3 credits.
An interdisciplinary examination and discussion of major topics in literary texts and cultural practices of Latin America from pre-colonial times to the mid-19th century. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 390 or permission of instructor.

**Schedule Type:** Lecture

SPAN 487: *Topics in Latin American Literature II: Late 19th Century to the Present.* 3 credits.
Interdisciplinary examination and discussion of major topics in literary texts and cultural practices of Latin America from the late 19th century to the present. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 390 or permission of instructor.

**Schedule Type:** Lecture

SPAN 488: *The Literature of Spanish America.* 3 credits.
Survey of the literature of Spanish America. Study of texts that are representative of the colonial, romantic, modernista, avant garde, and contemporary periods. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Specialized Designation:** Taught in Spanish

**Recommended Prerequisite:** SPAN 390 or permission of instructor.

**Schedule Type:** Lecture

SPAN 490: *Internship in Spanish.* 1-6 credits.
Qualified students work with area schools, social service programs, government agencies, interest groups, museums, or corporations. Specific arrangements must be made with, and approved by, a member of the Spanish faculty during the semester prior to enrollment. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** 9 credits in SPAN at the 300 level or Permission of Instructor.

**Schedule Type:** Internship

SPAN 497: *Senior Honors Tutorial.* 3 credits.
First semester involves weekly meetings with a faculty member to discuss readings from a comprehensive list prepared by the Spanish faculty. In the second semester, independent research and completion of an honors essay under the supervision of a member of the Spanish faculty are required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Recommended Prerequisite:** Major in SPAN, 90 hours, GPA of 3.00, and GPA of 3.00 in MAJOR FIELD.

**Schedule Type:** Lecture

SPAN 498: *Senior Honors Tutorial.* 3 credits.
Students meeting these requirements are admitted to candidacy on submission of a letter of application to the department Honors Committee in the second half of the junior year. A faculty recommendation and an interview by the Honors Committee are also required. First semester involves weekly meetings with a faculty member to discuss readings from a comprehensive list prepared by the Spanish faculty. In the second semester, independent research and completion of an honors essay under the supervision of a member of the Spanish faculty are required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.
Recommended Prerequisite: Major in SPAN, 90 hours, GPA of 3.00, and GPA of 3.00 in MAJOR FIELD.

Schedule Type: Lecture

500 Level Courses
SPAN 500: History of the Spanish Language. 3 credits.
Study of the evolution of the Spanish language from its origins in Vulgar Latin to its present varieties. Includes consideration of social and political as well as linguistic factors in language change. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SPAN 501: Applied Spanish Grammar. 3 credits.
Analysis of Spanish grammar as a basis for teaching language skills. Terminology and methodology for the teaching of syntax are stressed. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SPAN 502: Hispanic Sociolinguistics. 3 credits.
Introduction to sociolinguistics with emphasis on bilingualism and language contact in the Spanish-speaking world including the United States. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SPAN 505: Applied Spanish Stylistics. 3 credits.
Advanced study of the written language for students who want to develop their academic writing skills. Covers the most frequent challenges of writing through intensive practice in genres such as argumentation, narration, and description. Teaches students to identify and analyze best practices in academic writing. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SPAN 510: Methods of Literary and Cultural Studies. 3 credits.
Introduces students to the fundamental techniques of literary and cultural analysis and to the major principles of various schools of criticism. Additionally, students will be exposed to basic methods and materials of research. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: Graduate standing in the master's program in foreign language or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SPAN 512: Mass Media and Popular Culture. 3 credits.
Introduction to critical perspectives on mass media in Spanish-speaking world. Course engages regions (Spain, Latin America, Latin@ United States) according to faculty specialty. Includes contextualization of media in nineteenth and twentieth-century historical processes and readings in critical theory. Develops graduate-level oral, written, and research skills in Spanish. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Seminar

SPAN 520: Studies in Medieval Spanish Literature. 3 credits.
Study of a major work or a literary genre of this period. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SPAN 525: Studies in Renaissance Literature. 3 credits.
Study of a literary movement or selected authors of the Spanish Renaissance. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPAN 530: Studies in the Literature of the Golden Age.** 3 credits.
Study of a literary genre or a major author of Spanish literature of the Golden Age. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPAN 540: Studies in 20th-Century Literature.** 3 credits.
Study of a writer, genre, theme, or movement of this period. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPAN 544: Spanish-Language Film, Television, and Digital Media.** 3 credits.
Examines contemporary trends in film and television studios, including film theory, the archival turn, and ethnographies of television reception, as they relate to the film and television cultures of the rich and diverse regions of Latin America. Notes: Open to graduate students and advanced undergraduates with the permission of the instructor. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Seminar

**SPAN 545: Studies in Hispanic Literature.** 3 credits.
Study of major writers in a particular generation or movement. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPAN 551: Special Topics in Spanish.** 3 credits.
Special studies in Spanish or Latin American language, literature, or culture. Specific topics are announced in advance. Notes: May be repeated for credit with permission of department. Offered by Modern & Classical Languages (p. 414). May be repeated within the term.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPAN 560: Studies in Spanish American Poetry.** 3 credits.
Study of major poets of a given period. Literary and social atmosphere of the period are emphasized. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SPAN 565: Studies in Spanish American Drama.** 3 credits.
Study of playwrights who have made a major contribution to the development of the genre. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SPAN 570: Language Politics and Policy.** 3 credits.
Analysis of language ideologies and politics of language as well as language policy in Latin America, Spain and the US. Includes study of language policies in public and private domains, including education, government and employment. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**SPAN 571: Methods and Curriculum Design for Teaching Spanish.** 3 credits.
Multi-faceted introduction to the scholarly study of theory, research, and practice in learning and teaching Spanish. Includes application and critical analysis of different methods of instruction and curriculum design. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Schedule Type:** Lecture

**SPAN 576: Advanced Translation.** 3 credits.
Advanced work in translation of selected texts from diverse fields. Comparative terminology, sight translation, and precis writing. Emphasis on the function and technique of documentation in translation. Translation from Spanish to English and from English to Spanish. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

600 Level Courses

**SPAN 635: Seminar in Don Quixote.** 3 credits.
Study of Don Quixote and major critical approaches to the work. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**SPAN 650: Seminar in Twentieth-Century Drama.** 3 credits.
Study of major dramatists in the generation of 1898 and contemporary theater. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**SPAN 655: Seminar in Twentieth-Century Prose.** 3 credits.
Study of major writer, theme, or movement in novel or essay. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**SPAN 670: Seminar in Spanish American Prose.** 3 credits.
Study of a selected theme, movement, or author in the novel, short story, or essay. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**SPAN 675: Seminar in Literature and Art.** 3 credits.
Comparative analysis of a literary theme or style in relation to other media (painting, architecture, film) for an integral understanding of the arts. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SPAN 680:** Seminar in Literature and Society. 3 credits.
Study of a literary topic, a genre, or selected authors in relation to a given economic, social, or political system in Spain or Latin America. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**SPAN 685:** Seminar in Literature and Ideas. 3 credits.
Study of major ideological-philosophical themes and their artistic expression in literature. Notes: May be repeated for credit when topic is different. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Seminar

**700 Level Courses**

**SPAN 798:** Directed Reading and Research. 3 credits.
Open only to degree students who have completed at least 18 credits. Reading and research on a specific project under the direction of a department member. Oral or written report required. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**SPAN 799:** Thesis. 1-6 credits.
Master's thesis research and writing under direction of faculty committee. Students must register for 3 credits in the first semester of SPAN 799 and maintain continuous enrollment until completion of thesis. Credits are awarded upon completion. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Thesis

**800 Level Courses**

**SPAN 800:** Studies for the Doctor of Philosophy in Education. 3-6 credits.
Studies designed by student's discipline director and approved by student's doctoral committee that prepare student for research and writing in area of interest in discipline. Offered by Modern & Classical Languages (p. 414). May be repeated within the degree.

**Recommended Prerequisite:** Admission to PhD in education program to study in Spanish.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

**Schedule Type:** Research

**Special Education (EDSE)**

**100 Level Courses**

**EDSE 115:** American Sign Language (ASL) I. 3 credits.
Introduces American Sign Language (ASL) and Deaf culture. Teaches basic person-to-person conversational signing. Emphasizes development of expressive and receptive skills. Increases knowledge of ASL vocabulary and the syntax, semantics, and pragmatics of the language. Explores issues of multiculturalism, linguistic code-switching, and language dominance, particularly in relationship to Deaf education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**EDSE 116:** American Sign Language (ASL) II. 3 credits.
Focusses on intermediate level skills in American Sign Language (ASL) and Deaf culture. Increases competencies in person-to-person conversational signing, including expressive and receptive skills, vocabulary, syntax, semantics, and pragmatics. Provides opportunities for in-depth exploration of issues of multiculturalism, Deaf history, Deaf culture, and the different modalities of communication used in Deaf education problems. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**EDSE 219:** American Sign Language (ASL) III. 3 credits.
ASL III focuses on strengthening expressive and receptive communication through the development of narrative and storytelling skills. The course explores the importance of these skills within the Deaf Community. Students also study how ASL, Deaf history, culture, education, and accessibility have influenced laws and policies in different areas of the community, the region, the nation, and the world. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDSE 116C.

**Schedule Type:** Lecture

**200 Level Courses**

**EDSE 115:** American Sign Language (ASL) I. 3 credits.
Introduces American Sign Language (ASL) and Deaf culture. Teaches basic person-to-person conversational signing. Emphasizes development of expressive and receptive skills. Increases knowledge of ASL vocabulary and the syntax, semantics, and pragmatics of the language. Explores issues of multiculturalism, linguistic code-switching, and language dominance, particularly in relationship to Deaf education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**EDSE 116:** American Sign Language (ASL) II. 3 credits.
Focusses on intermediate level skills in American Sign Language (ASL) and Deaf culture. Increases competencies in person-to-person conversational signing, including expressive and receptive skills, vocabulary, syntax, semantics, and pragmatics. Provides opportunities for in-depth exploration of issues of multiculturalism, Deaf history, Deaf culture, and the different modalities of communication used in Deaf education problems. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**EDSE 219:** American Sign Language (ASL) III. 3 credits.
ASL III focuses on strengthening expressive and receptive communication through the development of narrative and storytelling skills. The course explores the importance of these skills within the Deaf Community. Students also study how ASL, Deaf history, culture, education, and accessibility have influenced laws and policies in different areas of the community, the region, the nation, and the world. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDSE 116C.
EDSE 412: Braille Code. 3 credits.
Provides understanding of the literary code of Braille and its implications for educational/literacy programs for students with a visual disability. Enables students to better understand the Braille code and how to teach it to students with a visual disability. Notes: Delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDSE 411. Concurrent enrollment is also permitted.

Schedule Type: Lecture

EDSE 411: Characteristics of Students with Visual Impairments. 2 credits.
Provides an overview of the characteristics of and services to persons with visual impairments, including the impact of visual impairment on infants’ and children's growth and development, child and adolescent emotional and social development, and family interaction patterns. Considers the educational, conceptual, psychosocial, and physical implications of a visual impairment. Notes: Course delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDSE 402: Classroom Management and Applied Behavior Analysis. 3 credits.
Focuses on identifying, recording, evaluating, and changing social and academic behaviors of special and diverse populations. Explores theories of classroom management and various approaches to management, including use of technological advances. Emphasizes developing classroom and individual behavior management plans. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDSE 403: Language Development and Reading. 3 credits.
Identifies literacy skills for typical and atypical students, and describes reading, language, and writing instruction for students with mild disabilities who access the general curriculum. Explores emergent literacy skills, phonemic awareness, vocabulary development, and comprehension. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDSE 401 and EDSE 440.

Schedule Type: Lecture

EDSE 401: Introduction to Special Education. 3 credits.
Provides a survey of current knowledge on individuals with disabilities within the context of human growth and development across the life span. Includes historical factors, legislation, etiology, characteristics, needs, educational strategies, assessment, and support services for individuals with disabilities ranging from mild and moderate to severe levels of varying disabilities. Includes the impact of disabilities on academic, social, and emotional performances. Note: School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDSE 414: Orientation and Mobility. 2 credits.
Provides the foundation for understanding the components and essence of orientation and mobility (O&M). Establishes how the need for independent travel in the blind population created the field of O&M. Explores the philosophy and history of orientation and mobility, including cane instruction, dog guides, and methods of travel. Addresses techniques in developing orientation skills and basic mobility instruction. Motor and concept skill development are emphasized. Notes: Delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDSE 411. Concurrent enrollment is also permitted.

Schedule Type: Lecture

EDSE 418: Curriculum and Assessment of Students with Visual Impairments. 3 credits.
Provides students with knowledge and understanding of the educational assessment of students with visual impairments and additional disabilities including deaf-blindness. Students practice assessing and planning educational programs for students with visual impairments. Addresses assessment of technology for students with visual impairments. Examines determination of learning needs and appropriate learning media, relationship of assessment, IEP development, and placement. Notes: Delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDSE 411.

Schedule Type: Lecture

EDSE 428: Elementary Reading, Curriculum, Strategies for Students Who Access the General Education Curriculum. 3 credits.
Applies research on instructional approaches in elementary curriculum for individuals with disabilities accessing general education curriculums. Includes curriculum and instructional strategies in reading, language arts, mathematics, science, social studies, and social skills; cognitive strategies in study skills, attention and memory, and peer-mediated instruction. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDSE 431: Transition and Community-Based Instruction. 3 credits.
Addresses issues in transition for youth with severe disabilities. Covers self-determination, development and implementation of a transition plan, post-secondary opportunities including education and community-based instruction, and vocational environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Schedule Type: Lecture

EDSE 432: Positive Behavior Supports. 3 credits.
Explores concepts and skills needed to design, implement, and evaluate positive behavior support programs, derived from functional assessment, to support the specific needs of students with severe disabilities. Addresses relevant replacement skills; facilitates generalization and maintenance of skills; applies instructional strategies to support behavior, and incorporates individually designed crisis intervention procedures. Offered by Graduate School of Education (p. 155). May not be repeated for credit.
EDSE 434: Communication and Severe Disabilities. 3 credits.
Introduces professionals to augmentative and alternative communication (AAC) for individuals with severe speech and language impairments. Addresses the knowledge and skills needed to assess the potential AAC user, make team decisions, develop and implement instruction, and evaluate the effects of instruction aimed at motivating, building, and expanding communication, choice-making, and social interaction. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 440: Characterships of Students with Disabilities Who Access the General Curriculum. 3 credits.
Examines the characteristics of students with mild disabilities. Focuses on etiology, contributing factors, conditions that affect learning, the challenges of identifying students with disabilities, and the need for academic, social, and emotional accommodations and support. Note: School-based field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 447: Medical and Developmental Risk Factors for Children with Disabilities. 3 credits.
Examines nature and causes of disabling or special health conditions. Covers screening and evaluation techniques, characteristics, and educational implications. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 457: Foundations of Language and Literacy for Diverse Learners. 3 credits.
Examines the complexity of language acquisition and literacy development. Focuses on typical and atypical language development, connections between language and literacy, and diversity of communication styles in families and cultures. Emphasizes first and second language acquisition. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 460: Introduction to Applied Behavior Analysis. 3 credits.
Teaches basic principles, procedures, and ethical concepts pertaining to applying behavior analysis in schools or in other educational or therapeutic settings developed to satisfy part of the educational requirements needed for sitting for the Board Certified Assistant Behavior Analyst (BCaBA) examination. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 461: Analysis and Intervention in Applied Behavior Analysis. 3 credits.
Teaches students basic data collection, presentation, and analysis as it pertains to applied behavior analysis; as well as procedures for determining intervention efficacy and selecting, developing, or modifying interventions based on data, in educational and other settings to satisfy part of the educational requirement to sit for the Board Certified Assistant Behavior Analyst (BCaBA) examination. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 462: Applying Behavior Analysis in School and Community Settings. 3 credits.
Teaches a variety of procedural topics in applied behavior analysis pertaining to developing effective instruction and interventions for a variety of content areas, skills, and adaptive and problem behaviors. Additionally, provides instruction on gaining collaboration of those around the student in assuring the student’s success, and ethical concerns in meaningfully applying behavior analysis. Satisfies part of the educational requirement to sit for the Board Certified Assistant Behavior Analyst (BCaBA) examination. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 464: Ethical and Professional Conduct in Applied Behavior Analysis. 3 credits.
Provides a basis in Virginia Behavior Analyst Licensure law, the Behavior Analyst Certification Boards Guidelines for Responsible Conduct and Disciplinary Standards, Virginia Assistant Behavior Analyst Licensure Regulations, and professional conduct consistent with the practice of applied behavior analysis. Incorporates overseeing instructional or program implementation, working with behavior change systems, managing interventions, and behavior change considerations. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

EDSE 465: Standard Applied Behavior Analysis Practicum. 3 credits.
Meets standard undergraduate supervision requirements by the Behavior Analyst Certification Board to develop, design, implement, and evaluate behavior analytic techniques that produce meaningful change. Notes: This Applied Behavior Analysis Practicum follows the experience guidelines of the Behavior Analysis Certification Board (www.BACB.com). Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 9 credits.

EDSE 469: Intensive Applied Behavior Analysis Practicum. 6 credits.
Meets intensive supervision requirements by the Behavior Analyst Certification Board to develop, design, implement, and evaluate behavior analytic techniques that produce meaningful change. Notes: This Applied Behavior Analysis Practicum follows the experience guidelines of the Behavior Analysis Certification Board (www.BACB.com) Offered by
Graduate School of Education (p. 155). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: EDSE 460 (may be taken concurrently); admission to or prior completion of the Applied Behavior Analysis minor or permission of instructor; submission of practicum application to the Special Education program.

Schedule Type: Internship

500 Level Courses

EDSE 501: *Introduction to Special Education.* 3 credits.
Provides a survey of current knowledge on individuals with disabilities within the context of human growth and development across the lifespan. Includes historical factors, legislation, etiology, characteristics, needs, educational strategies, assessment, and support services for individuals with disabilities ranging from mild and moderate to severe levels of varying disabilities. Includes the impact of disabilities on academic, social, and emotional performances. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 502: *Classroom Management and Applied Behavior Analysis.* 3 credits.
Focuses on identifying, recording, evaluating, and changing social and academic behaviors of special and diverse populations. Explores theories of classroom management and various approaches to management including use of technological advances. Emphasizes developing classroom and individual behavior management plans. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 504: *Elementary Curriculum and Content for Special Educators.* 2 credits.
Reviews elementary curriculum content and instructional approaches for the instruction of individuals with disabilities in language arts/reading, mathematics, science, and social studies. Addresses core knowledge for Elementary Praxis II. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 511: *Characteristics of Students with Visual Impairments.* 2 credits.
Provides an overview of the characteristics of and services to persons with visual impairments, including the impact of visual impairment on infants' and children's growth and development, child and adolescent emotional and social development, and family interaction patterns. Considers the educational, conceptual, psychosocial, and physical implications of a visual impairment. Notes: Course delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 512: *Braille Code.* 3 credits.
Provides understanding of the literary code of Braille and its implications for educational/literacy programs for students with a visual disability. Enables students to better understand the Braille code and how to teach it to students with a visual disability. Notes: Delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDSE 511. Concurrent enrollment is also permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 513: Medical and Educational Implications of Visual Impairments.** 3 credits.
Provides an introduction to anatomy and physiology of the visual system and the educational implications of visual pathology. Covers anatomy of the human eye, normal visual development, pathology of the eye, examination procedures for the identification of visual pathology, and the effects of pathology on visual learning and development. Notes: Delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDSE 511. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 514: Orientation and Mobility for Students with Visual Impairments.** 2 credits.
Provides the foundation for understanding the components and essence of orientation and mobility (O&M). Establishes how the need for independent travel in the blind population created the field of O&M. Explores the philosophy and history of orientation and mobility, including cane instruction, dog guides, and methods of travel. Addresses techniques in developing orientation skills and basic mobility instruction. Emphasizes motor and concept skill development. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDSE 511. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 515: American Sign Language (ASL) I.** 3 credits.
Introduces American Sign Language (ASL) and Deaf culture. Teaches basic person-to-person conversational signing. Emphasizes development of expressive and receptive skills. Increases knowledge of ASL vocabulary and the syntax, semantics, and pragmatics of the language. Explores issues of multiculturalism, linguistic code-switching, and language dominance, particularly in relationship to Deaf education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDSE 511. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 516: American Sign Language (ASL) II.** 3 credits.
Focuses on intermediate level skills in American Sign Language (ASL) and Deaf culture. Increases competencies in person-to-person conversational signing, including expressive and receptive skills, vocabulary, syntax, semantics, and pragmatics. Provides opportunities for in-depth exploration of issues of multiculturalism, Deaf history, Deaf culture, and the different modalities of communication used in Deaf education programs. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDSE 515.C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 517: Computer Applications for Special Populations.** 3 credits.
Explores the applications of computer technology for instructional programs and computer skills used by teachers of special populations. Provides experience with computer technology designed for special populations. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Schedule Type:** Lecture

**EDSE 518: Curriculum and Assessment of Students with Visual Impairments.** 3 credits.
Provides students with knowledge and understanding of the educational assessment of students with visual impairments and additional disabilities including deaf-blindness. Provides practice assessing and planning educational programs for students with visual impairments. Addresses assessment of technology for students with visual impairments. Examines determination of learning needs and appropriate learning media, relationship of assessment, IEP development, and placement. Notes: Field Experience Required. Delivered online. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDSE 511. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 519: American Sign Language (ASL) III.** 3 credits.  
ASL III focuses on strengthening expressive and receptive communication through the development of narrative and storytelling skills. The course explores the importance of these skills within the Deaf Community. Students also study how ASL, Deaf history, culture, education, and accessibility have influenced laws and policies in different areas of the community, the region, the nation, and the world. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**  
Required Prerequisite: EDSE 516C.  
C Requires minimum grade of C.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 531: Transition and Community-Based Instruction.** 3 credits.  
Addresses issues in transition for youth with severe disabilities. Covers self-determination, development, and implementation of a transition plan, post-secondary opportunities including education and community-based instruction, and vocational environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 532: Positive Behavior Supports.** 3 credits.  
Focuses on employing concepts and skills to design, implement, and evaluate behavior support programs derived from functional assessment; addressing relevant replacement skills; facilitating generalization and maintenance of skills; and incorporating individually designed crisis intervention procedures. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 533: Curriculum and Assessment in Severe Disabilities.** 3 credits.  
Addresses best practices in curriculum and assessment for individuals with severe disabilities. Covers the design of assessment and evaluation techniques and procedures for the severe-needs population, including adaptations and accommodations. Covers IEP formulation and implementation with linkage to assessment. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 534: Communication and Severe Disabilities.** 3 credits.  
Introduces professionals to augmentative and alternative communication (AAC) for individuals with severe speech and language impairments. Addresses the knowledge and skills needed to assess the potential AAC user, make team decisions, develop and implement instruction, and evaluate the effects of instruction, aimed at motivating, building, and expanding communication, choice-making, and social interaction. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**  
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 535: Communication and Severe Disabilities.** 3 credits.  
Provides strategies for teaching functional academics and social/life skills, facilitating the transition to postsecondary environments. Focuses on all aspects of transition and alternative assessments for secondary learners with disabilities. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
EDSE 557: Foundations of Language and Literacy for Diverse Learners. 3 credits.
Examines the complexity of language acquisition and literacy development. Focuses on typical and atypical language development, connections between language and literacy, and diversity of communication styles in families and cultures. Emphasizes first and second language acquisition. Notes: Field Experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 558: Medical Aspects of Physical and Sensory Disabilities in Young Children. 3 credits.
Focusses on medical aspects of young children with disabilities and the role of professionals in service delivery. Explores etiology, symptomatology, and management of neuromotor disabilities. Emphasizes positioning, adaptive strategies, and understanding assistive technology devices. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to ECED 506.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 561: Secondary Science for Special Education Teachers. 3 credits.
Provides the necessary depth and breadth of science content knowledge required for prospective secondary special education science teachers. Prepares students for the Praxis Content Knowledge tests in five fields: Biology, Chemistry, Earth and Space Science, General Science and Physics. Design science content area instruction for students with mild disabilities utilizing current evidence-based practices. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

EDSE 562: Foundations of Reading Instruction for Students with Specific Learning Disabilities. 3 credits.
Examines the characteristics of students with specific learning disabilities who demonstrate severe deficits in reading and written language. Addresses language development from an anatomical, physiological, and social perspective. Provides essential knowledge in language development. Examines the legislation that addresses the rights of students with disabilities. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 563: Language Structure and Literacy Development for Students with Specific Learning Disabilities. 3 credits.
Examines the components of the English language, including language processing requirements, integrated with the development of literacy skills. Analyzes language and literacy performance and the variability...
of language learning in students with specific learning disabilities. 
Explores environmental, social, and cultural factors, including the impact of second language learning and dual-identification. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDSE 562B-
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 564: Phonology, Phonics, and Fluency for Students with Specific Learning Disabilities.** 3 credits.
Evaluates phonology, phonics, and fluency skills of students with specific learning disabilities using formal and informal measures. Designs instruction to meet the needs of students with learning disabilities who have deficits in these areas. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDSE 566.

**Registration Restrictions:**
**Required Prerequisite:** EDSE 563B-
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 565: Vocabulary, Comprehension, and Written Expression for Students with Specific Learning Disabilities.** 3 credits.
Evaluates vocabulary, text comprehension, and written expression skills of students with specific learning disabilities using formal and informal measures. Designs instruction to meet the needs of students with learning disabilities who have deficits in these areas. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDSE 567.

**Registration Restrictions:**
**Required Prerequisites:** EDSE 564B- and 566B-
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 566: Practicum I for Specialized Reading Instruction for Students with Specific Learning Disabilities.** 1 credit.
Demonstrate competencies for implementing intensive, data-based interventions to students with specific learning disabilities who have severe deficits in reading and writing. Administer and analyze assessments and design interventions for phonology, phonics and word recognition, and fluency. Monitor student progress and modify instruction as needed. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDSE 564.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**EDSE 567: Practicum II for Specialized Reading Instruction for Students with Specific Learning Disabilities.** 2 credits.
Demonstrate competencies for implementing intensive, data-based interventions to students with specific learning disabilities who have severe deficits in reading and writing. Administer and analyze assessments and design interventions for vocabulary, text comprehension, and written expression. Monitor student progress and modify instruction as needed. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Corequisite:** EDSE 565.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**EDSE 590: Special Education Research.** 3 credits.
Describes fundamental concepts and practices in educational research in special education. Covers specific applications of educational research methods to problems in special education. Emphasizes review and critique of special education research, and applied classroom research for teachers. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
EDSE 597: Special Topics in Education. 1-6 credits.
Provides advanced study on selected topic or emerging issue in Special
Education. Offered by Graduate School of Education (p. 155). May be
repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Admission to program in Graduate School of
Education

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

600 Level Courses
EDSE 613: Teaching Methods for Students with Visual Impairments. 3
credits.
Emphasizes methods of teaching compensatory skills, the core
curriculum, and technology for use by students who are blind and
visually impaired. Addresses curriculum development, adaptations, and
teaching methodology for individuals with visual impairments. Provides
information on adaptations within various educational programs and
adaptation of general education classroom materials and procedures for
use with blind and low vision children and youth. Notes: Delivered online.
Offered by Graduate School of Education (p. 155). May not be repeated
for credit.

Recommended Prerequisite: EDSE 511. Concurrent enrollment is also
permitted.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 616: Braille Reading and Writing. 3 credits.
Provides basic instruction on transcription of advanced Braille codes,
including music, foreign language, chemistry, computer Braille, and
Nemeth code (Braille math code). Introduces techniques for teaching
skills in each code. Explores technology tools used to create Braille
tactile materials in addition to other assistive technologies used
for instruction in math and science. Notes: Field experience required.
Delivered online. Offered by Graduate School of Education (p. 155). May
not be repeated for credit.

Recommended Prerequisite: EDSE 511 (may be taken concurrently),
EDSE 512.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 619: Applied Behavior Analysis: Principles, Procedures, and
Philosophy. 3 credits.
Focuses on basic principles and procedures of applied behavior analysis;
identification of factors that contribute to behavioral problems and
improved performance; and procedures that can be used to minimize
behavioral problems, improve performance, teach new behaviors,
and increase probability of behaviors occurring under appropriate
circumstances. Offered by Graduate School of Education (p. 155). May
not be repeated for credit.

Recommended Prerequisite: Admission to Applied Behavior Analysis
Graduate Certificate Program (ABAC).

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

EDSE 620: Supporting the Behavior and Sensory Needs of Individuals with
Autism. 3 credits.
Describes the behavior and sensory development of individuals
with autism spectrum disorder across their lifespans. Analyzes the
principles of behavior management and the evidence and research-based
interventions that have been proven to be effective with individuals with
autism and sensory needs. Offered by Graduate School of Education
(p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy,
Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level
students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Focuses on basic content of applied behavior analysis. Teaches how to
implement behavioral procedures and develop behavioral programs for
clients with fundamental behavioral needs. Offered by Graduate School
of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDSE 619B-.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy,
Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture
EDSE 623: Applied Behavior Analysis: Assessments and Interventions. 3 credits.
Expands on basic content of applied behavior analysis and teaches how to implement behavioral procedures and develop behavioral programs for clients with fundamental behavioral needs. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDSE 619B.
B- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture

EDSE 624: Applied Behavior Analysis: Applications. 3 credits.
Develops capability to deal with more complex behavioral situations, enabling ability to relate to more sophisticated professional issues and environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDSE 619B.
B- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture

EDSE 625: Applied Behavior Analysis: Verbal Behavior. 3 credits.
Expands capability to deal with more complex behavioral situations, and enables students to relate to more sophisticated professional issues and environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: EDSE 619B.
B- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture

EDSE 626: The Inclusive Classroom. 3 credits.
Introduces participants to instructional procedures for facilitating inclusive instruction for students with disabilities in general education settings. Covers research-based strategies for adapting curriculum materials, designing instructional procedures, and evaluating students with disabilities. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture

EDSE 627: Assessment. 3 credits.
Offers knowledge and experiential learning activities related to assessment of students with mild disabilities. Includes statistical and psychometric concepts in assessment. Addresses norm-referenced, criterion-referenced, curriculum-based, and informal assessment for instructional and placement decisions. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture

EDSE 628: Elementary Reading, Curriculum, Strategies for Students Who Access the General Education Curriculum. 3 credits.
Applies research on instructional approaches in elementary curriculum for individuals with disabilities accessing general education curriculum. Includes curriculum and instructional strategies in reading, language arts, mathematics, science, social studies; cognitive strategies in study skills; attention and memory; and peer-mediated instruction. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture

EDSE 629: Secondary Curriculum and Strategies for Students with Disabilities who Access the General Curriculum. 3 credits.
Applies research on teacher effectiveness, accountability, and instructional approaches at the secondary level for individuals with mild disabilities. Includes instructional methods necessary for teaching reading, writing, math, and other content areas across the curriculum. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Schedule Type: Lecture

EDSE 634: Characteristics of Individuals with Autism. 3 credits.
Describes the varying characteristics of individuals with autism across their lifespans including, (a) diagnosis, (b) early childhood, (c) school-age, (d) transition, (e) employment, and (f) aging. Examines definitions, eligibility criteria, incidence rates, and etiology of autism. Analyzes perspectives from students, families, educational, community, and career personnel. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 635: Interventions for Individuals with Autism.** 3 credits.
Analyzes evidence and research-based interventions for individuals with autism in a variety of domains across their lifespans including academic, communication, social, and behavioral. Evaluates methods for prioritizing intervention needs for individuals with autism across their lifespans, developing appropriate interventions to address those needs, and measuring the impact of interventions in a variety of service delivery models. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDSE 634. Concurrent enrollment is also permitted.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 636: Supporting Communication and Literacy for Individuals with Autism.** 3 credits.
Surveys the characteristics of communication and literacy, as well as the design and implementation of communication systems for individuals with autism spectrum disorder across their lifespans. Explains methods for assessment, identification of priorities, and monitoring progress of communication and literacy instruction in order to improve behavior, academic skills, and social interactions in various environments. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** EDSE 634.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 637: Autism Across the Lifespan: Collaboration with Critical Partners.** 3 credits.
Examines characteristics, milestones, critical issues, and areas of need for individuals with autism across their lifespans. Prioritizes key features of effective collaboration and partnership. Utilizes a strengths-based problem solving perspective to frame collaboration and partnership for individuals with autism across their lifespans and simulates partnership practices with a variety of stakeholders across the lifespan of an individual with autism. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 661: Curriculum and Methods: Severe Disabilities.** 3 credits.
Focuses on current best practices in curriculum, and methods for students with severe disabilities, including specific strategies for teaching students with severe disabilities, general strategies for working with heterogeneous groups of students in inclusive settings, and methods for adapting the general education curriculum to include students with severe disabilities. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Teaching licensure or enrollment in a graduate degree program in education.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

**Schedule Type:** Lecture

**EDSE 662: Consultation and Collaboration.** 3 credits.
Provides professionals in special education, regular education, and related fields with knowledge and communication skills necessary for collaborative consultation and technical assistance to other educators and service providers. Note: Field experience required. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Recommended Prerequisite:** Teaching licensure or enrollment in a graduate degree program in education.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

**Schedule Type:** Lecture

**EDSE 663: Collaborative Teamwork to Support Students with Significant Disabilities.** 3 credits.
Focuses on models of teamwork, group decision making, team process, leadership and communication and how they influence services for individuals with significant disabilities and their families. Provides an understanding of collaborative structures and demonstrates knowledge of skills and strategies to maintain effective relationships with a variety of stakeholders in collaborative settings. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 664: Ethical and Professional Conduct for Behavior Analysis.** 3 credits.
Provides a basis in Virginia Behavior Analyst Licensure law, the Behavior Analyst Certification Boards Guidelines for Responsible Conduct and Disciplinary Standards, and professional conduct consistent with the
practice of applied behavior analysis. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** EDSE 619B.

B- Requires minimum grade of B-

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 665:** *Families of Children with Special Needs.* 3 credits.
Focusses on strategies for developing culturally appropriate family-professional partnerships to benefit children with special needs. Explores theories and research that support a family-centered approach. Includes family and professional rights and responsibilities in the special education process. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to ECED 524.

**Recommended Prerequisite:** Admission to the Early Childhood Special Education program or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 669:** *Interdisciplinary Approach for Children with Sensory and Motor Disabilities.* 3 credits.
Emphasizes positioning, handling, and adaptive strategies. Focuses on understanding the roles of related disciplines in collaborative planning and service delivery. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Graduate or Senior Plus.

Enrollment is limited to Graduate or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**700 Level Courses**

**EDSE 701:** *Legal Issues and Special Populations.* 3 credits.
Studies the impact of legislation and litigation on the education of special populations emphasizing IDEA and Section 504. Covers emerging trends in special education based on interpretation of landmark court cases related to disability, legal updates on policies and procedures for exceptional learners, and discussion of the guiding principles of special education law when addressing the needs of special populations. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 702:** *Managing Resources for Special Education Programs.* 3 credits.
Examines development and delivery of specialized programs for exceptional learners. Covers implementation of Individualized Education Plans via Universal Design, financial and human resource allocation and management, effective supervision and evaluation, and student outcome documentation. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 703:** *Creating a Collaborative Culture.* 3 credits.
Provides leaders in school settings with an opportunity to gain the skills needed to facilitate collaborative environments supportive of all learners. Discusses the impact of diversity on educational settings, developing a vision effective communication teaming and co-teaching techniques, family professional partnerships, implementing schoolwide change initiatives, alternative dispute resolution, and maintaining a positive school climate. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 743:** *Leadership in Special Education Administration.* 3 credits.
Examines leadership issues and applies them to the administration of special education programs. Explores current challenges in the delivery of services for exceptional children through case studies and projects. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**EDSE 744:** *Current Issues in Special Education.* 3 credits.
Helps students develop an understanding of the role of convergent research evidence in addressing current issues in special education practice and policy. Familiarizes students with current issues in special education and the group experimental, single subject, and qualitative research designs used to address these current issues. Students evaluate research studies in terms of their methodological strengths and weaknesses and their part in providing convergent bodies of evidence that can be used for defining practice and policy. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.
EDSE 782: Comprehensive Topics in Special Education: Trends and Issues. 3 credits.
Focuses on current trends and issues in special education and disabilities. Provides students the opportunity under the direction of instructor to complete individually designed projects addressing major trends and issues in their emphasis area of special education. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to Graduate level students.

Recommended Prerequisite: Majority of course work completed.

EDSE 783: Internship: Special Education in General Curriculum. 3-6 credits.
Applies, in supervised internships, university course work in General Curriculum to instruction of children and their families in school settings. Notes: Demonstration that RVE, VCLA, Praxis Entry, and other program-specific requirements have been met; application for internship on file by program deadline. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to students with a major in Students W/Dis Access Gen Curr.
Enrollment is limited to Graduate or Non-Degree level students.
Enrollment limited to students in a Graduate Certificate degree.

EDSE 784: Internship: Adapted Curriculum. 3-6 credits.
Applies, in supervised internships, university course work in Adapted Curriculum to instruction of children and their families in school settings. Notes: Demonstration that VCLA, Praxis Entry, and other program-specific requirements have been met; application for internship on file by program deadline. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to students with a major in Students W/Dis Access Adp Curr.
Enrollment is limited to Graduate or Non-Degree level students.
Enrollment limited to students in a Graduate Certificate degree.

EDSE 785: Internship: Visual Impairment. 2-6 credits.
Applies, in supervised internships, university course work in Visual Impairment to instruction of children and their families in school settings. Notes: Passing scores on Praxis Entry requirement; demonstration that reading content and other program specific requirements have been met; application for internship on file by program deadline. Offered by Graduate School of Education (p. 155). May be repeated within the term for a maximum 6 credits.

Recommended Prerequisite: EDSE 411 or 511; EDSE 412 or 512; EDSE 513.

Registration Restrictions:
Enrollment is limited to students with a major in Visual Impairments Lic PK-12.
Enrollment is limited to Graduate or Non-Degree level students.
Enrollment limited to students in a Graduate Certificate degree.

EDSE 790W: EDSE 790 Course Waiver. 1 credit.
Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

EDSE 794: Special Topics. 1-6 credits.
Advanced study of selected topics in education for students preparing for doctoral studies or who have been admitted to the PhD program in education. Offered by Graduate School of Education (p. 155). May be repeated within the degree.

Recommended Prerequisite: EDSE 619 or PSYC 619 or permission by the instructor

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

EDSE 795: Standard Applied Behavior Analysis Practicum. 3 credits.
Meets standard practicum supervision requirements by the BACB to provide hands-on experience designing, implementing, and evaluating behavior analytic procedures under the supervision of a Board Certified Behavior Analyst. Notes: This Applied Behavior Analysis Practicum follows the experience guidelines of the Behavior Analysis Certification Board (www.BACB.com) Offered by Graduate School of Education (p. 155). May be repeated during the degree for a maximum 18 credits.

Recommended Prerequisite: EDSE 619 or PSYC 619 or permission by the instructor

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

EDSE 797: Advanced Topics in Education. 1-6 credits.
Advanced study of selected topics in education for students preparing for doctoral studies or who have been admitted to the PhD program in education. Notes: May be repeated for credit with CEHD approval. Offered by Graduate School of Education (p. 155). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

EDSE 790 Course Waiver.
EDSE 799: Intensive Applied Behavior Analysis Practicum. 6 credits.

Meets intensive practicum supervision requirements by the BACB to provide hands-on experience designing, implementing, and evaluating behavior analytic procedures under the supervision of a Board Certified Behavior Analyst. Notes: This Applied Behavior Analysis Practicum follows the experience guidelines of the Behavior Analysis Certification Board (www.BACB.com). Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDSE 619 or PSYC 619 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

800 Level Courses

EDSE 825: Foundations in Behavior Analytic Instructional Design and Teaching Methodology. 3 credits.

Focuses on behavior analytic instructional design and teaching methodology. Prepares students to design effective instructions and assess currently existing instructional programs and curricula. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral level program within the Graduate School of Education.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDSE 841: Intervention Research in Special Education. 3 credits.

Provides advanced graduate students with opportunities for in-depth study, analysis, and discussion of original intervention research in special education. Emphasizes analyzing research methodology, coding original intervention research, analyzing results, synthesizing findings, formulating future research questions relevant to individuals with disabilities, and gaining an understanding of the submission process for conferences and publications. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

EDSE 842: Application of Research Methodology in Special Education. 3 credits.

Provides knowledge and skills in the application of research methodology in special education. Topics include methods for conducting survey research, experimental and quasi-experimental research, research involving correlation and regression, and qualitative research. Emphasizes application to specific issues in special education research. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDSE 843: Leadership in Special Education Administration. 3 credits.

Examines leadership issues and applies them to the administration of special education programs. Explores current challenges in the delivery of services for exceptional children through case studies and projects. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral level program within the Graduate School of Education.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

EDSE 844: Current Issues in Special Education. 3 credits.

Develops understanding of the role of convergent research evidence in addressing current issues in special education practice and policy. Describes current issues in special education and the group experimental, single subject, and qualitative research designs used to address these current issues. Students evaluate research studies in terms of methodological strengths and weaknesses, and their part in providing convergent bodies of evidence that can be used for defining practice and policy. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral level program within the Graduate School of Education.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Seminar

EDSE 845: Personnel Preparation Programs in Special Education. 3 credits.

Provides an in-depth study, analysis, and discussion of personnel preparation programs in special education including: scope and national teacher licensure standards, bodies of accreditation, syllabi development, delivery models, and frameworks for curriculum design; teacher evaluation; and how policies, research, and issues of accountability can transform teacher preparation programs. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: Admission to a doctoral level program within the Graduate School of Education.

Registration Restrictions:
Enrollment is limited to students with a major in Education.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

EDSE 846: Assessment, Evaluation, and Instrumentation in Special Education Research. 3 credits.

Provides in-depth study, analysis and discussion of the past, present and future directions of assessment, evaluation, and instrumentation research in special education. Emphasizes reliability and validity of the research instruments, evaluating research methodology, analyzing results, synthesizing findings with respect to present assessment and evaluation policies; formulating future research questions relevant to assessment and evaluation of individuals with disabilities. Offered by Graduate School of Education (p. 155). May not be repeated for credit.
Registration Restrictions:  
Enrollment is limited to students with a major in Education.  

Enrollment is limited to Graduate level students.  

Schedule Type: Lecture  

EDSE 847: Problem Solving in Contemporary Initiatives in Special Education.  
3 credits.  
Addresses contemporary initiatives in special education: those introductory and leading actions intended to implement positive change, that can be promoted by federal agencies, professional or advocacy organizations. Focuses on understanding of contemporary special education initiatives through evaluation and analysis. Background, relevant legislative history, existing empirical evidence, and designing future research addressing contemporary initiatives will be studied and discussed. Offered by Graduate School of Education (p. 155). May not be repeated for credit.

Recommended Prerequisite: EDRS 811 or EDRS 812.

Schedule Type: Lecture  

EDSE 885: Writing Grants. 3 credits.  
Focuses on identification of funding sources, description of grant components, and development of grant budgets. Includes independent writing of an entire small grant, a significant portion of a large grant, and participation in grant peer-review process. Offered by Graduate School of Education (p. 155). May not be repeated for credit. Equivalent to EDSE 745.

Schedule Type: Lecture  

SPMT 100: Current Events in Sport Business. 1 credit.  
Engages students in a discussion about recent developments in the sport industry, using the Sport Business Journal to stimulate the discussion as well as provide the student with current information about this rapidly changing industry. There will be two field trips conducted as part of this class. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Required Prerequisite: SPMT 100.

Schedule Type: Lecture  

SPMT 110: Basketball Officiating. 1 credit.  
Teaches the fundamentals of officiating basketball including a thorough discussion of each of the rules as well as instruction of two person mechanics. Provides opportunity to become a certified Virginia High School League (VHSL) official. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture  

SPMT 112: Soccer officiating. 1 credit.  
Teaches the fundamentals of officiating soccer including a thorough discussion of each of the rules as well as instruction of crew mechanics. Provides opportunity of becoming a certified Virginia High School League (VHSL) official. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture  

200 Level Courses

SPMT 201: Introduction to Sport Management. 3 credits.  
Introduces sport management profession. Primary focus is on sport industry, including professional sport entertainment, amateur sport entertainment, for-profit sport participation, nonprofit sport participation, sporting goods, and sport services. Notes: Open to non majors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Required Prerequisite: SPMT 200.

Schedule Type: Lecture  

SPMT 210: Foundations of Sport Coaching. 3 credits.  
Introduction to the scientific bases for coaching sports and the process of coaching athletes. Includes the development of an individual coaching philosophy and the application of scientific training in the psychological, physiological, pedagogical and managerial bases of sport coaching. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture  

SPMT 241: Practicum. 3 credits.  
Paid or voluntary experience in sport industry setting. Work sites chosen by students after receiving approval of faculty supervisors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:  
Required Prerequisite: SPMT 210.  
D Requires minimum grade of D.

Enrollment is limited to students with a concentration in Sport Management.

Schedule Type: Internship  

300 Level Courses

SPMT 302: Philosophical and Ethical Dimensions of Sport. 3 credits.  
Investigates moral issues in sport and judgments about right and wrong behavior among athletes, coaches, spectators, and others. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture
SPMT 304: Sport, Culture, and Society. 3 credits.
Analyzes sport from educational, political, economic, and cultural perspectives. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

SPMT 318: Diversity and Inclusion Issues in Sport. 3 credits.
Focuses on sport participant and employee diversity and inclusive practices; and how differences based on religion disability, socioeconomic class, sex, gender, sexual orientation and racial hierarchies impacts historical and current sport experiences and outcomes. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

SPMT 320: Psychology of Sport. 3 credits.
Psychological theories of personality, motivation, and anxiety explored in sport environment. Examines social-psychological research on audience effects, team cohesion, leadership, and fan behavior. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

SPMT 321: America Through Baseball. 3 credits.
This course is designed for the student to gain an understanding of the past and present role of baseball in American culture. The course focuses on the development of professional baseball over the past 160 years and the ways in which the history of America as a nation and culture can be "read" through baseball. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

SPMT 322: Football and American Culture. 3 credits.
Designed for the student to gain an understanding of the past and present role of football in American culture. Focuses on the development of college, professional and high school football over the past 120 years and contemporary issues in football culture are analyzed such as debates over facial symbols and mascots, the question of professionalizing division one college football, and tailgating and televisual football cultures. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

SPMT 323: America and the Modern Olympics. 3 credits.
This course is designed to provide students an understanding of the role played by the United States in the modern Olympic movement. The primary focus is on the United States relationship with the modern Olympics from the earliest days of the games up through the Cold War period and beyond. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

SPMT 341: Field Experience in Sport Coaching. 3 credits.
Application of the scientific bases for coaching sports and the process of coaching athletes. Includes paid or voluntary experience in a sport-specific setting. The practicum location is to be chosen by students after receiving approval of the faculty supervisor. A minimum of 120 clock hours is required within the timeframe of the course. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: SPMT 210.
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Coaching.

Schedule Type: Internship

400 Level Courses

SPMT 405: Sport Venues and Events. 3 credits.
Principles and techniques of event planning and operations in sport facilities and venues. Emphasizes principles and concepts of organization and administration including communication, personnel management, management of physical resources, and risk management. Examines a variety of sport events and venues such as indoor stadiums, athletic field complexes, and managing recreation and intramural activities. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Completion of 60 hours.

Registration Restrictions:
Required Prerequisite: SPMT 201.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 412: Sport Marketing and Sales. 3 credits.
Investigates principles and processes in sport marketing and finance. Focuses on research and development, sport promotion, sport sponsorship, advertising, merchandising, and distribution of sporting goods. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 60 hours.

Registration Restrictions:
Required Prerequisite: SPMT 201.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 420: Economics and Finance in the Sport Industry. 3 credits.
Examines the principles of economics, budgeting, and finance as it applies to the sport industry. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Completion of 60 hours.

Registration Restrictions:
Required Prerequisite: SPMT 201.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 425: Sport Analytics. 3 credits.
Discusses theories and concepts in sport analytics. Topics cover player performance, player management, sports data strategies, team management, and game day operations and strategies. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: SPMT 201 and (STAT 250 or BUS 210).
C Requires minimum grade of C.
Schedule Type: Lecture

SPMT 430: Sport Communication. 3 credits.
Provides a senior-level exploration of the role of sport communication in contemporary cultures. Readings and discussions address questions about how communication about/in sports highlights the importance of sports, the cultural identities of those who engage in sport communication, and the pervasiveness of sport communication practices in industry. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: General COMM course.

Registration Restrictions:
Required Prerequisite: SPMT 201 D.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 440: Global Perspectives in Sport. 3 credits.
An interdisciplinary examination of sport as a global phenomenon. Historical, cultural, economic, and governance perspectives are considered. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 60 hours.

Registration Restrictions:
Required Prerequisite: SPMT 201 D.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 455: Governance and Policy in Sport Organizations. 3 credits.
Examines sport organizations focused on both professional and amateur governance structures and processes. The study of policy in educational, nonprofit, and professional sport venues is also addressed. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: Completion of 60 hours.

Registration Restrictions:
Required Prerequisite: SPMT 201 D.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 462: Sport Business Law. 3 credits.
Students in this course will receive instruction in the major areas of the law that impacts the sport industry. Students will also see how knowledge of sport law can make them better sport managers. There will be an introduction to the legal system in the United States and then we will see how the law has shaped the management of sport organizations and the playing and staging of the games. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 60 credits.

Registration Restrictions:
Required Prerequisite: SPMT 201 D.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 470: Strategic Management and Leadership in Sport Organizations. 3 credits.
Provides a foundation in organizational studies. It addresses the theoretical underpinnings and applications of leadership. It examines strategic planning processes and management within sport organizations. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 60 hours.

Registration Restrictions:
Required Prerequisite: SPMT 201 D.
D Requires minimum grade of D.

Schedule Type: Lecture

SPMT 475: Sport Management Professional Development Seminar. 3 credits.
This is a seminar format in which students synthesize and apply theories, concepts, and practices in the leadership and management of sport organizations. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: 75 hours.

Registration Restrictions:
Required Prerequisite: SPMT 241 D.
D Requires minimum grade of D.

Enrollment is limited to students with a concentration in Sport Management.

Schedule Type: Seminar

SPMT 480: Special Topics in Sport Management. 3 credits.
Selected topics reflecting interest in specialized areas of sport management announced in advance. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Lecture

SPMT 490: Internship. 12 credits.
Paid or voluntary work experience in sport industry settings. Requires minimum period of 10 to 12 weeks of full-time employment. Applies course work, theories, and research to work settings. Work sites chosen by students after approval of faculty supervisors. Includes meetings and assignments before and during the internship. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Mason Core: Capstone (p. 135)

Recommended Prerequisite: SPMT 475 and completion of 90 credits.

Registration Restrictions:
Required Prerequisite: SPMT 241 C.
C Requires minimum grade of C.

Enrollment is limited to students with a concentration in Sport Management.

Schedule Type: Internship
SPMT 499: **Independent Study.** 1-3 credits.
Faculty-directed independent study of approved topics in sport management. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Independent Study

### 500 Level Courses

**SPMT 551: **Sport in the Global Marketplace.** 3 credits.
Explores sport business internationally including the production and consumption of professional and Olympic-linked sports and the impact of globalization on sport. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SPMT 555: **The Australian Model of Sport.** 3 credits.
Examines the Australian model of sport which has been adopted in many countries. Analyzes government sport policy and the organization and administration of Australian professional sports. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** SPMT 551.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SPMT 556: **The Global Soccer Industry.** 3 credits.
Explores the international soccer industry focusing on major professional leagues, international federations, international movement of players, the production of soccer equipment, legal and social issues. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** SPMT 551.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

### 600 Level Courses

**SPMT 611: **Sport Marketing and Sales.** 3 credits.
Investigates principles and processes in sport marketing. Focuses on research and development, sport promotion, sport sponsorship, advertising, merchandising, and distribution of sporting goods. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SPMT 612: **Economics and Financial Management in the Sport Industry.** 3 credits.
Examines principles of economics, budgeting, and finance as they apply to the sport industry. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SPMT 613: **Strategic Leadership in Sport Organizations.** 3 credits.
Examines the theoretical underpinnings and effective strategic processes of leadership in sport organizations. Leader behaviors, characteristics, situational influences, and the cognitive dimensions of leadership will be explored within the organizational context. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**SPMT 614: **Legal Issues in Sport.** 3 credits.
Examines legal issues as they apply to the sports industry. Course content includes, but is not limited to: tort law, risk management procedures, product liability, constitutional/contract/administrative/statutory law, crowd control/security, personal/professional values, and situational analysis. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPMT 616: Sport Operations, Venues, and Event Management.** 3 credits. Examines administrative functions and operations, strategic planning, governance structures, policy development, and effective practices in the strategic management of sport programs, including managerial principles for venues and events. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPMT 618: Psychology of Coaching.** 3 credits. Presents a psychological foundation for sport coaching. Basic tenets of the psychology of individual and group behavior will include motivation, stress, communication, group cohesion/dynamics, leadership, reinforcement, and feedback as they relate to the context of sport coaching. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPMT 620: Ethical Issues in Global Sport.** 3 credits. Investigates moral issues in sport, and judgments about right and wrong behavior among organizations, athletes, coaches, spectators, and others at the global level. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPMT 631: Theoretical Models of Sport Coaching.** 3 credits. Examines the scientific bases for coaching athletes. Emphasizes philosophical underpinnings and theoretical foundations in the psychological, physiological, pedagogical, and managerial bases of sport coaching. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** SPMT 551.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPMT 651: Sport and International Development.** 3 credits. Explores the roles of sport in international development with focus on Africa, Asia, and Latin America. Non-governmental organizations (NGOs), international federations, professional leagues and grassroots initiatives will be examined. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** SPMT 551.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**SPMT 652: Governance and Policy in International Sport.** 3 credits. Explores sport governance and policy in the international context with focus on international federations, professional leagues and comparative analyses of governmental sporting policies. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** SPMT 551.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**Sports and Recreation Studies (SRST)**

**200 Level Courses**

**SRST 200: History of Sport and Leisure in America.** 3 credits. Traces the history of sport and leisure in America. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
400 Level Courses

SRST 450: Research Methods. 3 credits.
Covers the development of empirical research designs for both practical and theoretical problems in health, fitness, and recreation resources management. Includes literature review of hypothesized relationships, and formulation of research proposals. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: 60 credits.

Registration Restrictions:
Required Prerequisites: STAT 250C, DESC 210C, OM 210C or IT 250C.
C Requires minimum grade of C.

Schedule Type: Lecture

500 Level Courses

SRST 595: Thesis Preparation. 2 credits.
Provides a basic overview and working knowledge of the procedures to be used towards completion of the thesis. With competencies gained in previous sport and recreation studies courses, the student will begin to form the criteria, considered evidence, and judgment towards a research topic for SRST 799. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Independent Study

SRST 598: Special Topics. 1-6 credits.
Focuses on projects related to sport and/or recreation studies. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SRST 599: Independent Study in Sport and Recreation Studies. 1-3 credits.
Studies problem area in sport and recreation studies research, theory, or practice under direction of faculty member. Notes: Students engage in one-on-one or seminar independent study with an SRST faculty member. The faculty member may be the student’s thesis or project supervisor. While SRST 599 is repeatable, 3 credit hours must be designated for Preparation of Thesis or Project Proposal. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 3 credits.

Schedule Type: Independent Study

600 Level Courses

SRST 606: Foundations of Sport and Recreation Studies. 3 credits.
Examines the historical development of the Sport and Recreation Studies fields. Explores the interconnection between these phenomena in the context of the social, cultural and economic forces shaping American and global societies. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

SRST 623: Research Design and Statistical Reasoning. 3 credits.
Introduces basic principles of scientific and scholarly inquiry in Sport and Recreation Studies. Explores the logic and practice of methods and techniques employed in research related to sport and recreation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to English Language, Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SRST 796: Seminar in Sport and Recreation Studies. 1 credit.
Scholarly forum for the presentation and discussion of contemporary topics in sport and recreation studies. Graduate students, faculty, and visiting scholars/practitioners share ongoing research and practical applications. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Recommended Prerequisite: SRST 796.

Recommended Corequisite: All other coursework with the exception of concurrent capstone.

Schedule Type: Seminar

SRST 798: Master’s Project/Internship. 1-6 credits.
Offers capstone experience to enable students to demonstrate their integrative knowledge and skills accrued through study in their concentration area within Sport and Recreation Studies. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

Recommended Corequisite: SRST 796.

Registration Restrictions:
Required Prerequisite: SRST 623B.
B Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

SRST 799: Master’s Thesis. 1-6 credits.
Explores sport and recreation problem using appropriate research methodology and under supervision of graduate faculty member. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Required Prerequisite: SRST 623\textsuperscript{B}.
\textsuperscript{B} Requires minimum grade of B.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

Statistics (STAT)

200 Level Courses

STAT 250: Introductory Statistics I. 3 credits.
Elementary introduction to statistics. Topics include descriptive statistics, probability, and estimation and hypothesis testing for means and proportions. Statistical software used for assignments. Offered by Statistics (p. 1060). May not be repeated for credit.

Mason Core: Quantitative Reasoning (p. 135)

Recommended Prerequisite: High school algebra.

Schedule Type: Lecture

STAT 260: Introduction to Statistical Practice. 3 credits.
Data-oriented introduction to fundamental concepts and methods of applied statistics. Topics include: exploratory data analysis; sampling and principles of experimental design; sample means; confidence intervals and hypothesis tests for one and two sample means and proportions; analysis of contingency tables; simple linear regression; and correlation. Extensive use of statistical software. Intended primarily for students in the Statistics Bachelor’s program. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: MATH 113\textsuperscript{C}, 115\textsuperscript{C} or 124\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

300 Level Courses

STAT 334: Introduction to Probability Models and Simulation. 3 credits.
Introduction to basic probability and principles of simulation. Emphasis is placed on formulation of models and simulation applications to statistical methodology. Topics include: basic probability rules, counting methods, discrete and continuous probability spaces, independence, conditional probability, expectation, variance, and limit theorems. Distributions covered include the binomial, hypergeometric, Poisson, normal, Gamma, Beta, multinomial, and multivariate normal. Intended primarily for students in the Statistics Bachelor’s program. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 260\textsuperscript{C} and (MATH 114\textsuperscript{C}, 116\textsuperscript{C} or 124\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 344: Probability and Statistics for Engineers and Scientists I. 3 credits.
Introduction to probability and statistics with applications to computer science, engineering, operations research, and information technology. Basic concepts of probability, random variables and expectation, Poisson process, bivariate distributions, sums of independent random variables, central limit theorem, sampling distributions, maximum likelihood and unbiased estimators, confidence interval construction, and hypothesis testing. Offered by Statistics (p. 1060). Limited to two attempts. Equivalent to MATH 351.

Registration Restrictions:
Required Prerequisites: (MATH 114\textsuperscript{C} or 116\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 346: Probability for Engineers. 3 credits.
Introduction to probability with applications to electrical and computer engineering, operations research, information technology, and economics. Basic concepts of probability, conditional probability, random variables and moments, specific probability distributions, multivariate distributions, moment-generating functions, limit theorems, and sampling distributions. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (MATH 213\textsuperscript{C} or 215\textsuperscript{C}).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 350: Introductory Statistics II. 3 credits.
Further examination of statistics and data analysis with an emphasis on applications. Inference for comparing multiple samples, experimental design, analysis of variance and post-hoc tests. Simple linear, multiple and logistic regression. Analysis of contingency tables and categorical data. A statistical computer package is used for data analysis. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 250\textsuperscript{C} or 260\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 354: Probability and Statistics for Engineers and Scientists II. 3 credits.
Multivariate probability distributions, variable transformations, regression, analysis of variance, contingency tables, and nonparametric methods. Applications to quality control, acceptance sampling, and reliability. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 334\textsuperscript{C} or 344\textsuperscript{C} or (STAT 346\textsuperscript{C} and (STAT 250\textsuperscript{C} or 260\textsuperscript{C})).
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
STAT 356: Statistical Theory. 3 credits.
Introduction to the mathematical theory of statistical inference, emphasizing inference for standard parametric families of distributions. Topics include: properties of estimators; Bayes and maximum likelihood estimation; sufficient statistics; properties of test of hypotheses; most powerful and likelihood-ratio tests; and distribution theory for common statistics based on normal distributions. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: STAT 346\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 362: Introduction to Computer Statistical Packages. 3 credits.
Use of computer packages in statistical analysis of data. Topics include data entry, checking, and manipulation, and use of computer statistical packages for regression and analysis of variance. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 250\textsuperscript{C}, 260\textsuperscript{C} or BUS 310\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

400 Level Courses

STAT 435: Analysis of Experimental Data. 3 credits.
Second course in statistics intended to assist with analysis of data from educational research and the social, natural, and life sciences. Topics include sample surveys, contingency tables, linear and multiple regression, analysis of variance, nonparametric tests, and multivariate methods. Various statistical packages will be used. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 250\textsuperscript{C}, 260\textsuperscript{C} or 344\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 455: Experimental Design. 3 credits.
Introduces problems and techniques inherent in design of experiments, which refers to planning an experiment so that collected data can be analyzed by statistical methods. Covers the two aspects to any experimental problem: the design itself and the analysis of the resulting data. Examples from numerous disciplines in the sciences and the humanities are discussed. Data analysis is emphasized. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 350\textsuperscript{C}, 354\textsuperscript{C} or 435\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 456: Applied Regression Analysis. 3 credits.
Presents regression concepts and techniques as synthesis of theory, methods, and applications. Emphasis on understanding assumptions of the regression model, how to validate a selected model, when and how regression might be useful in different application areas, and interpreting output from statistical software packages. Topics include: multiple regression model fitting, logistic regression, and time series analysis. Data analysis is emphasized. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 350\textsuperscript{C}, 354\textsuperscript{C}, 435\textsuperscript{C} or BUS 310\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 460: Introduction to Biostatistics. 3 credits.
Focuses on biostatistical aspects of design and analysis of biomedical studies, including epidemiologic observational studies and randomized clinical trials. Topics include randomization principle, confounding, ethics in human experimentation, methods of randomization, stratification, primary outcome analyses, covariate-adjusted analyses, epidemiologic measures, and sample size and power computation. Offered by Statistics (p. 1060). Limited to two attempts.

Recommended Prerequisite: Working knowledge of SAS.

Registration Restrictions:
Required Prerequisites: STAT 350\textsuperscript{C}, 354\textsuperscript{C} or 435\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 462: Applied Multivariate Statistics. 3 credits.
Introduces a variety of multivariate statistical methods as aids to analyzing and interpreting large data sets. These methods will have general applications across a wide range of disciplines. Topics include: principal components analysis, cluster analysis, discriminant analysis, multi-dimensional scaling, correspondence analysis, and canonical correlation analysis. Extensive use of statistical software. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 350\textsuperscript{C}, 354\textsuperscript{C} or 435\textsuperscript{C}.
\textsuperscript{C} Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 463: Introduction to Exploratory Data Analysis. 3 credits.
Features statistical graphics, maps and simple models used to bring out patterns in data. Introduces statistical software and addresses data access and import. Presents exploratory strategies motivating data transformations. Stresses the cognitive foundations of good graphics. Graphics include dot plots, box plots, Q-Q plots, parallel coordinate plots, scatterplot matrices and linked views. Exploration includes use of dynamic graphics. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 350\textsuperscript{C}, 354\textsuperscript{C}, 435\textsuperscript{C} or BUS 310\textsuperscript{C}.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture
Students will develop a historical and ethical appreciation of the field of statistics as well as connect methods from their undergraduate coursework to solve problems. Students will work in small groups to develop a project proposal for STAT 490. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 354C and 362C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior.
Enrollment is limited to students with a major in Statistics.
Enrollment limited to students in a Bachelor of Science degree.
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 490: Capstone in Statistics. 3 credits.
Students will synthesize methods and ideas acquired in their undergraduate courses by working in small groups on a project and presenting their findings in a written report and an oral presentation. Offered by Statistics (p. 1060). Limited to two attempts.

Mason Core: Capstone (p. 135)

Registration Restrictions:
Required Prerequisite: STAT 489C.
C Requires minimum grade of C.

Enrollment is limited to students with a major in Statistics.
Enrollment limited to students in a Bachelor of Science degree.
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 498: Independent Study in Statistics. 1-3 credits.
Directed self-study of special topics of current interest in statistics. Notes: May be repeated if topics are substantially different. Offered by Statistics (p. 1060). Limited to two attempts.

Recommended Prerequisite: 60 hours.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

STAT 499: Special Topics in Statistics. 3 credits.
Topics of special interest to undergraduates. Notes: May be repeated if topics are substantially different. Offered by Statistics (p. 1060). Limited to two attempts.

Recommended Prerequisite: 60 undergraduate credits.

Registration Restrictions:
Washington Consortium level students may not enroll.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 489: Pre-Capstone Professional Development. 3 credits.
Develops skills in the areas of technical writing and oral communication. Students will develop a historical and ethical appreciation of the field of statistics as well as connect methods from their undergraduate coursework to solve problems. Students will work in small groups to develop a project proposal for STAT 490. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 350C, 354C or 435C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior.
Enrollment is limited to students with a major in Statistics.
Enrollment limited to students in a Bachelor of Science degree.
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 472: Introduction to Statistical Learning. 3 credits.

Registration Restrictions:
Required Prerequisite: STAT 456C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 474: Introduction to Survey Sampling. 3 credits.
Introduction to design and analysis of sample surveys. Sample designs include simple random sampling; systematic sampling; and stratified, cluster, and multistage sampling. Analytical methods include sample size determination, ratio and regression estimation, imputation for missing data, and nonsampling error adjustment. Practical problems encountered in conducting a survey are discussed, such as questionnaire design. Methods applied to case studies of actual surveys. Class project may be required. Notes: Recommended for students of decision, information, social sciences, and mathematics. Offered by Statistics (p. 1060). Limited to two attempts.

Recommended Corequisite: STAT 362.

Registration Restrictions:
Required Prerequisites: STAT 350C, 354C or 435C.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 456: Nonparametric Statistics and Categorical Data Analysis. 3 credits.
Introduction to nonparametric methods and categorical data analysis. Topics include: tests for one-sample, two-related samples, and two independent samples; concepts of nonparametric ANOVA; tests for proportions; chi-squared tests, log-linear models, and contingency tables; goodness-of-fit tests; correlation and association analysis; nonparametric regression including logistic and Poisson regression; and bootstrapping, jackknifing, and cross-validation. Notes: Students may not receive credit for both STAT 465 and STAT 525. Offered by Statistics (p. 1060). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 350C, 354C or 435C.
C Requires minimum grade of C.

Enrollment limited to students with a class of Senior.
Enrollment is limited to students with a major in Statistics.
Enrollment limited to students in a Bachelor of Science degree.
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

STAT 456: Nonparametric Statistics and Categorical Data Analysis. 3 credits.
500 Level Courses

**STAT 501: SAS Language and Basic Procedures.** 1 credit.
Introduction to the SAS Data Step and Base SAS Procedures. Preparation for graduate students in use of SAS for other graduate courses offered by department. Topics include observation and variable structures, data interfaces, formats, functions, and procedures for summarizing and displaying data. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Course in statistics and experience with Microsoft OS.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**STAT 502: Introduction to SAS Statistical Graphics.** 1 credit.
Introduces generating presentation-quality statistical graphics using SAS. Continued preparation beyond STAT 501 for graduate students in the use of SAS for other graduate courses offered by department. Topics include: an overview of ODS Graphics and SAS/GRAPH, graph output options, and in-depth coverage of the ODS Graphics procedures. Traditional SAS/GRAPH procedures are briefly discussed. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Course in statistics and working knowledge of SAS.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**STAT 503: SAS Macro Language.** 1 credit.
Introduction to SAS Macro Language. Continued preparation beyond STAT 501 for graduate students in use of SAS for other graduate courses offered by department. Topics include macro language processing, macro variables, defining and calling macro variables, macro quoting, macro facility error messages, and examples of efficient code using macros. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Course in statistics and working knowledge of SAS.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**STAT 504: Introduction to SAS/IML.** 1 credit.
Introduction to SAS/IML, the matrix language within the SAS environment. Topics include defining matrices, performing standard matrix operations, operating on rows and columns of a data table, and writing efficient SAS/IML programs. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Working knowledge of SAS and matrix algebra.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**STAT 505: Introduction to R.** 1 credit.
Introduction to R syntax, graphical interface, and basic operations. Preparation for graduate students in use of R for other graduate courses offered by department. Topics include import and export of data; manipulation of R object structures; function creation; package installation; and procedures for simulation, modeling, summarizing data, and producing graphics. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Course in statistics.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**STAT 506: Introduction to SPSS.** 1 credit.
Introduction to SPSS, a widely-used statistical software package in social sciences. Provides an overview of SPSS procedures for manipulating data; summarizing and displaying data; and analyzing data from a variety of experimental designs. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Course in statistics and experience with Microsoft OS.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**STAT 515: Applied Statistics and Visualization for Analytics.** 3 credits. Introduces multivariate regression and random forests for modeling data. Addresses data access, variable selection and model diagnostics. Introduces foundations for visual thinking. Reviews common statistical graphics such as dot plots, box plots, q-q plots. Addresses more advanced methods such as scatterplot matrices enhanced by smoothed or density contours, and search tools for finding graphics with suggestive patterns. Notes: Course will introduce R software for analysis. A final project will involve visualization of a real data set. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: STAT 250 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**STAT 517: Experimental Design.** 3 credits. Introduces problems and techniques inherent in design of experiments, which refers to planning an experiment so that collected data can be analyzed by statistical methods. Covers the two aspects to any experimental problem: the design itself and the analysis of the resulting data. Examples from numerous disciplines in the sciences and the humanities are discussed. Data analysis is emphasized. Notes: Students may not receive credit for both STAT 455 and STAT 517. Offered by Statistics (p. 1060). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: STAT 535\(^B\) or 554\(^B\).

**STAT 525: Nonparametric Statistics and Categorical Data Analysis.** 3 credits. Introduction to nonparametric methods and categorical data analysis. Topics include tests for one-sample, two-related samples, and two independent samples; concepts of nonparametric ANOVA; tests for proportions; chi-squared tests, log-linear models, and contingency tables; goodness-of-fit tests; correlation and association analysis; nonparametric regression including logistic and Poisson regression; and bootstrapping, jackknifing, and cross-validation. Notes: Students may not receive credit for both STAT 465 and STAT 525. Cannot be used to satisfy requirements for MS in Statistical Science. Offered by Statistics (p. 1060). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: STAT 535\(^B\) or 554\(^B\).

\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

**STAT 526: Applied Regression Analysis.** 3 credits. Presents regression concepts and techniques as synthesis of theory, methods, and applications. Emphasis on understanding assumptions of the regression model, how to validate a selected model, when and how regression might be useful in different application areas, and interpreting output from statistical software packages. Topics include: multiple regression model fitting, logistic regression, and time series analysis. Data analysis is emphasized. Notes: Students may not receive credit for both STAT 456 and STAT 526. Cannot be used to satisfy requirements for MS in Statistical Science. Offered by Statistics (p. 1060). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: STAT 535\(^B\) or 554\(^B\).

\(^B\) Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

**STAT 530: Foundations of Statistical Thinking.** 3 credits. Provides a foundation in the key concepts underlying data analysis, statistics, and probability. Topics include research-based methods for developing statistical thinking, use of technology for learning about statistics, and structured learning activities. Statistical concepts include: distributions, measures of center and spread, sampling, sampling distribution, bivariate analysis, correlation, randomness, and law of large numbers. Notes: Cannot be used to satisfy requirements for MS in...
Statistical Science. Offered by Statistics (p. 1060). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: STAT 535\(^B\) or 554\(^B\).
\(^B\) Requires minimum grade of B.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

STAT 535: Analysis of Experimental Data. 3 credits.
Statistical methods for analysis of experimental data from educational research and the social, natural, and life sciences. Topics include sample surveys, contingency tables, linear and multiple regression, analysis of variance, nonparametric tests, and multivariate methods. Various statistical packages will be used. Notes: Students may not receive credit for both STAT 435 and STAT 535. Cannot be used to satisfy requirements for MS in Statistical Science. Certificate program students granted credit for only one of STAT 535 or STAT 554. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: STAT 250, STAT 344 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 544: Applied Probability. 3 credits.
The axioms of probability, conditional probability, random variables and expectation, multivariate and conditional distributions, conditional expectation, order statistics, transformations, moment generating functions, special distributions, limit theorems. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: MATH 213 and STAT 346, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Volgenau School of Engineering college.

Schedule Type: Lecture

Application of basic statistical techniques. Focus is on the problem (data analysis) rather than on the theory. Topics include descriptive statistics, exploratory data analysis; sampling distributions; one- and two-sample tests and confidence intervals for means, medians, proportions, and variances; and goodness-of-fit tests. Normal theory is introduced first with discussion of what happens when assumptions break down. Alternative robust and nonparametric techniques are presented. Notes: Certificate program students granted credit for only one of STAT 535 or 554. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: STAT 346, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Volgenau School of Engineering college.

Schedule Type: Lecture

STAT 560: Biostatistical Methods. 3 credits.
Focuses on biostatistical aspects of design and analysis of biomedical studies, including epidemiologic observational studies and randomized clinical trials. Topics include randomization principle, confounding, ethics in human experimentation, methods of randomization, stratification, primary outcome analyses, covariate-adjusted analyses, epidemiologic measures, and sample size and power computation. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to STAT 660.

Recommended Prerequisite: STAT 350 or STAT 354 or STAT 435; and working knowledge of SAS.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

STAT 574: Survey Sampling I. 3 credits.
Design and implementation of sample surveys. Covers components of a survey; probability sampling designs to include simple random, systematic, Bernoulli, proportional to size, stratified, cluster and two-stage sampling; and ratio and regression estimators. Discusses practical problems in conducting a survey. Methods applied to case studies of actual surveys. Class project may be required. Notes: Students may not receive credit for both STAT 474 and STAT 574. Offered by Statistics (p. 1060). May not be repeated for credit.
**Recommended Prerequisite:** STAT 346 and a course in Statistics, or STAT 344; and working knowledge of SAS.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the Volgenau School of Engineering college.

**Schedule Type:** Lecture

**600 Level Courses**

**STAT 634: Case Studies in Data Analysis.** 3 credits.
Examination of a wide variety of case studies illustrating data-driven model building and statistical analysis. With each case study, various methods of data management, data presentation, statistical analysis, and report writing are compared. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Working knowledge of SAS.

**Recommended Corequisite:** STAT 654.

**Registration Restrictions:**
Required Prerequisite: (STAT 554B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**STAT 652: Statistical Inference.** 3 credits.
Fundamental principles of estimation and hypothesis testing. Topics include limiting distributions and stochastic convergence, sufficient statistics, exponential families, statistical decision theory and optimality for point estimation, Bayesian methods, maximum likelihood, asymptotic results, interval estimation, optimal tests of statistical hypotheses, and likelihood ratio tests. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 672.

**Recommended Corequisite:** STAT 554.

**Registration Restrictions:**
Required Prerequisite: STAT 544B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**STAT 654: Applied Statistics II.** 3 credits.
Overview of statistical principles of modeling. Topics include methods for analyzing data based on generalized linear models and diagnostic methods for assessing the assumptions of such models. Methods covered include multiple regression, analysis of variance, simultaneous inference, logistic response models, and hierarchical log linear models for contingency tables. Offered by Statistics (p. 1060). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: STAT 554B.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**STAT 655: Analysis of Variance.** 3 credits.
Single and multifactor analysis of variance, planning sample sizes, introduction to the design of experiments, random block and Latin square designs, and analysis of covariance. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Corequisite:** STAT 544.

**Registration Restrictions:**
Required Prerequisite: (STAT 554B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**STAT 656: Regression Analysis.** 3 credits.
Simple and multiple linear regression, polynomial regression, general linear models, subset selection, step-wise regression, and model selection. Also covered are multicollinearity, diagnostics, and model building as well as the theory and practice of regression analysis. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 676.

**Registration Restrictions:**
Required Prerequisites: STAT 544B and 554B.
May be taken concurrently.
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 657: Nonparametric Statistics. 3 credits.
Distribution-free procedures for making inferences about one or more samples. Tests for lack of independence, association or trend, and monotone alternatives are included. Measures of association in bivariate samples and multiple classifications are discussed. Both theory and applications are covered. Students are introduced to appropriate statistical software. Offered by Statistics (p. 1060). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (STAT 544B and 554B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 658: Time Series Analysis and Forecasting. 3 credits.

Registration Restrictions:
Required Prerequisites: (STAT 544B and 554B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 662: Multivariate Statistical Methods. 3 credits.
Standard techniques of applied multivariate analysis. Topics include review of matrices, multivariate normal theory, principal components, canonical correlation, classification, factor analysis, clustering, and multidimensional scaling. Applications to data analytics. Computer implementation via a statistical package is an integral part of the course. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: Matrix algebra, and working knowledge of SAS.

Recommended Corequisite: STAT 544.

Registration Restrictions:
Required Prerequisite: (STAT 554B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 663: Statistical Graphics and Data Exploration I. 3 credits.
Introduces statistical graphics that show distribution features and functional relationships in the presence of noise. Introduces cognitive research guidance for graphics design and reasoning. Stresses quantitative comparisons from multiple perspectives. Features new micromaps designs for spatial and temporal comparisons. Introduces R, the grammar of graphics, and dynamic graphics software. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 773.

Recommended Prerequisite: A 300-level statistics course and a programming course, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 665: Categorical Data Analysis. 3 credits.
Analyzes cross-classified categorical data in two and higher dimensions. Topics include association tests and measures of association in two- and three-dimensional contingency tables, logistic regression, and log linear models. SAS is used extensively for data analysis. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Corequisite: STAT 544.

Registration Restrictions:
Required Prerequisite: (STAT 654B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 668: Survival Analysis. 3 credits.
Survival Analysis is a class of statistical methods for studying the occurrence and timing of events. In medical research, the events may be deaths, and the objective is to determine factors affecting survival times of patients following treatment, usually in the setting of clinical trials. Methods can also be applied to the social and natural sciences and engineering where they are known by other names (reliability, event history analysis). Concepts of censored data, time-dependent variables, and survivor and hazard functions are central. Nonparametric methods...
for comparing two or more groups of survival data are studied. The Cox regression model (proportional hazards model), Weibull model, and the accelerated failure time model are studied in detail. Concepts are applied to analysis of real data from major medical studies using SAS software. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Working knowledge of R and SAS.

**Registration Restrictions:**
**Required Prerequisites:** (STAT 544B and 554B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**STAT 672: Statistical Learning and Data Analytics.** 3 credits.
The course focuses on statistical learning theory by introducing the statistical and optimization background essential for understanding statistical learning algorithms. Also discusses applications of statistical learning algorithms to the solution of important problems in many areas of science. Offered by Statistics (p. 1060). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** (STAT 544B and 554B).
B- Requires minimum grade of B-.

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**STAT 751: Computational Statistics.** 3 credits.
Covers basic computationally intensive statistical methods and related methods, which would not be feasible without modern computational resources. Covers nonparametric density estimation including kernel methods, orthogonal series methods and multivariate methods, recursive methods, cross validation, nonparametric regression, penalized smoothing splines, the jackknife and bootstrapping, computational aspects of exploratory methods including the grand tour, projection pursuit, alternating conditional expectations, and inverse regression methods. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 771.

**Registration Restrictions:**
**Required Prerequisite:** STAT 652B.
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**STAT 756: Alternative Regression Methods.** 3 credits.
Presents several modern regression methodologies that are useful in data analysis when some of the assumptions of linear regression theory fail to hold. Topics include non-linear regression, quantile regression, robust regression, and computational methods for fitting these models. Offered by Statistics (p. 1060). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** (STAT 654B).
B- Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture
STAT 758: Advanced Time Series Analysis. 3 credits. Mathematical modeling and methods for model identification and forecasting of nonstationary and seasonal time series data (ARIMA models), multivariate time series, and state-space models. Offered by Statistics (p. 1060). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: (STAT 658<sup>B</sup>).
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 760: Advanced Biostatistical Methods. 3 credits. Advanced statistical methods in the drug development process. Provides the theoretical statistical basis for the design and analysis of pharmaceutical clinical trials. Topics include the theory of randomization, randomization-based inference, restricted, response-adaptive, and covariate-adaptive randomization, the modern theory of group sequential monitoring, statistical aspects of determination of dose-response relationships. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: Working knowledge of statistical programming language.

Registration Restrictions:
Required Prerequisites: (STAT 652<sup>B</sup> and 654<sup>B</sup>).
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 763: Statistical Graphics and Data Exploration II. 3 credits. Addresses data set size and human comprehension challenges. Introduces case and variable reduction methods, and overview production. Incorporates cognitive science guidance. Utilizes data mining models and visual analytic algorithms to find patterns and prioritize graphics. Addresses applications from both information and scientific visualization. Tracks advances in web graphics including citizen science projects harnessing the visual power of thousands of people. Offered by Statistics (p. 1060). May not be repeated for credit.

Registration Restrictions:
Required Prerequisites: (STAT 663<sup>B</sup> or 515<sup>B</sup>).
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 765: Advanced Topics in Categorical Data Analysis. 3 credits. Covers advanced techniques for categorical data analysis and the theoretical basis for the analysis of categorical data. Topics include: models for multinomial responses, matched pairs, repeated measures, and ordinal data; random effects models; asymptotic theory for parametric models; theory for maximum likelihood and alternative estimation methods; and exact inference. Statistical software packages are used extensively for data analysis. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: Working knowledge of R and SAS.

Registration Restrictions:
Required Prerequisites: (STAT 652<sup>B</sup> and 654<sup>B</sup>).
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 771: Spatial Data Analysis. 3 credits. Presents analysis techniques for spatially-indexed or spatially-correlated data that arise in many areas of science, including medicine, transportation, and atmospheric sciences. Focus is on data analysis rather than theory, though theory will necessarily be covered. Topics include analysis of point patterns, trend and surface estimation, and spatial regression. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: Working knowledge of SAS.

Registration Restrictions:
Required Prerequisites: (STAT 652<sup>B</sup> and 654<sup>B</sup>).
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 773: Statistical Methods for Longitudinal Data Analysis. 3 credits. Presents modern statistical approaches to the analysis of longitudinal data, i.e., data collected repeatedly on experimental units over time (or other conditions). Topics include linear mixed effects models, generalized linear models for correlated data (including generalized estimating equations), and computational issues and methods for fitting models. Offered by Statistics (p. 1060). May not be repeated for credit.

Recommended Prerequisite: Working knowledge of SAS.

Registration Restrictions:
Required Prerequisites: STAT 652<sup>B</sup> and 654<sup>B</sup>.
<sup>B</sup> Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

STAT 778: Algorithms and Simulation for Statistics in C. 3 credits. Introduces high level simulations and algorithms for complex statistical problems using C. Topics include: pointers, arrays, random number generation, iterative numerical algorithms, sorting, matrix operation, numerical integration and Bayesian computation, advanced data structure for complex problems, and parallel processing. Complex
programming problems related to statistical modeling and inference are studied. Offered by Statistics (p. 1060). May not be repeated for credit.

**Registration Restrictions:**

- **Required Prerequisites:** STAT 652\textsuperscript{B} or CSI 672\textsuperscript{B}.

\textsuperscript{B} Requires minimum grade of B-.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**STAT 796:** Independent Studies/Directed Readings. 1-3 credits.

Reading and research on a specific topic in statistics under guidance of graduate faculty member. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** Permission of instructor and department’s graduate coordinator.

**Registration Restrictions:**

- Enrollment is limited to Graduate, Non-Degree or Washington Consortium level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Independent Study

**STAT 798:** Master's Research Project. 3 credits.

Project chosen and completed under guidance of graduate faculty member that results in acceptable technical report. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** 9 graduate credits, and permission of instructor.

**Registration Restrictions:**

- Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Thesis

**STAT 799:** Master's Thesis. 1-6 credits.

Project chosen and completed under guidance of graduate faculty member that results in acceptable technical report and oral defense. Offered by Statistics (p. 1060). May be repeated within the degree for a maximum 6 credits. Equivalent to SYST 799.

**Recommended Prerequisite:** 9 graduate credits, and permission of instructor.

**Registration Restrictions:**

- Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Thesis

**800 Level Courses**

**STAT 871:** Statistical Data Mining. 3 credits.

Covers basic concepts, computational complexity, data preparation and compression, databases and SQL, rule-based machine learning and probability, density estimation, exploratory data analysis, cluster analysis and pattern recognition, artificial neural networks, classification and regression trees, correlation and nonparametric regression, time series, and visual data mining. Offered by Statistics (p. 1060). May not be repeated for credit.

**Recommended Prerequisite:** STAT 554 or 663, or permission of instructor.

**Registration Restrictions:**

- Enrollment is limited to Graduate level students.

**Schedule Type:** Lecture

**STAT 877:** Geometric Methods in Statistics. 3 credits.

Develops foundations of geometric methods for statistics. Topics include n-dimension Euclidian geometry; projective geometry; differential geometry, including curves, surfaces, and n-dimensional differentiable manifolds; and computational geometry, including computation of convex hulls, tessellations of two-, three-, and n-dimensional spaces, and finite element grid generation. Examples include applications to scientific visualization. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 877.

**Recommended Prerequisite:** STAT 751 or permission of instructor.

**Registration Restrictions:**

- Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**STAT 889:** Advanced Topics in Statistics. 3 credits.

Advanced topics not occurring in regular sequence. Offered by Statistics (p. 1060). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Doctoral standing and permission of instructor.

**Registration Restrictions:**

- Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**STAT 896:** Advanced Directed Reading. 3 credits.

Individualized study with a graduate faculty member in the Department of Statistics. Syllabus and grading criteria must be preapproved by the PhD in Statistical Science Program Director. Offered by Statistics (p. 1060). May not be repeated for credit.

**Registration Restrictions:**

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Enrollment is limited to students with a major in Statistical Science.

Enrollment limited to students in the PHD Statistical Science program.

Enrollment is limited to Graduate level students.

Enrollment limited to students in a Doctor of Philosophy degree.

Enrollment limited to students in the Volgenau School of Engineering college.

Schedule Type: Independent Study

900 Level Courses

STAT 971: Probability Theory. 3 credits.
A rigorous measure-theoretic treatment of probability. Includes expectation, distributions, laws of large numbers and central limit theorems for independent random variables, characteristic function methods, conditional expectations, martingales, strong and weak convergence, and Markov chains. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 971.

Registration Restrictions:
Required Prerequisites: (STAT 544$^{B}$ and MATH 315$^{B}$).

B$^{B}$ Requires minimum grade of B.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

STAT 972: Mathematical Statistics I. 3 credits.
Focuses on theory of estimation. Includes methods of moment, least squares, maximum likelihood, and maximum entropy methods. Details methods of minimum variance unbiased estimation. Topics include sufficiency and completeness of statistics, Fisher information, Cramer-Rao bounds, Bhattacharyya bounds, asymptotic consistency and distributions, statistical decision theory, minimax and Bayesian decision rules, and applications to engineering and scientific problems. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 972.

Registration Restrictions:
Required Prerequisites: (STAT 652$^{B}$ or CSI 672$^{B}$) and (CSI 876$^{B}$, STAT 971$^{B}$ or CSI 971$^{B}$).

B$^{B}$ Requires minimum grade of B.

Enrollment is limited to Graduate level students.

Schedule Type: Lecture

STAT 973: Mathematical Statistics II. 3 credits.
Continuation of STAT 972/CSI 972. Concentrates on theory of hypothesis testing. Topics include characterizing decision process, simple versus simple hypothesis tests, Neyman-Pearson Lemma, uniformly most powerful tests, unbiasedness and invariance of tests, and randomized and sequential tests. Applications of testing principles made to situations in normal distribution family and other families of distributions. Offered by Statistics (p. 1060). May not be repeated for credit. Equivalent to CSI 973.

Registration Restrictions:
Required Prerequisites: (STAT 972$^{B}$ or CSI 972$^{B}$).

B$^{B}$ Requires minimum grade of B.

Enrollment is limited to Graduate level students.

Schedule Type: Independent Study

System Engineering (SYST)

100 Level Courses

SYST 101: Understanding Systems Engineering. 3 credits.
Introduces systems engineering and curriculum for BS in field. Introduces large and small systems, and explains them through some hands-on experiences. Key concepts include understanding requirements for system and translation of system-level requirements to component-level requirements. Several different kinds of example systems presented and discussed: objectives, major components, how system works, and major design issues. Each student gives a similar presentation on system of choice. Students work in groups design, develop, and test system, and give oral presentation. Students are responsible for writing several short
papers on curriculum and presentations they have heard. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 198: Independent Study in Systems Engineering. 1-3 credits. Must be arranged with instructor and approved by department chair before registering. Directed self-study of special topics of current interest in systems engineering. Notes: May be repeatable if topics are substantially different. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the term for a maximum 6 credits.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

200 Level Courses

SYST 202: Engineering Systems in a Complex World. 3 credits. This course introduces students to the study of engineering systems as a means of understanding larger historical trends in a global society. Students will use case studies and historical analyses to think strategically and globally about the management and execution of complex systems in the context of culture, environment, politics and economics, and learn how to employ such analyses as decision-making tools for leadership. Students will be required to critically analyze articles and books, and work in groups to investigate and present topics of current national and international relevance. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts. Equivalent to HIST 202, SYST 100.

Mason Core: Global Understanding (p. 135)

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture


Required Prerequisite: SYST 101.

Registration Restrictions:
Students with a class of Freshman may not enroll.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 220: Dynamical Systems I. 3 credits. Introduces modeling of dynamical systems. Formulation of mathematical models from system descriptions, including computer, biological, economic, transportation, and mechanical systems. Analytical and numerical methods for solving models and studying their behavior. Discrete-time and continuous time systems. Linear and nonlinear systems. Introduction to computer modeling using MATLAB. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (MATH 114 C or 116 C) and (PHYS 160 C) and (SYST 221 C and MATH 203 C).
C May be taken concurrently.
C Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Systems Engineering.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory


Registration Restrictions:
Required Prerequisites: SYST 101 C, CS 112 C and SYST 220 C.
C May be taken concurrently.
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Laboratory

300 Level Courses


Registration Restrictions:
Required Prerequisites: (SYST 220 C, MATH 203 C, 214 C, and PHYS 260 C).
C Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 330: Systems Methods. 3 credits. Provides students with a general introduction to a variety of quantitative techniques that are relevant to systems engineering. Focuses on the use of quantitative techniques to model and evaluate design options. Scope includes: Analysis methods of system engineering design and management, decision analysis, models for engineering economics and evaluations, probability and statistical methods for data analysis, management control techniques, reliability, and maintainability analysis, risk and uncertainty management, and life-cycle cost analysis. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (MATH 114 C or 116 C) and (STAT 344 C and SYST 221 C).
C May be taken concurrently.
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 335: Discrete Systems Modeling and Simulation. 3 credits.
Introduces basic concepts of modeling complex discrete systems by computer simulation. Topics include Monte-Carlo methods, discrete-event modeling, specialized simulation software, and statistics of input and output analysis. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts. Equivalent to OR 335.

Registration Restrictions:
Required Prerequisites: CS 112\textsuperscript{C} and (STAT 344\textsuperscript{C}, 346\textsuperscript{C} or MATH 351\textsuperscript{C}) and CS 211\textsuperscript{C}.
\textsuperscript{*}May be taken concurrently.
\textsuperscript{C}Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 371: Systems Engineering Management. 3 credits.
Study of basics of systems engineering management. Includes engineering economics, planning, organizing, staffing, monitoring, and controlling process of designing, developing, and producing system to meet stated need in effective and efficient manner. Discusses management tools, processes, and procedures, including various engineering documentation templates, managerial processes, and dealing with personnel issues. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: SYST 210\textsuperscript{C}, SYST 220\textsuperscript{C} and 330\textsuperscript{C}.
\textsuperscript{*}May be taken concurrently.
\textsuperscript{C}Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 395: Applied Systems Engineering. 3 credits.
The course will enhance the student's system engineering experience by designing and building projects involving real world complex systems. The course will build physical models that follow the steps of system life cycle process: statement of need, design, requirements, architecture, implementation, testing, verification and validation. Projects are multidisciplinary in nature, requiring the student teams to learn about various real world systems such as internet communications, navigation, robotics, creating a GUI, and transmitting and receiving data from sensors. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: (SYST 210\textsuperscript{C} and 101\textsuperscript{C}) and (SYST 220\textsuperscript{C}, 221\textsuperscript{C}, 335\textsuperscript{C} and 371\textsuperscript{C}).
\textsuperscript{*}May be taken concurrently.
\textsuperscript{C}Requires minimum grade of C.

Students cannot enroll who have a major in Undeclared.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 420: Network Analysis. 3 credits.

Registration Restrictions:
Required Prerequisites: (OR 441\textsuperscript{C}) and (MATH 213\textsuperscript{C} or 215\textsuperscript{C}).
\textsuperscript{C}Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 421: Classical Systems and Control Theory. 3 credits.

Registration Restrictions:
Required Prerequisite: ECE 220\textsuperscript{C}.
\textsuperscript{C}Requires minimum grade of C.

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 438: Analytics for Financial Engineering and Econometrics. 3 credits.
Introduces the basic analytics for financial engineering and econometrics. Topics include financial transactions and econometric data management, correlation, linear and multiple regressions for financial and economic predictions, financial time series analysis, portfolio theory, and risk analysis. Provides a foundation of basic theory and methodology as well as applied examples with techniques to analyzing large financial and econometric data. Hands-on experiments with R will be emphasized throughout the course. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts. Equivalent to OR 438.

Recommended Corequisite: STAT 354.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

SYST 460: Introduction to Air Traffic Control. 3 credits.
Introduction to Air Traffic Control (ATC) for those who plan professions in the air transportation industry. Surveys the entire field, presenting the history of ATC and how it came to be as it is, the technology on which the system is based, the procedures used by controllers to meet the safety and efficiency goals of the system, the organizational structure of the FAA, challenges facing the system, and means under investigation to meet these challenges. Some fieldwork will be required to acquire and analyze airport operational data. A brief introduction to airport design...
will be discussed. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Recommended Prerequisite:** Junior standing or graduate standing.

**Registration Restrictions:** Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**SYST 461:** *Air Transportation System Engineering*. 3 credits.
Focuses on the theory and practice of system engineering in a national air transportation system. Stresses the application of mathematical techniques to analyze and design complex network transportation systems, airports, airspace, airline schedules, and traffic flow. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Recommended Prerequisite:** SYST 460 or permission of instructor.

**Registration Restrictions:** Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**SYST 462:** *Flight Training Lab I*. 3 credits.
This course fulfills the requirements of 14 CFR, Section 141, Appendix B for obtaining a private pilot certificate with airplane category, single engine land class rating. Flight Training I will include the flight training up to and including maneuvering and navigating the aircraft. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Recommended Corequisite:** SYST 460.

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Aviation Flight Trng and Mgmt.
- Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Laboratory

**SYST 463:** *Flight Training Lab II*. 3 credits.
This course fulfills the requirements of 14 CFR, Section 141, Appendix B for obtaining a private pilot certificate with airplane category, Airplane - Single Engine Land class rating. Flight Training II will include the flight training up to and including the dual and solo flight instruction in cross-country navigation by pilotage, dead reckoning, and use of VOR, NDB, and HSI. Flight test preparation for private pilot certification. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Recommended Prerequisite:** SYST 462.

**Registration Restrictions:**
- Enrollment is limited to students with a major, minor, or concentration in Aviation Flight Trng and Mgmt.
- Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Laboratory

**SYST 465:** *Pricing in Optimization and Game Theory*. 3 credits.
Allocation of limited resources among competing activities to maximize the outcome or minimization of expenses required to produce a given assortment of goods and services are two typical problems faced by any economic institution. Mathematical modeling of such problems and finding efficient mathematical tools for solving them are two main goals of modern optimization theory. Pricing limited resources, goods, and services is the key instrument for theoretical analysis of complex economical systems. Pricing theory can also give rise to numerical methods for finding optimal solutions and economic equilibrium.

Fundamental tools in pricing theory are the classical Lagrangian and Lagrange multipliers for constrained optimization. Covers the basic ideas and methods of linear programming and matrix games. Particular emphasis to pricing for both theoretical analysis and numerical methods. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Recommended Prerequisite:** MATH 203 or 216 and OR 441, or permission of instructor.

**Registration Restrictions:** Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**SYST 468:** *Applied Predictive Analytics*. 3 credits.
Introduces students to the fundamentals of data analysis and some of the most widely used models in applied predictive analytics. The students learn how to summarize data and explore relationship between variables, including principle component analysis and multidimensional scaling. Class instruction follows with a presentation of commonly used tables, visualizations, and statistical tests for comparing groups. Linear predictive models for both continuous and binary outcomes (logistic regression) are discussed in detail. The course introduces students to clustering and classification using random forest and naive Bayes. The course concludes with topics on choice modeling. Hands-on programming with R is emphasized. While no prior knowledge on R is required, students must be well prepared in programming. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Required Prerequisites:** (STAT 344 C, 346 C, 250 C or MATH 351 C) and (IT 206 C or CS 112 C).

**Registration Restrictions:**
- Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**SYST 469:** *Human Computer Interaction*. 3 credits.
Covers principles of human-computer interaction, including information processing design, cognitive models, ergonomics, and design metaphors. Students learn to evaluate interface design in terms of effectiveness, efficiency, and cost. Notes: Students who receive credit for SYST 470 may not receive credit for this course. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Required Prerequisites:** (STAT 250 C, 344 C, 346 C or MATH 351 C) and (IT 106 C or CS 112 C).

**Registration Restrictions:**
- Students with the terminated from VSE major attribute may **not** enroll.

**Schedule Type:** Lecture

**SYST 470:** *Human Factors Engineering*. 3 credits.
Human information processing, inferential analysis, biases and heuristics in human information processing, support systems to aid in human information processing, human-system interaction, and software systems
SYST 473: Decision and Risk Analysis. 3 credits.
Studies analytic techniques for rational decision making that address uncertainty, conflicting objectives, and risk attitudes. Covers modeling uncertainty; rational decision making principles; representing decision problems with value trees, decision trees, and influence diagrams; solving value hierarchies, decision trees and influence diagrams; defining and calculating the value of information; incorporating risk attitudes into the analysis; and conducting sensitivity analyses. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Registration Restrictions:
Required Prerequisites: STAT 250\(^C\), 344\(^C\), 346\(^C\) or MATH 351\(^C\).
\(^C\) Requires minimum grade of C.

Recommended Prerequisite: OR 441.

Recommended Corequisite: SYST 465.

SYST 480: Economic Systems Design I: Principles and Experiments. 3 credits.
Introduces design principles used in developing systems used to allocate resources. Students required to participate in experiment demonstrations of different allocation mechanisms. Students are also exposed to experimental methods in economics and market design. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts. Equivalent to ECON 440.

Recommended Prerequisite: OR 441.

Recommended Corequisite: SYST 465.

SYST 488: Financial Systems Engineering. 3 credits.
This course is an introduction to financial engineering. Financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions. This course will introduce basic types of derivatives, such as forward, futures, swaps, and options; as well as financial models such as Brownian motion, Ito's formula, and Black-Scholes model. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Recommended Prerequisite: OR 441.

SYST 489: Senior Seminar. 3 credits.
Introduces several important topics in systems engineering, providing additional experience in writing and giving presentations, and obtaining feedback on curriculum for BS in systems engineering. Several lectures devoted to ethics; writing and making presentations also covered. Students attend technical lectures and write paper. Students are required to write long paper on new technology. Instructor and guest lecturers present material not part of required course load to expand horizons. Examples are "knowledge-based" design, enterprise-wide reengineering, electronic commerce, and optimization by "natural analogy" (simulated annealing, neural networks, genetic algorithms). In addition, students work in teams to critique and redesign curriculum. Each group delivers written product, and provides at least one briefing to class. Best critique and redesign presented to faculty. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Registration Restrictions:
Required Prerequisite: SYST 490\(^C\).
\(^C\) May be taken concurrently.

SYST 490: Senior Design Project I. 3 credits.
First part of capstone course in systems engineering program. Students apply knowledge they have gained to group project. During first semester, students perform concept definition and requirements analysis. Plan for carrying out project is developed, culminating in proposal presented to faculty at end of semester. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Recommended Prerequisite: 90 satisfactory credits.

SYST 491: Industrial Project. 1-3 credits.
Semester-long work experience in systems engineering in industrial or governmental organization. Work supervised jointly by systems engineer from sponsoring organization and department faculty member. Project and arrangements for supervision must be approved by student’s faculty advisor. Periodic reports, presentations, and a written final report are required. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Recommended Prerequisite: 75 credits toward BS in Systems Engineering, SYST 330; GPA of at least 3.00.

Registration Restrictions:
Students with the terminated from VSE major attribute may not enroll.
Schedule Type: Lecture

SYST 495: Capstone, Synthesis (p. 135) 3 credits.

Recommended Prerequisite: SYST 490. May not be repeated for credit.

Registration Restrictions:

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

SYST 498: Independent Study in Systems Engineering. 1-3 credits.

Recommended Prerequisite: 60 credits towards BS in systems engineering, and GPA of at least 3.00.

Registration Restrictions:

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Independent Study

SYST 499: Special Topics in Systems Engineering. 3 credits.

Topics of special interest to undergraduates. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

Recommended Prerequisite: 60 credits toward BS in systems engineering; specific prerequisites vary with nature of topic.

Registration Restrictions:

Students with the terminated from VSE major attribute may not enroll.

Schedule Type: Lecture

500 Level Courses

SYST 500: Quantitative Foundations for Systems Engineering. 3 credits.

Provides quantitative foundations necessary for core courses in systems engineering and operations research master's program, and certificate program in C4I. Topics include vectors and matrices, infinite series, partial differentiation, multiple integrals, differential and difference equations; linear systems; Laplace and Z-transforms, and probability theory. Students receive graduate credit for this course, which, when used on plan of study, extends minimum credit requirements for degree. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to CSI 600.

Recommended Prerequisite: MATH 203 and 213.

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
prevailing cost estimation models and planning and control of common operating environments. Lecture and group project including creation of requirements and use of cost estimation model. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 513: Total Systems Engineering, Reengineering and Enterprise Integration. 3 credits.
Principles of strategic quality, including TQM. Quality standards including ISO9000 and 14000. Organizational leadership, cultures, and process maturity, reengineering. Quality, organization learning, and reengineering approaches to enable information integration and management and environment and framework integration in the systems engineering of knowledge intensive systems. Emphasis is placed on the role of integrated product and process design teams, standard and commercial off-the-shelf products in enterprise integration. Architecture-driven system characteristics are studied, as is transition management of legacy systems. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: SYST 510 or 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 514: Systems Thinking. 3 credits.
Enables students to understand and use systems thinking concepts, tools and techniques that can apply across all system types, especially those which exhibit a fusion of technology and human activities. Additionally, the course extends the understanding of systems beyond technology, to systems with significant human activity components, such as organizations and enterprises. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Corequisite: SYST 505.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 520: System Engineering Design. 3 credits.
System engineering design methods are studied and practiced, including object-oriented and structured analysis based techniques. Design Description languages such as UML, SysML, IDEF0 and IDEF1x are introduced and used in carrying out complete system designs. Teams make presentations of their designs. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to ECE 550.

Recommended Corequisite: SYST 505.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 521: Network Analysis. 3 credits.

Recommended Prerequisite: MATH 203 and 213, OR 441 or OR 541.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 523: Engineering Resilient and Agile Enterprise Systems. 3 credits.
Large-scale enterprise systems have ill-defined boundaries, complex behaviors, and evolve in unplanned ways. Enterprise systems need to be resilient and agile. This course introduces several tools and frameworks that can be used to understand resilience and agility, design resilience and agility into enterprises, and measure the degree of enterprise resilience and agility. Case studies are used to explore these concepts.
Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 530: Systems Engineering Management I.** 3 credits.
Provides techniques for evaluating cost and operational effectiveness of system designs and systems management strategies. Discusses performance measurement, work breakdown structures, cost estimating, quality management, configuration management, standards, and case studies of systems from different application areas. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** SYST 510.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 538: Analytics for Financial Engineering and Econometrics.** 3 credits.
This course introduces the basic analytics for financial engineering and econometrics, topics include financial transactions and econometric data management, correlation, linear and multiple regressions for financial and economic predictions, financial time series analysis, portfolio theory and risk analysis. It will provide a foundation of basic theory and methodology as well as applied examples with techniques to analyzing large financial and econometric data. Hands-on experiments with R will be emphasized throughout the course. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 538.

**Recommended Prerequisite:** STAT 515 or STAT 544.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 542: Decision Support Systems Engineering.** 3 credits.
Studies design of computerized systems to support individual or organizational decisions. Teaches systems engineering approach to decision support system (DSS) development. DSS is end product of development process, and process is key to successfully integrating DSS into organization. Any DSS is built on a theory (usually implicit) of what makes for successful decision support in given context. Empirical evaluation of specific DSS and the underlying theory should be carried on throughout development process. Course examines prevailing theories of decision support, considers issues in obtaining empirical validation for theory, and discusses empirical support that exists for theories considered. Students design decision support system for semester project. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** SYST 301.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 560: Introduction to Air Traffic Control.** 3 credits.
Introduction for those who plan professions in aviation industry. Surveys entire field, presenting history of ATC and how it came to be, technology on which system is based, procedures used by controllers to meet safety and efficiency goals, organizational structure of the FAA, challenges facing system, and means under investigation to meet these challenges. Involves some field work for data collection and analysis. Class project requiring system simulation required. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 563: Evidence-Based Systems Engineering.** 3 credits.
A common cause of failure and risk in system development is making decisions when lacking clear evidence to support them. This course presents frameworks and methods used to make sound, evidence-based decisions throughout the system lifecycle. Students learn what information to gather, how to analyze it, and how to present those analyses when deciding on the adequacy of programmatic decisions.
Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** STAT 344 and STAT 354 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 568: Applied Predictive Analytics.** 3 credits.
Introduces predictive analytics with applications in engineering, business, and econometrics. Topics include time series and cross-sectional data processing, correlation, linear and multiple regressions, time series decomposition, predictive modeling and case study. Provides a foundation of basic theory and methodology with applied examples to analyze large engineering and econometric data for predictive decision making. Hands-on experiments with R will be emphasized. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 568.

**Recommended Prerequisite:** STAT 515 or enrollment in the MSOR or MSSE programs.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 574: Quality Control and Process Management.** 3 credits.
Provides fundamentals of quality control and process management methodologies that are applicable in manufacturing industries. Introduces the basic concepts of engineering process and product quality management techniques. Provides exposition of fundamentals of lean Six Sigma and total quality management and maintainability. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 574.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 566: Manufacturing Systems Analysis.** 3 credits.
Provides fundamentals of modeling and analysis of general manufacturing systems that are also applicable to semiconductor manufacturing. Introduces the basic concepts of scheduling, inventory control, and enterprise resource management. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 576.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 573: Decision and Risk Analysis.** 3 credits.
Study of analytic techniques for rational decision making that address uncertainty, conflicting objectives, and risk attitudes. Covers modeling uncertainty; rational decision-making principles; representing decision problems with value trees, decision trees, and influence diagrams; solving value hierarchies, decision trees, and influence diagrams; defining and calculating the value of information; incorporating risk attitudes into the analysis; and conducting sensitivity analysis. Note: Students may not receive credit for both SYST 473 and 573. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 681.

**Recommended Prerequisite:** STAT 344 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 570: Introduction to C4I Systems.** 3 credits.
This course provides a high-level introduction to fundamental principles of Command, Control, Communication, Computing, and Intelligence (C4I). The principles and techniques are applicable to a wide range of civilian and military situations. The sensing, fusion, and situation assessment processes for decision making as well as the concepts of modeling, simulation, and C4 architectures are discussed. Several cases studies of C4I systems are also included. Notes: Students who take SYST 680 may not take SYST 580. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.
Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

600 Level Courses

SYST 584: Heterogeneous Data Fusion. 3 credits.
Introduces the theory, design and implementation of multi-source information fusion systems in various domains. The course covers distinct technologies for combining data from multiple, heterogeneous sources and performing inferences in support to applications such as cyber security, Semantic Web, decision support systems, situational awareness, intrusion detection, crisis management, and others. The technical content is largely multi-disciplinary, encompassing disciplines such as knowledge engineering, ontologies, statistical learning, artificial intelligence, and data mining. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 588: Financial Systems Engineering I: Introduction to Options, Futures, and Derivatives. 3 credits.
This course is an introduction to financial engineering. Financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions. This course will introduce basic types of derivatives, such as forward, futures, swaps, and options; as well as financial models such as Brownian motion, Ito's formula, and Black-Scholes model. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 588.

Recommended Prerequisite: Eng. or Math Graduate standing, or permission of instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 611: System Methodology and Modeling. 3 credits.
Provides broad yet rigorous foundations and applications of dynamic modeling. Emphasizes methodologies used across various disciplines. Topics include modeling and analysis of time-driven and event-driven, linear and nonlinear systems. The applications are presented with real-world example systems. Methodologies address dynamic systems using the concepts of composition, abstraction, execution, and performance. The issues of stochastic modeling and decision analysis are also covered. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: SYST 500 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 618: Model-based Systems Engineering. 3 credits.
Model-based Systems Engineering (MBSE) provides a formalized application of modeling to support the engineering of systems. The purpose of the course to study and practice the leading methodologies for MBSE and illustrate the MBSE approaches in systems engineering and management. The advanced object-oriented systems engineering methodology and model transformation techniques are addressed. Software tools are introduced and used for supporting systems engineering design. Students are expected to develop a system design of their choice using MBSE approaches presented in class and they will make presentations on these designs. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

Recommended Prerequisite: SYST 520.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 620: Discrete Event Systems. 3 credits.
Introduces modeling and analysis of discrete event dynamical systems. Course covers elements of discrete mathematics and then focuses on Petri Net models and their basic properties. Relation to other discrete event models of dynamical systems. Offered by Systems Engr &
operations Rsch (p. 1071). May not be repeated for credit. Equivalent to ECE 673.

**Recommended Prerequisite:** SYST 611 or ECE 521, or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 621: Systems Architecture Design.** 3 credits.
Architecture design and representation and the methodologies used to obtain them. Approaches based on system engineering constructs such as object orientation and service oriented architectures are used to design architectures and then represent them in conformance with an architecture framework such as DoDAF. Executable models of the architecture are derived to be used for architecture evaluation. Examples from current practice are used. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to ECE 674, SWE 641.

**Recommended Prerequisite:** SYST 520/ECE 550.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 630: Systems Engineering Management II.** 3 credits.
Study of more advanced topics in systems engineering management. Students expected to read selections from current literature as well as make presentations and produce papers on engineering management topics. Work in groups to create SEMP, RMP and PAP. Focuses strongly on the practical impacts of various system engineering management techniques and practices on projects, organizations, and personnel. Offered by Systems Engr & Operations Rsch (p. 1071). Limited to two attempts.

**Recommended Prerequisite:** SYST 471 or SYST 530.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Students with the terminated from VSE major attribute may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 632: System Integration and Architecture Evaluation.** 3 credits.
Examines the system integration problem and its human, organizational, societal cultural, and technological aspects. The role of architectures in systems integration. Integration in a system of systems and a federation of systems. Measures of performance and effectiveness. Analysis of alternatives. Notes: This course does not meet the requirements for the MS SE degree. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** ECE 678.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 659: Topics in Systems Engineering.** 3 credits.
Topics not covered in department’s regular systems engineering offerings. Course content may vary each semester depending on instructor and the perception of students’ needs. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the term for a maximum 6 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 660: Air Transportation Systems Modeling.** 3 credits.
Introduces wide range of current issues in air transportation. Issues include public policy toward industry, industry economics, system capacity, current system modeling capability, human factors considerations, safety analysis and surveillance systems, and new technological developments. Develops broad understanding of contemporary and future issues. Knowledge evaluated through class discussions, take-home midterm exam, and term project to be completed by end of semester. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 660.
**Recommended Prerequisite:** SYST 460/560 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 664: Bayesian Inference and Decision Theory.** 3 credits.
Introduces decision theory and relationship to Bayesian statistical inference. Teaches commonalities, differences between Bayesian and frequentist approaches to statistical inference, how to approach statistics problem, and how to combine data with informed expert judgment to derive useful and policy relevant conclusions. Teaches theory to develop understanding of when and how to apply Bayesian and frequentist methods; and practical procedures for inference, hypothesis testing, and developing statistical models for phenomena. Teaches fundamentals of Bayesian theory of inference, including probability as a representation for degrees of belief, likelihood principle, use of Bayes Rule to revise beliefs based on evidence, conjugate prior distributions for common statistical models, and methods for approximating the posterior distribution. Introduces graphical models for constructing complex probability and decision models from modular components. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to CSI 674, STAT 664.

**Recommended Prerequisite:** STAT 544, STAT 554, or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 670: Metaheuristics for Optimization.** 3 credits.
Course on the theory and practice of metaheuristics, i.e. solution search techniques for solving combinatorial optimization problems. It will introduce the theory, applications (scheduling in manufacturing, transportation, and in other engineering and service industries), and computational aspects of directly searching for solutions to solve computationally complex optimization problems without a well-defined analytical model. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 670.

**Recommended Prerequisite:** OR 441/541 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 671: Judgment and Choice Processing and Decision Making.** 3 credits.
How do people make judgments and decisions? Course presents initial review of scientific literature directed toward answering this question, and emphasizes importance when performing decision analysis and designing systems to support judgment and decision processes. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 671.

**Recommended Prerequisite:** STAT 344/354, OR 542 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 674: Dynamic Programming.** 3 credits.
Theory and practice of dynamic programming, i.e., optimal sequential decision making over time in the presence of uncertainties is covered. Stresses intuition, the mathematical foundations being for the most part elementary. It will introduce the theory, applications (finance, engineering, and biology), and computational aspects of dynamic programming for deterministic and stochastic problems. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 674.

**Recommended Prerequisite:** OR 442 or OR 542 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 675: Reliability Analysis.** 3 credits.
Introduction to component and system reliability, their relationship, and problems of inference. Topics include component lifetime distributions and hazard functions, parameter estimation and hypothesis testing, life testing, accelerated life testing, system structural functions, and system
maintainability. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 675.

**Recommended Prerequisite:** STAT 544/554, OR 542 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 680:** Principles of Command, Control, Communications, Computing, and Intelligence (C4I). 3 credits.
Broad introduction to fundamental principles of command, control, communications, computers, and intelligence (C4I). Principles and techniques applicable to wide range of civilian and military situations. Discusses modeling and simulation of combat operations. Studies in detail sensing, fusion, and situation assessment processes. Derives optimal decision-making rules; discusses concepts of C4 architectures; and develops tools to evaluate and design C4 systems such as queuing theory. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to ECE 670.

**Recommended Prerequisite:** ECE 528 or OR 542 or SYST 611 or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 683:** Modeling, Simulation, and Gaming. 3 credits.

**Recommended Prerequisite:** MATH 213, SYST 500 or equivalent, and graduate standing.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 688:** Financial Systems Engineering II: Derivative Products and Risk Management. 3 credits.
Financial engineering is a cross-disciplinary field which relies on mathematical finance, numerical methods, and computer simulations to make trading, hedging, and investment decisions, as well as facilitating the risk management of those decisions. This course will focus on risk management for both market risk and credit risk. It will cover a broad range of derivatives products and hedging strategies with emphasis on how risks are managed in financial institutions. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 688.

**Recommended Prerequisite:** OR 588 or SYST 588 or permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 698:** Independent Study and Research. 3 credits.
Study of a selected area in systems engineering or C3I under the supervision of a faculty member. Written report required. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Completion of at least two core courses, permission of instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Independent Study

**SYST 699:** Masters Project. 3 credits.
Capstone project course for MS/SE program. Key activity is completion of a major applied team project resulting in an acceptable technical report and oral briefing. Student should plan to take this course in the last semester of studies. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to SYST 798.
Recommended Prerequisite: 21 graduate credits in OR or SYST.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

700 Level Courses
SYST 735: Advanced Stochastic Simulation. 3 credits.
Special topics and recent developments in Monte Carlo simulation methodology for discrete-event stochastic systems. Contents vary; possible topics include statistical analysis of simulation output data, random number and random variate generation, variance reduction techniques, sensitivity analysis and optimization of simulation models, distributed and parallel simulation, object-oriented simulation, and specialized applications. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 735.

Recommended Prerequisite: OR 635 or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 740: Advances in Multi-Modeling. 3 credits.
Focuses on the inter-operation of multiple models expressed in different modeling languages but which draw from the same data set: i.e., multi-modeling. Socio-technical systems often require a variety of modeling tools to define their operation accurately. An ontology based approach is used to analyze the validity of a proposed modeling architecture and workflow to address a specific issue Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to ECE 760.

Recommended Prerequisite: SYST 620 or ECE 673 or permission of instructor.

Registration Restrictions:
Enrollment limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 750: Advanced Topics in Systems Engineering. 3 credits.
Advanced topics not covered in department’s regular systems engineering offerings. Course content may vary each semester depending on instructor and the perception of students’ needs. May be repeated for credit when topics are distinctly different. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree for a maximum 12 credits.

Recommended Prerequisite: 600-level course that varies with content of course.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 763: Research Methods in Systems Engineering and Information Technology. 3 credits.
Examines alternative paradigms of scientific research and their applicability to research in information technology. Topics include fundamental elements of scientific investigation, basic principles of experimental design and statistical induction, philosophy of science and its relation to the information technology sciences, and case studies of information technology research. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 763.

Recommended Prerequisite: STAT 544, OR 542 or permission of instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 781: Data Mining and Knowledge Discovery. 3 credits.
Statistical and computational methods and systems for deriving user-oriented knowledge from large databases and other information sources, and applying knowledge to support decision making. Information sources can be in numerical, textual, visual, or multimedia forms. Covers theoretical and practical aspects of current methods and selected systems for data mining, knowledge discovery, and knowledge management, including those for text mining, multimedia mining, and web mining. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to STAT 781.

Recommended Prerequisite: One of the following courses: CS 687, CS 650, INF 614, STAT 663, SYST 664, or Permission of Instructor.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

SYST 799: Master's Thesis. 1-6 credits.
Research project chosen and completed under the guidance of a graduate faculty member, which results in a technical report acceptable
to a three-member faculty committee, and an oral defense. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree.

**Recommended Prerequisite:** 21 graduate credits and permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Thesis

### 800 Level Courses

**SYST 842:** Models of Probabilistic Reasoning. 3 credits.
Survey of alternative views about how incomplete, inconclusive, and possibly unreliable evidence might be evaluated and combined. Discusses Bayesian, Baconian, Shafer-Dempster, and Fuzzy systems for probabilistic reasoning. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit.

**Recommended Prerequisite:** STAT 544, OR 542, OR 681 or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 850:** Topics in Systems Integration Engineering. 3 credits.
Covers lifecycles; large systems comprising heterogeneous components; human, organizational, and technological basis for integration; societal and cultural basis; conceptual frameworks; structure, function, and purpose of industry; risk management; user requirements and functional specifications; bid and proposal process; systems integration and federal government; standards; integration of systems and federations of systems; integrated process and product development; architectures; systems management and cost estimation; reengineering; quality management; increasing returns to scale, network effects, and path dependency issues; and systems integration ecology and evolutionary systems integration. Notes: May be repeatable if topics are substantially different. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** SYST 510 or SYST 520.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SYST 888:** Distributed Estimation and Multisensor Tracking and Fusion. 3 credits.
Centralized and distributed estimation theory, hierarchical estimation, tracking and data association, multisensor multitarget tracking and fusion, distributed tracking in distributed sensor networks, track-to-track association and fusion, and Bayesian networks for fusion. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to ECE 753, OR 888.

**Recommended Prerequisite:** ECE 734 or SYST 611.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

### 900 Level Courses

**SYST 944:** The Process of Discovery and Its Enhancement in Engineering Applications. 3 credits.
Studies ingredients of imaginative reasoning as they concern efficient discovery of new ideas and valid evidential test of them. Topics include different interpretations of Peirce's theory of abductive reasoning and other forms of reasoning, Hintikka's analysis of process of inquiry, and current attempts to design systems that provide assistance in discovery-related or investigative activities. Offered by Systems Engr & Operations Rsch (p. 1071). May not be repeated for credit. Equivalent to OR 944.

**Recommended Prerequisite:** IT 842, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate level students.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

### Systems Engineering and Operations Research (SEOR)

#### 700 Level Courses

**SEOR 750:** Advanced Topics in Systems Engineering and Operations Research. 3 credits.
Advanced topics, applications, or recent developments in the interface of systems engineering and operations research. Course content may vary each semester depending on instructor and the perception of students' needs. May be repeated for credit when topics are distinctly different. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** 600-level course.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**SEOR 796:** Directed Reading and Research. 1-3 credits.
Reading and research on specific topic in systems engineering or operations research under direction of faculty member. Offered by
Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Independent Study

900 Level Courses
SEOR 998: Doctoral Dissertation Proposal. 1-12 credits.
Work on research proposal that forms basis for doctoral dissertation. Notes: No more than 24 credits of SEOR 998 and 999 may be applied to doctoral degree requirements. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree.

Registration Restrictions:
Enrollment is limited to Graduate level students.

Enrollment limited to students in the Volgenau School of Engineering college.

Schedule Type: Dissertation

SEOR 999: Doctoral Dissertation. 1-12 credits.
Formal record of commitment to doctoral dissertation research under direction of faculty member approved by SEOR Department. Offered by Systems Engr & Operations Rsch (p. 1071). May be repeated within the degree.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy.

Enrollment is limited to Graduate level students.

Enrollment limited to students in the Volgenau School of Engineering college.

Schedule Type: Dissertation

Technology Management (TECM)

600 Level Courses
TECM 601: HiTech Business Models. 1 credit.
Provides an introduction to high tech industries, emerging technologies and business models that are transforming technology-intensive industries such as music, financial services and healthcare. The course covers techniques for analyzing how organizations create, deliver and capture value. The students use case-based approach to analyze traditional and high-tech organizations to understand their business models, and identify causes for success and failures. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 602: Emerging Technologies and the New CIO. 1 credit.
Provides an overview of CIOs and IT executive leadership, enabling legislation and policies on CIOs in the U.S. and abroad. The course examines the evolution of CIO core competencies, and approaches to cross agency CIO and IT coordination. Emerging ICT technologies, their corresponding potential, challenges and considerations for CIOs and IT executives in their adoption and introduction, are also discussed. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 610: Communications and Leadership. 2 credits.
Distinguishes between leadership and management, and focuses on the critical roles and functions of leadership, including communication ability, use of power and influence, providing direction, aligning an organization's systems, motivating a workforce, and creating a culture for effectiveness. It also focuses on strategies for developing oneself as an effective leader. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Professional Studies(Tech Mgt) or Technology Management.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 611: Leadership and Change Management. 2 credits.
Examines the critical roles and functions of leadership with special attention to how leaders influence organizational performance and manage change. Topics include providing direction, creating a culture for effectiveness, the use of power and influence, leadership development, leading under changing conditions, and leading and managing change. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSIS 611.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture
TECM 614: Financial and Cost Accounting. 2 credits.
Focusses on the economics and analysis of business transactions and financial reporting. Topics include an introduction to the financial reporting framework, review of how accountants measure and manage financial reporting, an introduction to cost concepts and product costing, and an analysis of capital investments and management control. Emphasis is placed on providing an analytic framework for evaluating transactions and companies. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSIS 614.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 615: Decision Making Using Accounting and Financial Data. 3 credits.
Provides managers with an overview of the purpose and importance of accounting within the organization and the financial valuation of information technology companies, projects, and product line. Students focus on the economics and analysis of business transactions and their related financial reporting issues from internal and external stakeholder perspectives. Students improve their skills in analyzing financial issues and presenting results in a case analysis framework. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Professional Studies(Tech Mgt) or Technology Management.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 620: Economics of Technology Management. 2-3 credits.
Enables students to build and evaluate economic and business models that can be used to analyze real managerial questions that affect all types of institutions, especially firms in the information technology industry. Students develop a better understanding of the operation of markets in general and the use of various quantitative and qualitative methods when making decisions within the firm. The use of economic analysis allows students to identify and evaluate decision alternatives, the competitive environments of firms, and the factors that influence firm performance, especially in the information technology industry. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSIS 620.

Recommended Prerequisite: Admission to Technology Management Program or permission of the program director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 635: Decision Models for Technology Management. 2-3 credits.
Explores current metrics and metric development for quality, intangible assets, and project management as required within information technology companies. Applies statistical tools of best use with these metrics. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSIS 635.

Recommended Prerequisite: Admission to Technology Management Program or permission of the program director.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 640: Management of Consulting and Technical Professionals. 1-3 credits.
Students gain insight into conflict resolution, teamwork, communication, power and influence, career development, and ethics. Helps students understand themselves and those they manage, as they work to be as effective as possible in modern organizations. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Professional Studies(Tech Mgt) or Technology Management.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 641: Negotiation and Conflict Management. 2 credits.
Students acquire insights and skills for negotiation and conflict resolution as they relate to a variety of organizational situations - including teamwork, communication and coordination, power and influence, legal disputes, career development, cross-cultural and international issues, as well as tackling ethical problems. The course is highly experiential, and is built on a foundation of hands-on exercises and extensive class discussion. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**TECM 643: Managerial Finance.** 2 credits.
Surveys the theory and practice of corporate financial management with specific application to the technology sector. Students develop an understanding of key elements required in the valuation of project alternatives; including their strategic importance. Students evaluate and use financial management models and gain an understanding of how finance can be employed as a source of potential competitive advantage. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSIS 643.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**TECM 696: Directed Studies in Technical Management.** 1-3 credits.
Approval by faculty member and program director required prior to registration. Studies specialized topics in business not otherwise available in the curriculum. Offered by School of Business (p. 846). May not be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Admission to the TECM program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**TECM 697: Special Topics in Technology Management.** 1-3 credits.
Sections established as necessary to focus on various topical issues that emerge in practice of business. Offered by School of Business (p. 846). May be repeated within the term for a maximum 6 credits.

**Recommended Prerequisite:** Admission to the TECM program or permission of the program director.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**TECM 700: Business Engineering and Change Management.** 2 credits.
Visualizing, planning, and implementing transitions in an organization or business unit is fast becoming a key source of competitive advantage. Course provides theory and practice of change management and strategic planning including organizational development and organizational transformation. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Professional Studies(Tech Mgt) or Technology Management.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**TECM 702: Building High Performance Teams.** 2 credits.
Develops behavioral skills integral to effective teamwork and interpersonal relationships in work environments. Covers techniques for making group decisions and resolving internal team conflicts, as well as negotiating effectively with outside parties. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Professional Studies(Tech Mgt) or Technology Management.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**TECM 703: Technology Assessment, Evaluation, and Investment.** 3 credits.
Prepares students to be educated consumers of information technology to maximize strategic advantage of IT to an organization. Information technologies, architectures, and products are categorized and analyzed with a view to develop and maintain the most favorable IT asset portfolio to successfully carry out business goals and strategies. Techniques for making group technology assessments, outsourcing decisions, project bidding, and contract negotiations. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Professional Studies(Tech Mgt) or Technology Management.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**TECM 704: Management of Technology Projects and Portfolios.** 2 credits.
Examines advanced topics in project and program management, with specific attention to the issues that managers face to effectively manage programs. This involves managing resources (both internal and external to the organization) and managing within an existing organizational structure. Specific program management topics include advanced topics for project management, program alignment with strategic objective, management of stakeholders, and development and organization of the program office. Strategic and operational tools and metrics also are
discussed. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to students with a major in Professional Studies (Tech Mgt) or Technology Management.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

TECM 711: *Deriving Strategic Value from IT Investments*. 2 credits.
Reviews approaches for aligning IT strategy and investment with organizational strategy. The course covers methodologies for IT investment, planning and control including cost benefit, economic risk analysis; benefits of alternative IT investments; methods of technology road mapping; and capital investment analysis. IT performance assessment methodologies and acquisition planning and design, are also reviewed. Offered by School of Business (p. 846). May not be repeated for credit. Equivalent to MSIS 711.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

TECM 720: *Competitive Strategy in Technology Industries*. 2 credits.
Provides students with an understanding of the impact of information technology on firms and industries and equips them to develop and execute appropriate strategies. Although the emphasis is on information technology firms and industries, a key goal of the course is to better prepare students to respond to a diverse array of information technology challenges. Course work covers the demand and the supply side of information technology, as well as the development of frameworks and analytical tools to help put events, behaviors, and processes into understandable contexts. Offered by School of Business (p. 846). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Technology Management Program or permission of the program director. TECM 615 and 620.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

TECM 735: *Technology Management Capstone Project*. 1-4 credits.
Teams undertake a strategic evaluation and plan for IT-driven business initiatives. Presentation includes analysis of competitive forces and the value chain; recommendations, including changes in goals and organizational design; plan of action integrating marketing, human resource development, organizational design, finance, and information technology; and implementation plan using theories of communication and change management, to include business case and business plan. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to MSIS 735.

**Recommended Prerequisite:** Admission to Technology Management Program or permission of the program director.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

TECM 737: *Capstone Project in Management of Secure Information Systems*. 1-3 credits.
Teams undertake a strategic evaluation and plan for the management of secure information systems. They develop plans that include technical, organizational, and policy aspects. A report is produced and presented to the entire cohort for discussion. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits. Equivalent to MSEC 720.

**Recommended Prerequisite:** Admission to Executive MS in Management of Secure Information Systems.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

Proposal development, bidding, legal issues of contracts and agreements, formation of commercial partnerships, and new business development. Methods and practices for conducting client need assessment and managing deviations of scope. Application of principles of marketing information systems and technology to internal and external customers. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Admission to Technology Management Program or permission of the program director. TECM 610 and 630.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

TECM 741: *Marketing of Innovations and Technology*. 2 credits.
Provides students the opportunity to conduct a detailed exploration of effective marketing strategies, including product and service development, branding, and customer relationships, in preparation for developing a marketing plan for a technology related innovation. Specific course topics include: assessing the marketplace, understanding the customer, market segmentation, developing and positioning the offering, pricing, branding, distribution, and promotion. Offered by School of Business (p. 846). May not be repeated for credit.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

TECM 743: *Security Risk Analysis and Assessment*. 1 credit.
Focuses on the analysis of security risk to the business within IT systems and across IT architecture and enterprise practices. Offered by School of Business (p. 846). May not be repeated for credit.
\textbf{Recommended Prerequisite:} C or better in TECM 747.

\textbf{Registration Restrictions:} Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.

\textbf{Schedule Type:} Lecture

\textbf{TECM 744:} \textit{IT Audit Control.} 2 credits.
Introduces methodologies to assess security and control issues concerning accounting and other information systems. A key feature of the course will be applying Computer Assisted Audit Tools and Techniques (CAA Ts) to test effectiveness of application controls. Students will gain hands-on experience by using Generalized Audit Software (GAS) such as ACL to extract data from a database and perform a variety of analyses. Examples of other topics covered include business continuity planning, continuous auditing, control objectives for information technology, COSO's framework for risk management, assessment of transaction processing integrity, and role of information assurance in e-commerce. Offered by School of Business (p. 846). May not be repeated for credit.

\textbf{Recommended Prerequisite:} C or better in TECM 747.

\textbf{Registration Restrictions:} Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.

\textbf{Schedule Type:} Lecture

\textbf{TECM 745:} \textit{Leading and Managing IT Operations.} 2 credits.
Explores best practices in the IT industry. Students analyze practices in terms of gaining competitive advantage in an industry where the scarcity economic model for products no longer applies. Course work focuses on leading an organization with the IT function. Offered by School of Business (p. 846). May not be repeated for credit.

\textbf{Registration Restrictions:} Enrollment is limited to students with a major in Professional Studies (Tech Mgt) or Technology Management.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.

\textbf{Schedule Type:} Lecture

\textbf{TECM 746:} \textit{Enterprise Architecture and IT Governance.} 2 credits.
Examines the operational, financial and strategic considerations of leading enterprise architecture and reviews the historical development of enterprise architecture. Major enterprise architecture frameworks including Zachman and TOGAF are examined. The relationship of enterprise architecture to IT governance, approaches to IT governance and the role of the CIO, and the relationship of IT governance to organizational performance, are also discussed. Offered by School of Business (p. 846). May not be repeated for credit.

\textbf{Registration Restrictions:} Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.

\textbf{Schedule Type:} Lecture

\textbf{TECM 747:} \textit{Information Assurance and Security Management.} 2 credits.
Addresses the increasingly critical areas of information security and information assurance. Specific focus is on best practices for assessment, planning and management of information security strategy, policy, organizations and controls to minimize the risks pertaining to unauthorized use, processing, storage, and communication of digital information. Pertinent legislation and policy requirements are also covered. Offered by School of Business (p. 846). May not be repeated for credit.

\textbf{Registration Restrictions:} Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.

\textbf{Schedule Type:} Lecture

\textbf{TECM 748:} \textit{Systemic Approach to IT Management.} 2 credits.
The course introduces students to systems thinking, and then applies systems thinking to best practices in development and management of IT processes and connecting management of IT processes to organizational strategy. The course also reviews and considers IT processes from the strategy and service management frameworks including Balanced Scorecard and ITIL. Offered by School of Business (p. 846). May not be repeated for credit.

\textbf{Registration Restrictions:} Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.

\textbf{Schedule Type:} Lecture

\textbf{TECM 750:} \textit{Global IT Management.} 1-4 credits.
Students spend a week in an international residency. Emphasizes dealing with technological changes across international markets and amid global developments, virtual organizations, and project management across cultures. Corporate site visits combined with presentations by professors from universities outside the United States and relevant practitioners. Offered by School of Business (p. 846). May not be repeated for credit.

\textbf{Recommended Prerequisite:} Admission to Technology Management Program or permission of the program director. TECM 600 and 620.

\textbf{Registration Restrictions:} Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.

\textbf{Schedule Type:} Lecture

\textbf{TECM 752:} \textit{Global Tech Management.} 3 credits.
Provides the opportunity for students to spend a week in a country or countries that are leading edge in technology and technology management. Students visit corporations and governments and interact with corporate and IT executives, and government leaders. Topics include CIO and eGovernment, commercialization of emerging technologies, national competitiveness, international development, global supply chains and virtual teams. Offered by School of Business (p. 846). May not be repeated for credit.

\textbf{Registration Restrictions:} Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may \textbf{not} enroll.
Schedule Type: Lecture

TECM 757: Global Residency. 1-4 credits.
Students spend a week in an international residency. Emphasis is on how other nations deal with management of secure information system, the management of those systems, and related public policy issues. Corporate site visits are combined with presentations by professors from universities outside the United States and relevant practitioners. Students are required to write a paper summarizing their observations and attend pre-residency preparatory sessions. Offered by School of Business (p. 846). May be repeated within the degree for a maximum 4 credits. Equivalent to MSEC 710.

Recommended Prerequisite: Admission to Executive MS in Management of Secure Information Systems.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TECM 760: CIO Consulting Project. 1-3 credits.
A guided independent study course which allows students completing their course work within the M.S. Technology Management (MSTM) program to demonstrate a select set of key competencies in the role of Chief Information Officer (CIO) while leveraging their program coursework and aligning with the identified federal CIO competencies. Offered by School of Business (p. 846). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to students with a major in Technology Management.

Enrollment is limited to Graduate or Non-Degree level students.

Enrollment limited to students in a Master of Science degree.

Schedule Type: Lecture

Telecommunications (TCOM)

500 Level Courses

TCOM 500: Modern Telecommunications. 3 credits.
Comprehensive overview of telecommunications, including current status and future directions. Topics include review of evolution of telecommunications; voice and data services; basics of signals and noise, digital transmission, network architecture and protocols; local area, metropolitan and wide area networks and narrow band ISDN; asynchronous transfer mode and broadband ISDN; and satellite systems, optical communications, cellular radio, personal communication systems, and multimedia services. Examples of real-life networks illustrate basic concepts and offer further insight. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 575, or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 505: Networked Multicomputer Systems. 1.5 credit.
Introduces systems engineering of a networked multicomputer system. Studies distributed multicomputer architectures, architecture of a network operating system, and key system components. The focus of this course is on the development of a thin client/server system, requirements analysis of a client/server web computing, system planning and implementation. Includes a study of example multicomputer systems and a discussion of future directions. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500, 530, or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 506: Personal Communication Systems (PCS). 1.5 credit.
Introduces Personal Communication Systems (PCS). Topics include multiple technical layers of the PCS systems; data link level and network layer protocols, including implementation; mobile station operation and base station operation; and how voice and data services work. Also discusses vital issues of user authentication, privacy, and data or voice encryption. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500, 501, 551, and 552 or equivalent.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 510: Client-Server Architectures and Applications. 1.5 credit.
Fundamentals of application engineering for Client/Server (C/S) Internet environments. Review of C/S application architectures and system perspective on C/S middleware. Study of web-based middleware, distributed data managers and SQL middleware, distributed transaction processing middleware, and C/S object technology. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.
Recommended Prerequisite: TCOM 500 or ECE 540.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 514: Basic Switching: Lecture and Laboratory Course. 3 credits.
Basic switching techniques and protocols for low and high-speed digital packet networks (Ethernet, Frame Relay, ATM, X.25) are taught within a half semester lecture series, followed by hands-on laboratory for remainder of semester. Real-life scenarios taught in the laboratory element through exercises that involve configuring switches and routers. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 530.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Laboratory, Lecture

TCOM 515: Internet Protocol Routing: Lecture and Laboratory Course. 3 credits.
Internet Protocol (IP) routing overview; static routing; dynamic routing; default routing; access lists; route redistribution; RIP, OSPF, IGRP, EIGRP, IS-IS, and BGP protocols submitted for comment. Real-life scenarios taught in laboratory element through exercises that involve configuring routers as network elements. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 535.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Laboratory, Lecture

TCOM 518: Third Generation Cellular Telephony. 1.5 credit.
Introduction to post-second generation cellular systems; benefits and features of third generation (3G) systems; review of air interface standards currently approved for 3G; review of 3G technologies; analysis of competing multiple access methods; transition plans and backward compatibility between 2G, 21/2G, and 3G systems; possible fallback plans. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 506, 551, and 552.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 520: Economics of Telecommunications. 3 credits.
Management of telecommunications networks; economic concepts in changing climate of telecommunications ownership, deregulation, and privatization; resource allocation fundamentals based on internal rate-of-return, net present value, opportunity costs; valuation of potential acquisitions in broad telecommunications market; financial modeling techniques. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500

Recommended Corequisite: TCOM 502.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 521: Systems Engineering for Telecommunications Management. 3 credits.
Advanced software principles, techniques, and processes for designing and implementing complex telecommunication systems. Planning and implementation of telecommunications systems from strategic planning through requirements, initial analysis, general feasibility study, structured analysis, detailed analysis, logical design, and implementation. Current system documentation through use of classical and structured tools and techniques for describing flows, data flows, data structures, file designs, input and output designs, and program specifications. Practical experience gained through project. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.
Recommended Prerequisite: TCOM 500.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 530: Data Communications Fundamentals. 3 credits.
Covers the foundations of modern data communications. The lower layers of the OSI reference model are discussed with an emphasis on the data link and the network layers. Concepts are illustrated by drawing examples from important data networks ranging from local area networks to the Internet. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 535: The TCP/IP Suite of Internet Protocols. 3 credits.

Recommended Prerequisite: TCOM 530.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 542: Stochastic Models in Telecommunications. 1.5 credit.

Recommended Prerequisite: TCOM 500.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 545: Reliability and Maintainability of Networks. 3 credits.
Stochastic modeling of network reliability, simulation modeling, modeling replacement strategies. Introduces quality control, sampling for acceptance, economic design of quality control systems, and system reliability. Also covers faulty tree analysis, life testing, repairable systems and role of reliability, quality, and maintainability in life-cycle costing. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 547: Project Management in Telecommunications. 3 credits.
Develops integrated approach to managing major telecommunications project; evaluates and uses tools and software for project management, with specific goals of containing costs and time overruns; introduces elements for resolving conflict resolution and applying motivation within project team, and gaining the ability to monitor and control projects in changing environment; develops understanding of unique attributes of major telecommunications systems such as interoperability requirements and international technical standards. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Schedule Type: Lecture

TCOM 551: Digital Communication Systems. 3 credits.
Digital transmission of data, voice, and video. Covers signal digitization; modulation and demodulation; error correction coding; multiple access methods; multiplexing; synchronization; channel equalization; frequency spreading; encryption; transmission codes; digital transmission using bandwidth compression techniques; elements of information theory; and development of link budget evaluation such as system noise temperature, Nyquist filter concepts, antenna gain, and filter bandwidth. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 552: Introduction to Mobile Communications Systems. 3 credits.
Introduces mobile communication system design and analysis. Topics include mobile communication channel, access and mobility control, mobile network architectures, connection to fixed network, and signaling protocols for mobile communication systems. Offers examples of mobile communication systems including panEuropean GSM system, North American DAMPS system, and Personal Communication Systems. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500, TCOM 551.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 555: Network Management Foundations and Applications. 3 credits.
Defines and explains techniques that network managers utilize to maintain and improve performance of telecommunications network; network management system; five tasks traditionally involved with network management (fault management, configuration management, performance management, security management, and accounting management); theoretical background in transmission systems sufficient to understand network parameters such as capacity and response times; and specific network management products. Also explores how network performance data should be used for management and when considering upgrades in network architecture. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500 and TCOM 530.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 561: Security, Privacy, and Applied Cryptography for Telecommunications. 3 credits.
Presents on introductions to Computer and Network Security and Privacy; Digital Threats; Authentication Techniques; Vulnerabilities; Integrity; Access Control; Threat Modeling and Risk Assessment; Security Policies and Countermeasures; Cryptography; Block Ciphers and DES; AES; Cipher Block Operation; Certificate and Credentials; Public Key Cryptography and RSA; Key Management; Digital Signature; Electronic Mail Security; IP Security. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 400 and TCOM 530.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 562: Network Security Fundamentals. 3 credits.
Introduces full spectrum of network security. Topics include taxonomy such as language commonality in incident handling, national strategy to secure cyberspace, and cybersecurity organizations; organizational structure for network defense; best practices, security policy, and threats; actors and tools, countermeasures, vulnerability identification/correction, intrusion detection, and impact assessment; firewalls and intrusion detection systems; antivirus software; active defense; disaster recovery; and law enforcement and privacy issues. Reviews threats and vulnerabilities in network systems based on reports, case studies available in the literature, and actual experience. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 500.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 575: Quantitative Foundations for Telecommunications. 3 credits.
Provides quantitative foundations in mathematical and electrical concepts to permit registration for courses in telecommunications MS degree and certificate programs. Topics include polynomials, exponentials, linear and quadratic equations, graphs and functions, trigonometric functions, radical measure and sine/cosine functions, exponentials and logarithms, basic probability and statistics, fundamentals of matrix algebra and vectors, basic Boolean logic; circuit elements (resistor, capacitor, inductor), basic electrical circuits, units, Ohm's law, Kirchhoff's law, decibel notation. Notes: Course cannot be used for credit in any IT&E graduate degree program. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Lecture

TCOM 590: Selected Topics in Telecommunications. 1.5-3 credits.
Selected topics from recent developments and applications in various engineering disciplines within specialty modules 1, 2, and 3 of the TCOM program. The course is designed to help the professional engineering community keep abreast of current developments. Notes: The 1.5-credit course lasts for one-half semester (approximately seven weeks) while the 3-credit course lasts for the full semester. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 9 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Independent Study

TCOM 598: Independent Study in Telecommunications. 1.5-3 credits.
Directed self-study of special topics in telecommunications that relate to specialty modules 1, 2, and 3. Topics must be arranged with instructor and approved by program director before registering. Notes: May be taken for either 1.5 credits or 3.0 credits in fall and spring semesters. No more than total 6 credits may be taken from combination of TCOM 598, 599, 696, and 697 courses for credit in TCOM program. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

Schedule Type: Independent Study

600 Level Courses

TCOM 606: Advanced Mobile Communications Systems. 3 credits.
Introduction to post-second generation cellular systems; benefits and features of third-generation (3G) systems and personal communications services (PCS); review of air interface standards and transmission technologies for mobile and quasi-stationary wireless systems, including cellular networks, satellite networks, indoor systems (Wi-Fi, Personal Local Area Networks, Orthogonal Frequency Multiplexing, Ultra Wide Band technologies); review of network control strategies; investigation of user authentication, privacy, and data and voice encryption aspects. Evolving technology, analysis of competing multiple access methods, transition plans, and backward compatibility between 2G, 21/2 G, 3G, and future systems, with possible fallback plans. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

Recommended Prerequisite: TCOM 552.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**TCOM 607: Satellite Communications.** 3 credits.
Topics include introduction to satellite communications systems; historical aspects; orbital mechanics and launchers; satellite components such as payload, orbital maneuvering systems, cooling systems, and antennas; look angle predictions; link budget; overall link design; multiple access such as TDMA, CDMA, ALOHA, TDMA, and MFTDMA; error control for digital satellite links; propagation effects on satellite links; elements of VSAT systems and nongeostationary satellite systems; and direct broadcast satellite services. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** TCOM 551.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**TCOM 608: Optical Communications Systems.** 3 credits.
Introduction and Overview of Optical Fiber Communications Systems and Optical Communication Networks. Specific topics include Optical Resonators; Photons and Matter, Lasers, Photons in Semiconductors; Semiconductor Photon Sources and Detectors; Light Emitting Diodes; Modulation of Optical Signals; Optoelectronic Networks; FDDI, Fiber channel, SONET, SDH, Ethernet on Optical Networks; Wavelength Division Multiplexing (WDM) networks; Basics of Fiber Optic System Design. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** TCOM 500.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**TCOM 609: Interior Gateway Protocol (IGP) Routing.** 3 credits.
Discusses development of Interior Gateway Protocols, including standards documents; interaction between various interior and exterior gateway protocols; design procedures and implementation aspects; field trial issues; and analysis of latest RFC information posted on IETF web site. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** TCOM 515 and TCOM 535, or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**TCOM 610: Border Gateway Protocol (BGP) Routing.** 3 credits.
Discusses development of Border Gateway Protocol and its application in today's Internet routing architecture. Covers evolution of Internet, BGP routing standard specifications (RFCs), interaction between various routing protocols, network BGP routing design principals and procedures for enterprise and ISP networks, BGP's real-world implementation and configuration syntax, network scalability and convergence issues, and the latest extension and proposals for new standards. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** TCOM 509 and TCOM 515, or equivalent.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**TCOM 611: Multi-Protocol Label Switching (MPLS).** 3 credits.
Develops full understanding of Multi-Protocol Label Switching (MPLS) theory, technology, and implementation aspects through detailed analysis of MPLS routing concepts and protocol stacks, and completion of major project to reinforce understanding of MPLS. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** TCOM 609 or 610

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
SCHEDULE TYPE: Lecture

TCOM 631: Voice Over IP. 3 credits.
Presents the protocols used for transporting voice over Packet Switched Network. Topics include: Signaling basics; Topics; VoIP Network Scenarios and Connection Strategies; Communication Protocols: RTP, RTCP; VoIP Decomposition, Performance and quality metrics for VoIP; VoIP Signaling Protocols: H.323, SIP, SS7; Softswitch: architecture, functionality, application; VOIP-PSTN integration and migration; VOIP Quality and QoS; VoIP Security: Vulnerabilities, remedies; NextGen VoIP: VoIP Mobility, Equipment, Voice XML, IMS; Future of VoIP. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

RECOMMENDED PREREQUISITE: TCOM 535.

REGISTRATION RESTRICTIONS:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

SCHEDULE TYPE: Lecture

TCOM 653: Global Positioning System (GPS). 3 credits.

RECOMMENDED PREREQUISITE: TCOM 500.

REGISTRATION RESTRICTIONS:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

SCHEDULE TYPE: Lecture

TCOM 660: Network Forensics. 3 credits.
Deals with collection, preservation, and analysis of network-generated digital evidence so it can be successfully presented in civil or criminal court of law. Examines relevant federal laws and private sector applications. Examines capture/intercept of digital evidence, analysis of audit trails, recordation of running processes, and reporting of such information. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to CFRS 660.

RECOMMENDED PREREQUISITE: TCOM 535, and working knowledge of computer programming.

REGISTRATION RESTRICTIONS:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

SCHEDULE TYPE: Lecture

TCOM 661: Digital Media Forensics. 3 credits.
Deals with collection, preservation, and analysis of digital media so this evidence can be successfully presented in civil or criminal court of law. Examines relevant federal laws and private sector applications. Examines seizure, preservation, and analysis of digital media. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to CFRS 661.

RECOMMENDED PREREQUISITE: TCOM 548 and 556, or TCOM 562, and working knowledge of computer operating systems; or permission of instructor.

REGISTRATION RESTRICTIONS:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.
Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

SCHEDULE TYPE: Lecture

TCOM 662: Advanced Secure Networking. 3 credits.
Advanced technologies in network security that can be applied to enhance enterprise and ISP's network security. Covers network perimeter defense concept and various components for complete layered defense system. Examines each component and its technologies, including TCP/IP protocol vulnerabilities, router access control list (ACL), dynamic ACL, firewall, network address translation (NAT), virtual private network (VPN), IPSec tunnels, intrusion detection system (IDS), routing protocol security, denial-of-service (DOS) attack, DOS detection and mitigation techniques. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

RECOMMENDED PREREQUISITE: TCOM 535 and TCOM 562, and a working knowledge of network routing protocols.

REGISTRATION RESTRICTIONS:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

TCOM 663: *Operations of Intrusion Detection and Forensics*. 3 credits. Introduces students to network and computer intrusion detection and its relation to forensics. It addresses intrusion detection architecture, system types, packet analysis, and products. It also presents advanced intrusion detection topics such as intrusion prevention and active response, decoy systems, alert correlation, data mining, and proactive forensics. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to CFRS 663.

**Recommended Prerequisite**: TCOM 535 and a working knowledge of computer programming.

**Registration Restrictions**:
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

TCOM 664: *Incident Response Forensics*. 3 credits. This course addresses incident detection, response, and those aspects of computer forensics pertinent to the investigation of trade secret theft, economic espionage, copyright infringement, piracy, and fraud. Procedures for gathering, preserving, and analyzing forensic evidence are discussed in detail and are applied to both computer and network incident response forensics. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit. Equivalent to CFRS 664.

**Recommended Prerequisite**: TCOM 535.

**Registration Restrictions**:
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

TCOM 669: *Independent Reading and Research*. 1.5-3 credits. Study of selected area in specialty modules 1, 2, or 3 under supervision of faculty member. Written report required. Notes: No more than total of 6 credits may be taken from combination of TCOM 598, 599, 696, and 697 for credit in TCOM program. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the degree for a maximum 6 credits.

**Registration Restrictions**:
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

TCOM 690: *Advanced Topics in Telecommunications*. 3 credits. Advanced topics from recent developments and applications in various engineering disciplines in specialty modules 1, 2, and 3 of TCOM program. Advanced topics chosen so that they do not duplicate existing TCOM courses. Active participation of students encouraged in form of writing and presenting papers in various research areas of advanced topic. Enhances professional engineering community's understanding of breakthrough developments in specific areas. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite**: Permission of instructor; specific prerequisites vary.

**Registration Restrictions**:
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type**: Lecture

TCOM 691: *Advanced Topics in Telecommunications*. 3 credits. Advanced topics from recent developments and applications in various engineering disciplines in specialty modules 4 and 5 of TCOM program. Advanced topics are chosen in such a way that they do not duplicate existing TCOM courses. Active participation of students encouraged in form of writing and presenting papers in various research areas of advanced topic. Enhances professional engineering community's understanding of breakthrough developments in specific areas. Offered by Electrical & Computer Engineer (p. 1018). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite**: Permission of instructor; specific prerequisites vary.

**Registration Restrictions**:
- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.
Schedule Type: Independent Study

**TCOM 698: Telecommunications Projects Course. 3 credits.**
To be taken toward end of degree program within any of modules 1, 2, or 3. Primary activity is completing major applied project, preferably with group of two to three people. Secondary goal is consolidating training before graduation so that, in some cases, it may act as capstone course. Students and outside telecommunication industry managers present ideas for projects and, through grouping of students, new skills and approaches may be learned. Some class time used for discussion of projects, either to monitor progress or explore alternative approaches. Readings, class-time discussion of current trends, difficulties, and new opportunities for industry most relevant to module. Concludes with presentations of projects to department faculty. Offered by Electrical & Computer Enginee (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** Graduate standing with at least 18 credits or permission of department.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**TCOM 699: Telecommunications Project Course. 3 credits.**
Capstone of degree program under the specialty modules 4 or 5. To be taken toward end of degree program. Primary activity is completion of major applied project, preferably as two- to three-person group. Secondary goal is consolidation of training before graduation. Students, outside telecommunication industry managers present ideas for projects. From these ideas, group projects selected. Some classroom time used to discuss projects, to either monitor progress or explore alternative approaches. Readings, class-time discussion of current trends, difficulties, and new opportunities for the industry. Projects presented to department faculty at end of semester. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** Completion of at least 24 credits in the MS in Telecommunications program.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

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### 700 Level Courses

**TCOM 707: Advanced Link Design. 3 credits.**
Topics include advanced satellite link design such as VSAT optimization, intersatellite systems, and propagation mitigation trade-offs; radar link design such as primary and secondary radars, range ambiguities, false alarms, Doppler radar, FM radar, radar tracking, radar transmitters and receivers, and phased array radars; terrestrial wireless link design including line of sight, LMDS, and nonlinear of sight; optical link design including laser options, diffraction limits, lidar and communications links, tracking limitations, and GEO and LEO intersatellite link design; Wi-Fi link design; and directed energy systems. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** TCOM 551, TCOM 607, or permission of instructor.

**Registration Restrictions:**
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Lecture

**TCOM 750: Coordinating Seminar. 3 credits.**
Open only to students in the MA or MS in telecommunications programs with at least 18 credits of course work prior to registration. Topics include specific telecommunications problems in management, law, engineering, education, and communications. Focuses on ways a problem in one area can create or solve a problem in other areas. Offered by Electrical & Computer Engineer (p. 1018). May not be repeated for credit.

**Recommended Prerequisite:** Open only to students in the MA or MS in telecommunications programs with at least 18 credit hours of course work prior to registration.

**Registration Restrictions:**
Enrollment is limited to students with a major in Telecommunications or Telecommunications.

Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Enrollment limited to students in the College of Science, Schar School of Policy and Gov or Volgenau School of Engineering colleges.

**Schedule Type:** Seminar

### Theater (THR)

### 100 Level Courses

**THR 101: Theatrical Medium. 3 credits.**
Theater from the inside workings of production to informed and lively engagement with the art. Enhances an understanding of the nature of theater in society. Offered by Theatre (p. 835). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Schedule Type:** Lecture
THR 150: *Greeks to Restoration*. 3 credits.
Examines the development of Western drama and the collective art of theater from its beginnings through Shakespeare. Considers readings in dramatic literature and history of theater in social and cultural contexts. Offered by Theatre (p. 835). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

THR 151: *Romanticism to Present*. 3 credits.
Considers readings in dramatic literature and history of western theater in social and cultural contexts from the romantic period to present day. Offered by Theatre (p. 835). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

THR 190: *Special Topics*. 1-3 credits.
Rotating topic. Introductory seminar in areas of special interest. Offered by Theatre (p. 835). May be repeated within the term for a maximum 12 credits.

Schedule Type: Lecture

THR 191: *Practical Theater Seminar*. 0 credits.
Each semester registered students will 1) attend a Theater at Mason production, guest lecture or workshop, and 2) participate in a production load-in and 3) participate in a production strike. To graduate as a Theater major students must complete 4 semesters of the course. Course is repeatable up to twice in one semester. Offered by Theatre (p. 835). May be repeated within the term for a maximum 12 credits.

Schedule Type: Laboratory

THR 196: *Performance or Design Practicum*. 1 credit.
Academic credit awarded for satisfactory completion of a minimum of 30 hours of assignment on a Mason Players production. Assignments include performance, design, and stage management. Open to all Theater majors, theater minors, and non-majors. Notes: Successful completion of this course is required to earn a Theater degree. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Studio

THR 197: *Stage or Literary Practicum*. 1 credit.
Academic credit awarded for satisfactory completion of a minimum of 30 hours of assignment on a Mason Players production. Positions include directing, dramaturgy, and leadership in technical productions. Open to all theater majors, theater minors, and non-majors. Notes: Successful completion of this course is required to earn a Theater degree. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Studio

THR 198: *Theatrical Construction Practicum*. 1 credit.
Academic credit awarded for satisfactory completion of a minimum of 30 hours of participation on a Mason Players production. Areas include scenery construction, scene painting, costume construction, light hang, light focus and props. Theater majors, theater minors, and non-majors welcomed. Notes: Successful completion of this course is required to earn a Theater degree. Recommended for freshman Theater majors, first year transfers, and new Theater majors. Contact School of Theater for CRN. Offered by Theatre (p. 835). May not be repeated for credit.

Mason Core: Arts (p. 135)

Schedule Type: Lecture

THR 199: *Production Run Crew Practicum*. 1 credit.
Academic credit awarded for satisfactory completion of a minimum of 30 hours of assignment on a Mason Players production. Assignments include run crew, light board operator, sound board operator, wardrobe, and fly crew. Theater majors, theater minors, and non-majors welcomed. Notes: Successful completion of this course is required to earn a Theater degree. Recommended for freshman Theater majors, first year transfers, and new Theater majors. Contact School of Theater for CRN. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Laboratory

THR 200: *Play Production Practicum*. 1 credit.
Academic credit is awarded for satisfactory completion of a minimum of 30 hours of assignment on a Mason Players production. Students who have completed THR 196, THR 197, THR 198, and THR 199 may register for THR 200 to receive credit for their participation on additional productions. Offered by Theatre (p. 835). May be repeated within the term for a maximum 8 credits.

Schedule Type: Laboratory

THR 201: *Stage Management*. 3 credits.
Introduction to the fundamentals of stage management and the stage manager's role for production. Learn and develop the organizational skills of running and maintaining a production with emphasis on skillful methods in communication and problem solving. Analyzes text from a Stage Manager's perspective. Requirements include creating a stage manager prompt book containing important show documents. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 202: *Literary Management*. 1 credit.
Principles of literary management and dramaturgy for regional/resident theater. Directed primarily toward developing new work. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 203: *Production/Company Management*. 1 credit.
Techniques of production and company management applied to university and professional theater productions. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 210: *Acting I*. 3 credits.
Students practice contemporary acting techniques individually and in a group. Promotes and develops performance and practical communication skills. Attend theatrical productions, and respond to those experiences. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

Students explore current production practices and their historical development in scenery, costumes, lighting, and sound through classroom and hands on experience. Concepts and skills acquired in this
class may be applied in theater, film, dance, game design, art, corporate events, and architecture. Lab hours include work on live performances. Offered by Theatre (p. 835). May not be repeated for credit.

**Mason Core:** Arts (p. 135)

**Schedule Type:** Lecture

**THR 235: Costume Crafts. 3 credits.**
This course serves as the foundation and prerequisite for costume courses in design and construction. Costume Crafts will introduce the principles of apparel design and construction for stage and screen costumes. Requirements for this course will include the complete construction of two items and the compilation of a sample notebook containing important construction techniques. Offered by Theatre (p. 835). May not be repeated for credit.

**Schedule Type:** Lecture

**THR 306: Movement in Musical Theater. 3 credits.**
Students will explore and perform Movement for Musical Theater to include both character development and choreography. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Arts Management, Art and Visual Technology, Dance, Film and Video Studies, Computer Game Design, Music or Theatre.

**Schedule Type:** Lecture

**THR 310: Acting II. 3 credits.**
Deepens an understanding of performance analysis, and character relationships through scene work. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 210 or permission of instructor.

**Schedule Type:** Lecture

**300 Level Courses**

**THR 300: Voice and Speech. 3 credits.**
For performers, presenters, and anyone wishing to improve their speaking voice. Basic techniques in breathing, vocal production, and articulation. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 210 or permission of instructor.

**Schedule Type:** Lecture

**THR 301: Advanced Study in Voice. 3 credits.**
Addresses various topics in technique of vocal production for the actor with an emphasis on playing characters for stage, radio, voice-over, and screen. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** THR 300 or permission of instructor.

**Schedule Type:** Lecture

**THR 303: Movement for Actors. 3 credits.**
Develops the physical aspect of the actor’s instrument emphasizing free and responsive expression of impulse and intention, as well as character development and visual storytelling. Offered by Theatre (p. 835). May not be repeated for credit.

**Schedule Type:** Lecture

**THR 304: Advanced Movement for Actors. 3 credits.**
Advanced work in physical expression, for character development. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Lecture

**THR 305: Unarmed Stage Combat. 3 credits.**
Studies safe, effective techniques for performing violence for stage and screen. Emphasizes acting the fight, safety, and storytelling. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 210 and 310 or permission of instructor.

**Schedule Type:** Lecture

**THR 306: Movement in Musical Theater. 3 credits.**
Students will explore and perform Movement for Musical Theater to include both character development and choreography. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment is limited to students with a major in Arts Management, Art and Visual Technology, Dance, Film and Video Studies, Computer Game Design, Music or Theatre.

**Schedule Type:** Lecture

**THR 310: Acting II. 3 credits.**
Deepens an understanding of performance analysis, and character relationships through scene work. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 210 or permission of instructor.

**Schedule Type:** Lecture

**THR 313: Event Technology. 3 credits.**
A theoretical and practical study of event technology. The course will include specifications, layout installation techniques and operation of sound systems, lighting systems and video systems for event industry sectors. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 230 or permission of instructor.

**Schedule Type:** Lecture

**THR 314: Lighting Stagecraft. 3 credits.**
Practical and theoretical instruction on becoming theatrical electrician. Includes ideas on workplace safety, basic electrical procedures, theatrical electrical production, integrating with other theater professionals, and professionalism. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 230 or permission of instructor.

**Recommended Corequisite:** THR 200.

**Schedule Type:** Lecture

**THR 315: Sound Engineering. 3 credits.**
Study theory and practice of audio engineering for theater and the entertainment industry. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 230 or permission of instructor.

**Schedule Type:** Lecture

**THR 316: Scene Painting. 3 credits.**
Students experience the art and craft of scene painting with the goal of translating design elevations into paint on muslin. Students learn fundamental scene painting techniques and how to use them in combinations to create portraits, murals, landscapes, and textures. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** THR 230 or permission of instructor.

**Schedule Type:** Studio
THR 320: Performance Studio. 3 credits.
Builds on existing skills in observation, sense memory, relaxation, and improvisation. Students learn variety of methods for scene preparation to apply to their own acting process. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 210 and 310 or permission of instructor.

Schedule Type: Lecture

THR 321: Acting Shakespeare. 3 credits.
Develops understanding of challenges of performing Shakespeare by building on body of acting skills and knowledge. Focuses on how structure of language in plays reflects, reveals, and expresses character's emotional life. Students use detailed script analysis, expansion of vocal range, and use of actions and objectives to achieve experience of transforming Shakespeare's language into powerful theatrical expressions. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 210 and 310 or permission of instructor.

Schedule Type: Lecture

THR 329: Directing. 3 credits.
Introduces process for directing through text analysis, rehearsal and staging techniques, and collaborative development of production idea. Students direct and apply concepts to develop a critical and productive perspective. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 150, 151, THR 210, THR 350, or permission of instructor.

Schedule Type: Lecture

THR 330: Seminar in Technical Theater. 3 credits.
Offered periodically; addresses selected topic in design or technical theater on advanced level. Offered by Theatre (p. 835). May be repeated within the term for a maximum 24 credits.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Lecture

THR 331: Drafting and Model Making. 3 credits.
Studies conventions and techniques of drafting and model making as methods of communication in the theatrical production process. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Lecture

THR 332: History of Fashion and Dress. 3 credits.
Explores evolution of silhouette, color, fabric, accessories, and make-up appropriate to development of clothing during specific historical eras. Offers broader understanding of sociological context influencing Western dress. Notes: May be repeated if specific course content differs. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 333: Scenic Design. 3 credits.
Fundamentals of creating, developing, and communicating design idea through sketches, plans, rendering, or models. Analysis of text from designer's perspective. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Lecture

THR 334: Lighting Design. 3 credits.
Introduces the fundamentals of lighting design, including research, paperwork communication, and technology for lighting. Topics include the controllable qualities of light, basic terminology, equipment, personnel and procedures. Learn to see light and develop a shared vocabulary for describing light and the process. Analyzes texts from designer's perspective. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230.

Schedule Type: Lecture

THR 335: Costume Design. 3 credits.
Project-oriented class emphasizing the art and process of designing costumes for the stage and screen, including historical period, script analysis, design concepts, color theory, and costume rendering. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Lecture

THR 336: Technical Direction. 3 credits.
Analyze scenic units for construction including building techniques, material choices, hardware, stage rigging, and budget estimates. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Lecture

THR 337: Sound Design. 3 credits.
Study theory and practice of sound design for theater and the entertainment industry. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Lecture

THR 339: Principles of Design. 3 credits.
Introduction to the principles of theatrical design. Course explores various design responsibilities and methods to create visual images for the stage through script analysis, research, and production team collaboration. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Studio

THR 340: Advanced Studies in Directing. 3 credits.
Expands directing techniques through staging extended scenes or one-act plays. Emphasizes collaborative process and production organization. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: THR 329 or permission of instructor.
Schedule Type: Lecture

THR 342: Makeup Design. 3 credits.
Project-oriented class emphasizing makeup for different performance spaces, character age analysis, facial anatomy, and specialized application for theater, opera, dance, film, and television. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 230 or permission of instructor.

Schedule Type: Lecture

THR 343: Costume Pattern Drafting. 3 credits.
Pattern development through draping and drafting. Laboratory study and practical experience in construction of stage costumes. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 235 or permission of instructor.

Schedule Type: Lecture

THR 345: Puppetry. 2-4 credits.
Exploring of puppetry, and experiments with building and performance styles, through Original work. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 350: Script Analysis. 3 credits.
Critical analysis of dramatic literature as preparation for production and performance. Examination of plot, character, theme, audience impact, and cultural context, and the transformation of intellectual ideas into physical theatrical production elements. Offered by Theatre (p. 835). May not be repeated for credit.

Specialized Designation: Writing Intensive in the Major

Schedule Type: Lecture

THR 351: Dramatic Theory and Criticism. 3 credits.
Chronological study of development of dramatic theory and criticism from Plato and Aristotle through modern movements. Students read plays, theoretical works, and critical responses, and write original criticism of performances or texts. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 150 or permission of instructor.

Schedule Type: Lecture

THR 352: Dramatic Literature Seminar. 3 credits.
Rotating topic. Intensive study of particular topic, period, or genre in dramatic literature. Notes: May be repeated if specific course content differs. Offered by Theatre (p. 835). May be repeated within the term for a maximum 9 credits.

Schedule Type: Seminar

THR 355: Moral Vision in American Theater. 3 credits.
Examines vision of American society created and presented in contemporary American theater. Subject defined as "moral" vision because focus is on how we perceive ourselves in relation to others and society's value standards. Perspectives include sociology, theory of culture, practical theater craft, and literary criticism. Features plays by range of American playwrights. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 359: World Stages. 3 credits.
Introduces variety of theatrical traditions and performance theories from around the world, with special emphasis on those not covered in introductory Western drama survey courses, 150 and 151. Students read and discuss dramatic texts, performance theory, and video clips to understand variety of theatrical traditions in cultural and historical contexts. Requirements include two team presentations (taking turns as writer and presenter), one midterm paper, and one solo presentation with accompanying paper. Offered by Theatre (p. 835). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

THR 365: Characterization. 3 credits.
Explores method and approach of understanding and creating characters for theater modeled on people from personal experience and observation, imagination, dreams, and other media. Transforms that information into detailed, specific, and vivid physical manifestations. Through presentations of characters drawn from personal experience, students shift understanding of characterization from "outward directed" physical adjustments to physical characteristics and personality character traits that are immediate, familiar, and completely realized from "inner driven" connections to their own lives. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 210.

Schedule Type: Lecture

THR 380: Playwriting I. 3 credits.
Exposure to principles of dramatic writing, including character, plot, dramatic structure, dialogue, exposition, setting, and creating theatrical images using examples from plays, screenplays, and students' own work. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Seminar

THR 381: Playwriting II. 3 credits.
Intensive continuation of work begun in THR 380. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: THR 380 or permission of instructor.

Schedule Type: Seminar

THR 382: Screenplay Workshop. 3 credits.
Studies screenwriting as dramatic form of 20th, 21st centuries. Explores story, plot structure, three act-structures, mythic structures, fundamental story patterns, character, thinking, and writing visually. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 395: Theater as the Life of the Mind. 3 credits.
Traces four subjects (battle of the sexes, good gifts, cyclical tragedy, and eschatology) from ancient theater to contemporary plays, television, and movies, using literary criticism, history, political theory, comparative religion, sociology, and anthropology. Offered by Theatre (p. 835). May not be repeated for credit.
Mason Core: Arts (p. 135)

Schedule Type: Lecture

400 Level Courses

THR 401: Professional Presentation. 3 credits.
Examines persuasive communication, with an emphasis on making presentations and addressing groups, both large and small. Hones the ability to project a personal passion while communicating information about any discipline to general audiences. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture

THR 405: Advanced Stage Combat. 3 credits.
Armed Stage Combat techniques are explored, unarmed techniques solidified, and advanced choreography mastered in this study of safe and effective theatrical storytelling through violence for Stage and Screen appropriate towards national certification as Actor-Combatant. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: THR 305 or permission of instructor.

Schedule Type: Lecture

THR 410: Acting for the Camera. 3 credits.
Designed for students with a strong interest in pursuing a professional career in acting and is focused primarily on the particular techniques for screen acting in film and television. Offered by Theatre (p. 835). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: THR 310^c.
^c Requires minimum grade of C.

Enrollment is limited to students with a major, minor, or concentration in Theatre.

Schedule Type: Lecture

THR 412: Great Film Performances. 3 credits.
Examines the development and evolution of acting style and genres through exemplary performances on screen. Offered by Theatre (p. 835). May not be repeated for credit.

Mason Core: Arts (p. 135)

Recommended Prerequisite: Sophomore standing (30 credit hours completed).

Schedule Type: Lecture

THR 415: Advanced Sound Engineering. 3 credits.
Advanced study in theory and practice of audio engineering for theater and the entertainment industry. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 315 and THR 230 or permission of instructor.

Schedule Type: Lecture

THR 420: Advanced Performance Studio. 3 credits.
Advanced scene study for stage and film. Rotating topics address professional perspectives and acting styles. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 9 credits.

Registration Restrictions:
Required Prerequisite: (THR 310^c).
^c Requires minimum grade of C.

Schedule Type: Lecture

THR 421: One-Person Show. 3 credits.
Explores creative writing, staging, and performance while developing short, original work culminating in the successful writing, a one-person show. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: THR 210 and 310 or permission of instructor.

Schedule Type: Lecture

THR 423: Audition Techniques: Stage and Camera. 3 credits.
Develops effective audition techniques for performers through preparation of material for stage and camera, and explores industry standards and casting protocols through practical application. Offered by Theatre (p. 835). May not be repeated for credit.

Registration Restrictions:
Required Prerequisite: (THR 310^c).
^c Requires minimum grade of C.

Schedule Type: Lecture

THR 424: Contemporary Women Playwrights. 3 credits.
Explores identity and culture, sexuality and gender, work, relationships, and power through the eyes of female dramatists and performance artists. Analyzes texts and issues through readings, video, and live performances. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Junior standing or permission of instructor.

Schedule Type: Lecture

THR 425: Verse Speaking. 3 credits.
Explores verse literature and mechanics of verse structure through reading, discussing, and reciting major verse plays of Western drama from the Middle Ages through the 20th century. Focuses on various verse forms, paying particular attention to vocal clues within verse structure, the meaning of rhythm, and practicing vocal techniques used in speaking texts in class. Students also prepare weekly presentations of playwrights, and historical backgrounds of plays and their periods. Offered by Theatre (p. 835). May not be repeated for credit.

Schedule Type: Lecture
**THR 427: Musical Theater Workshop.** 3 credits.
Develops performance techniques necessary for performance in musical theater. Students will prepare and perform musical theater pieces. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** THR 210 and 310 or permission of instructor.

**Schedule Type:** Lecture

**THR 428: Musical Theater Ensemble.** 3 credits.
Rehearses a musical or musical theater review in a workshop environment. The result of the work will be public performance(s). Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** THR 230, THR 334, or permission of instructor.

**Schedule Type:** Lecture

**THR 434: Advanced Lighting Design.** 3 credits.
In-depth study of lighting design focused on the aesthetics of stage lighting and advanced conceptualization and communication of design ideas. Extensive work with script analysis, research, and graphic representation of theatrical lighting designs. Intensive practical experience in laboratory and production assignments. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 230, THR 334, or permission of instructor.

**Schedule Type:** Lecture

**THR 440: Advanced Studies in Directing/Dramaturgy.** 3 credits.
Examines theory and practice of collaborative development of production ideas by director and dramaturg teams. Students draw from extensive study in field to support production ideas from classical and modern repertoire to be presented as written and oral projects before faculty panel. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** THR 210 and 310 or permission of instructor.

**Schedule Type:** Lecture

**THR 444: Foundations of Theater Education.** 3 credits.
Introduces and explores various theater teaching specialties. Examines philosophical, pedagogical, and practical issues in context of diverse teaching situations and venues that range from public school to undergraduate and graduate training to commercial establishments. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Junior standing (60 credit hours completed) and Theater Teaching Concentration admission requirements or permission of the instructor.

**Schedule Type:** Lecture

**THR 449: Elementary Theater Education.** 3 credits.
An in-depth exploration of teaching methods and classroom management for PK-6 theater education. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Junior standing (60 credit hours completed) Theater Teaching Concentration admission requirements or permission of the instructor.

**Schedule Type:** Lecture

**THR 450: Secondary Theater Education.** 3 credits.
This course explores teaching methods for theater that are appropriate for all students, including exceptional students, gifted and talented, and those with disabling conditions. It will cover requirements of the Virginia Theater Standards of learning, curriculum and instructional procedures for secondary grades 6-12 (both middle and secondary schools). Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** Junior standing (60 credit hours completed) Theater Teaching Concentration admission requirements or permission of the instructor.

**Schedule Type:** Lecture

**THR 451: Theater Pedagogy.** 2 credits.
This advanced exploration of teaching methods for K-6 enrichment programming includes classroom hours devoted to pedagogy and field study for practical application, leadership and administration for independent arts programming. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** Sophomore standing and enrollment in Theater Education concentration; or permission of instructor.

**Schedule Type:** Lecture

**THR 455: Theater Education Internship.** 6-12 credits.
Full semester of supervised teaching experience in approved school programs PK-12. Credits based on number of teaching contact hours per week. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Successful completion of Theater Teaching Concentration Coursework and students must pass the VCLA before student teaching (and the Praxis II (Theater: Content Knowledge) test during the internship semester).

**Schedule Type:** Internship

**THR 480: Advanced Playwriting.** 3 credits.
Advanced playwriting workshop in which students explore their own voice in theatrical writing. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** THR 381 or Permission of Instructor.

**Schedule Type:** Lecture

**THR 482: Advanced Screenplay Workshop.** 3 credits.
Screenwriting workshop emphasizing student development in screenplay form, structure, and storytelling with emphasis on craft, character, and story culminating in a screenplay. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.
Specialized Designation: Writing Intensive in the Major

Recommended Prerequisite: THR 382 or ENGH 332/ENGH 372 or other writing preparation course as approved by the instructor.

Schedule Type: Lecture

THR 484: Translation & Adaptation for Stage & Screen. 3 credits.
This interdisciplinary course will introduce students to the arts of translation and adaptation for the stage and screen. Students will read examples of translations and adaptations, identify challenges in each, and discuss them with professionals who translate or adapt works for theater, film and/or opera. Students are also expected to apply their skills to one short and one long translation/adaptation project, and present their work to the class. Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: Junior standing

Schedule Type: Seminar

THR 490: Special Topics in Theater. 1-6 credits.
Rotating topic. Advanced seminar in topics of special interest, including dramatic writing or other media, and feminism in contemporary theater.
Notes: May be repeated provided specific course content differs. Offered by Theatre (p. 835). May be repeated within the term for a maximum 24 credits.

Schedule Type: Lecture

THR 491: Seminar on the Profession. 1-3 credits.
Rotating topic. Advanced seminar in topics of special interest, including dramatic writing or other media, and feminism in contemporary theater.
Notes: Repeatable with permission of the Chair. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 60 credit hours.

Schedule Type: Lecture

THR 492: Studio Project. 1-3 credits.
Required for students assigned as director, designer, dramaturg, or stage manager for a Mason Players Studio production. Instruction and mentorship from appropriate Theater faculty to better develop the student's aesthetic. Required generation of portfolio material. This class is restricted to students participating in Studio productions within the academic year of the course offering. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: THR 329 or THR 333 or THR 334 or THR 335 or THR 337.

Registration Restrictions:
Enrollment is limited to students with a major, minor, or concentration in Theatre.

Schedule Type: Studio

THR 493: Collaborative Lab Experience. 3 credits.
Students will collaborate in a laboratory experience to create original material for the stage or screen. Course content will be project specific. Offered by Theatre (p. 835). May not be repeated for credit.

Registration Restrictions:
Students with a class of Freshman or Sophomore may not enroll.

Enrollment is limited to students with a major in Theatre.

Enrollment limited to students in a Bachelor of Fine Arts degree.

Schedule Type: Lecture

THR 494: Field Experience. 1-6 credits.
Experience in a theatrical organization to provide opportunity to apply classroom training, knowledge, skills, and theory in a professional situation. Activity must be approved by department chair. Offered by Theatre (p. 835). May be repeated within the term for a maximum 12 credits.

Schedule Type: Internship

THR 495: Senior Capstone Project. 3 credits.
Student must submit a written project proposal to area of concentration for consultation. If accepted, proposal will be presented to the full faculty for approval. Notes: Production proposals will be subject to calendar availability. Course is repeatable with permission of Chair. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Must have declared a concentration, have completed at least 60 credit hours, and must have completed 4 credits of Practicum.

Schedule Type: Studio

THR 496: Text in Production. 3 credits.
In-depth investigation of collaborative nature of theatrical arts. Examines discrete creative disciplines; acting, directing, dramaturgy, and design as discussed by distinguished professionals and scholars. In-depth exploration of one selected playscript for the entire semester. Students will work collaboratively in small groups to research, design, direct, and perform scenes from selected text. Offered by Theatre (p. 835). May not be repeated for credit.

Mason Core: Synthesis (p. 135)

Recommended Prerequisite: Completion or concurrent enrollment in all theater core courses and in all other required Mason Core courses.

Schedule Type: Seminar

THR 497: Independent Study. 1-6 credits.
Individual research and creative project in close consultation with instructor. Selection from projects in performance, directing, technical theater and design, playwriting, or theater history and criticism. Notes: May be repeated, provided suffix citing specific course content is different. Offered by Theatre (p. 835). May be repeated within the term for a maximum 24 credits.

Recommended Prerequisite: Open only to THR majors with 90 hours and by permission of department chair.

Schedule Type: Independent Study

500 Level Courses

THR 525: Advanced Musical Theater Workshop. 3 credits.
Students hone performance techniques necessary for performance in musical theater and contemporary operetta. Students will practice and perform musical theater pieces. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

THR 530: Topics in Theater Design. 3 credits.
In-depth study of scenic, costume, lighting, or sound design. Extensive work with script analysis, historical and conceptual research, visual communication of design ideas, and technical paperwork. Focus on aesthetics, production requirements, and collaboration. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 12 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

THR 539: Aesthetics for the Theater. 3 credits.
Students will develop skills in design while exploring significant developments within the area of concentration. Creative projects, including research and design, will be supervised on an individual basis. Offered by Theatre (p. 835). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

THR 540: Directing Techniques. 3 credits.
An examination of the directorial process for stage and screen, this course will explore directing theory, preparation, and practice. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

THR 548: Advanced Foundations of Theater Education. 3 credits.
Explores various theater teaching specialties in venues that range from public school to undergraduate and graduate training to commercial establishments. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Graduate standing, eligibility for post-baccalaureate certificate in Theater Education or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

THR 549: Advanced Elementary Theater Ed. 3 credits.
An in-depth exploration of teaching methods and classroom management for PK-6 theater education combined with advanced managerial skill training. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Graduate standing, eligibility for post-baccalaureate in Theatre Education Licensure, or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

THR 550: Advanced Secondary Education. 3 credits.
This course explores teaching methods for theater that are appropriate for all students, including exceptional students, including gifted and talented and those with disabling conditions. It will cover requirements of the Virginia Theater Standards of Learning, curriculum and instructional procedures, as well as theater classroom management, for secondary grades 6-12 (both middle and secondary schools). Offered by Theatre (p. 835). May not be repeated for credit.

Recommended Prerequisite: Graduate standing, eligibility for post-baccalaureate certificate in Theater Education or permission of the instructor.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

THR 551: Advanced Theater Pedagogy. 2 credits.
Advanced concepts in teaching methods for PK-12. Further exploration of multiple intelligences, including classroom pedagogy and field study for
practical application of curriculum and administrative skills. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** Graduate standing, eligibility for post-baccalaureate certificate in Theater Education or permission of the instructor.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**THR 555:** Theater Education Internship. 1-12 credits.
Full semester of supervised teaching experience in approved school programs PK-12. Credits based on number of teaching contact hours per week. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 12 credits.

**Recommended Prerequisite:** Successful completion of Theater Teaching Concentration Coursework and students must pass the VCLA and Praxis I prior to the internship semester.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Internship

**THR 560:** Advanced Script Analysis. 3 credits.
Critical analysis of dramatic literature as preparation for production and performance. Examination of plot, character, theme, audience impact, and cultural context, and the transformation of intellectual ideas into physical theatrical production elements. Offered by Theatre (p. 835). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**THR 571:** Advanced Playwriting Workshop. 3 credits.
Advanced playwriting workshop in which students explore their own voice in theatrical writing. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** Undergraduate degree or equivalent, or permission of instructor.

**Registration Restrictions:**

**THR 590:** Special Topics for Graduate Study. 1-6 credits.
Rotating topic. Advanced seminar in topics for stage and screen studies, including education, performance, design, research, writing, and styles in theater or other media. Offered by Theatre (p. 835). May be repeated within the term for a maximum 18 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**THR 591:** Graduate Seminar. 1-3 credits.
Addresses the realities living and working in the theater and the film industry. Notes: Rotating Topics. Dependent on credits hours offered, class time will vary from 1 hour to 2 hours, 40 minutes. Offered by Theatre (p. 835). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to students with a major in Theatre.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**THR 599:** Independent Study. 1-6 credits.
Independent reading, performance, or research on a specific project under direction of selected faculty member. May include attendance in a parallel undergraduate course. Offered by Theatre (p. 835). May be repeated within the term for a maximum 18 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may not enroll.

**Schedule Type:** Lecture

**600 Level Courses**

**THR 610:** Acting Mentorship. 3 credits.
This class gives students the chance to work with a faculty mentor while they apply their acting skills to a full-length public performance. Students
create a record of the creative process through mentored practical production assignments. Actors enrolled in this course must receive prior approval for their projects for the stage or screen and will be expected to submit a written reflection on the complete acting process. Offered by Theatre (p. 835). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**THR 620:** *Acting Techniques.* 3 credits.
Students explore selected acting techniques for stage and screen. Topics vary from scene work to specialty areas -such as movement, voice and style-with an emphasis on developing bold physical, psychological and emotional expression. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 12 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**THR 630:** *Design Mentorship.* 3 credits.
Students work with a mentor while they apply design and technical skills to a full-length public performance. Students create a record of the creative process through mentored practical production assignments. Students must receive prior approval on projects for the stage or screen and will be expected to submit a written reflection on the process. Notes: Students must attain a B or higher to receive credit. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**THR 640:** *Directing Mentorship.* 3 credits.
This class gives students the chance to work with a faculty mentor while they apply their directing skills to a full-length public performance. Students create a record of the creative process through mentored practical production assignments. Directors enrolled in this course must receive prior approval for their projects for the stage or screen and will be expected to submit a written reflection on the full directorial process. Offered by Theatre (p. 835). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study

**THR 651:** *Advanced Dramatic Theory and Criticism.* 3 credits.
A chronological study of development of dramatic theory and criticism from Plato and Aristotle through modern movements. Students read plays, theoretical works, and critical responses, and write original criticism of performances or texts. They also take turns leading critical texts, meet one-on-one with their instructor for individualized mentoring, and prepare at least one essay for publication. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**THR 652:** *Writing Seminar.* 3 credits.
Students develop writing skills and explore significant developments and periods within the field. Offered by Theatre (p. 835). May not be repeated for credit.

**Recommended Prerequisite:** Admission to Graduate Program in CVPA.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

**THR 655:** *Teaching Practicum.* 3 credits.
Students develop and teach undergraduate curriculum related to their area of emphasis. Notes: Students must attain a B or higher to receive credit. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

**Recommended Prerequisite:** Admission to Graduate Program in CVPA.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Internship
THR 691: Professional Development. 1 credit.
Students develop materials and strategies toward the next stage of career in the field. Offered by Theatre (p. 835). May not be repeated for credit.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

THR 694: Graduate Field Experience. 1-6 credits.
Experience in a professional theater or screen production. Activity is subject to prior faculty approval. Students will present a final portfolio of work. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Internship

THR 696: Advanced Acting Practicum. 3 credits.
Academic credit awarded for satisfactory completion of a minimum of 60 hours approved production experience. Offered by Theatre (p. 835). May be repeated within the degree for a maximum credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

THR 697: Advanced Playwriting and Dramaturgy Practicum. 1-3 credits.
Academic credit awarded for satisfactory completion of a minimum of 60 hours of approved production experience. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

THR 698: Advanced Directing Practicum. 1-3 credits.
Academic credit awarded for satisfactory completion of a minimum of 60 hours approved production experience. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

THR 699: Advanced Design Practicum. 1-3 credits.
Academic credit awarded for satisfactory completion of a minimum of 60 hours of approved production experience. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

THR 740: Directors and Dramaturg in Collaboration. 3 credits.
Students work in director-dramaturg pairs to create a hypothetical theater company, craft its mission, plan its season and pitch their ideas for production. Additional assignments include a director's approach, dramaturg's protocol, annotated bibliography, research paper and lecture on a related topic. Notes: Students must attain a B or higher to receive credit. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study

THR 755: Academic Track Practicum. 3 credits.
Students prepare a semester worth of course material for undergraduate class. Notes: Students must attain a B or higher to receive credit. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Admission to Graduate Program in CVPA.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Laboratory

THR 790: Directed Research. 3 credits.
Students delve into a specialty topic of research in the area of emphasis within the Theater concentration. Notes: Students must attain a grade
of B or higher to receive credit. Offered by Theatre (p. 835). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Schedule Type: Independent Study
THR 796: Directed Reading. 1 credit.
In preparation for a thesis, students develop and complete a body of reading relating to their thesis. Offered by Theatre (p. 835). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study
THR 797: Project Preparation. 3 credits.
Students document their pre-production process in preparation for their culminating artistic project. Notes: Students must attain a B or higher to receive credit. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 6 credits.

Recommended Corequisite: THR 796.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Independent Study
THR 798: Project Practicum. 3 credits.
Students document their production process during the culminating artistic project. Notes: Students must attain a B or higher to receive credit. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

Recommended Corequisite: THR 797.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis
THR 799: Thesis. 1-3 credits.
Students reflect upon their culminating artistic project and articulate original conclusions regarding practice in their area of emphasis. Notes: Subject to Faculty majority. Students must attain a B or higher to receive credit. Offered by Theatre (p. 835). May be repeated within the degree for a maximum 3 credits.

Recommended Prerequisite: Research Methods Core Requirement.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.

Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Thesis

Tourism and Events Management (TOUR)

100 Level Courses
TOUR 110: Professionalism and Civility. 1 credit.
Focuses on developing competencies in the areas of professionalism and civility in a variety of settings including professional image, conduct at work, telephone, written, oral, and electronic etiquette, table manners, and social networking with an emphasis on the cultural needs for honoring commitments and obligation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture
TOUR 190: Wedding Planning. 3 credits.
Introduction to the planning and management of weddings. Explores social, political, economic, cultural, religious, and historical influences on wedding planning decision-making and business strategies. Reviews practices relevant to successful wedding planning, and consultancy for diverse clients and settings. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture

200 Level Courses
TOUR 200: Introduction to Tourism Management. 3 credits.
Introduces travel and tourism from local to international levels. Covers the scale, scope and organization of the industry. Emphasizes the development and management of natural, cultural, heritage and recreational resources of tourism. Identifies issues related to the economic, technological and political aspects of tourism. Notes: Open to nonmajors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture
TOUR 210: Global Understanding through Travel and Tourism. 3 credits.
Examines tourism as a global industry and human activity that promotes and facilitates understanding of historical and cultural values, and of international institutions that characterize the broader global system. Notes: Open to nonmajors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture
TOUR 214: Hospitality Tourism and Events Management Accounting. 3 credits.
Provides an overview of financial accounting for hospitality, tourism and event managers. Presents financial accounting from the perspective of recording financial transactions, developing financial statements and evaluating investment and operational decisions. Emphasizes efficient use of spreadsheets in managerial decision making. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Schedule Type: Lecture
TOUR 220: Introduction to Event Management. 3 credits.
Explores principles and practices of managing medium- and large scale events including festivals, conventions, concerts, shows, sporting events, and ceremonies. Emphasizes organization, site preparation, communications, personnel, and security as well as evaluation and
innovation. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

**TOUR 221: Event Implementation and Evaluation.** 3 credits.
Introduction to event implementation and evaluation through involvement in on-site event delivery and analysis. Studies participant motivation and economic, social, environmental, and cultural impacts in relation to an event’s products and services. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** TOUR 220\(^D\).
\(^D\) Requires minimum grade of D.

**Schedule Type:** Lecture

**TOUR 230: Introduction to Hospitality Management.** 3 credits.
This course is an introduction to hospitality management, including an overview of management in the hospitality industry and professional opportunities. The concepts and practices of hospitality management are examined and discussed. The scope and forms of hospitality organizations are reviewed, as well as trends within these organizations. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Schedule Type:** Lecture

**TOUR 241: Hospitality, Tourism, and Events Management Practicum.** 3 credits.
Provides 120 hours of introductory supervised professional fieldwork experience in an approved tourism, events, or hospitality management setting for 10 to 14 weeks (10 weeks only for the Summer term) under the supervision of a practicum Faculty Supervisor and Agency Supervisor. Includes meetings and assignments before, during, and after the practicum. Notes: Students must complete the mandatory pre-experience orientation session online before registering for this course. Hourly requirement per week is 15-20 for Summer term. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** TOUR 200\(^D\), 220\(^D\) and 230\(^D\).
\(^D\) Requires minimum grade of D.

Students with a class of Freshman may not enroll.

Enrollment is limited to students with a major in Tourism and Events Management.

**Schedule Type:** Internship

**300 Level Courses**

**TOUR 301: Hotel Management.** 3 credits.
Explores interrelated systems in hotel management, including front desk, reservations, housekeeping, food/beverage, telecommunications, guest services and security. Reviews and segments hotel products and associated management challenges. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** TOUR 230\(^D\).
\(^D\) Requires minimum grade of D.

**Schedule Type:** Lecture

**TOUR 310: Food and Beverage Management.** 3 credits.
Explores the principles of foodservice management regarding production and selling of food and beverage products. Categorizes various types of food, wine, beer and spirits. Reviews foodservice buying, pricing, menu planning, production, storage, service, controls and quality assurance. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** TOUR 230\(^D\).
\(^D\) Requires minimum grade of D.

**Schedule Type:** Lecture

**TOUR 311: Women and Tourism.** 3 credits.
Focuses on women as hosts and guests. Using social theory, explores issues regarding the history and evolution of tourism as a gendered system. Addresses family, solo and business travel, and employment, taking into consideration issues related to more and lesser developed countries as they relate to the roles of women in international tourism. Notes: Open to nonmajors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences (p. 135)

**Schedule Type:** Lecture

**TOUR 313: Event Technology.** 3 credits.
Explores theoretical and practical considerations of event technology. Examines specifications, layout installation techniques and operation of sound systems, lighting systems and video systems for event industry sectors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisite:** TOUR 220\(^D\).
\(^D\) Requires minimum grade of D.

**Schedule Type:** Lecture

**TOUR 314: Hospitality, Tourism, and Events Revenue Management.** 3 credits.
Provides an overview of revenue management as utilized in a hospitality context. Presents the dynamics of revenue management and demonstrates strategic and operations perspectives. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
**Required Prerequisites:** TOUR 200\(^C\), 220\(^C\) and 230\(^C\).
\(^C\) Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

**Schedule Type:** Lecture

**TOUR 320: Hospitality Management Information Systems.** 3 credits.
Introduces management information systems (MIS) technology and its application to hospitality sectors from managerial and strategic perspectives. Surveys computer applications, products and trends in gathering, analyzing, storing and communicating information within hospitality sectors. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**
Required Prerequisite: TOUR 230\textsuperscript{D}.  
\textsuperscript{D} Requires minimum grade of D.

Schedule Type: Lecture

TOUR 330: Resort Management. 3 credits.  
Surveys effective practices in the management of resort recreation enterprises. Examines basic resort operations, including front desk, food and beverage, amenities, and housekeeping. Covers management of a variety of resort types, such as ski resorts, beach resorts, dude ranches, business retreats, adventure camps, health spas, and golf resorts. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:  
Required Prerequisites: TOUR 200\textsuperscript{D} and 230\textsuperscript{D}.  
\textsuperscript{D} Requires minimum grade of D.

Schedule Type: Lecture

TOUR 331: Cruise Ship Management. 3 credits.  
Surveys effective practices in the management and operation of cruise ships. Includes on-site examination of basic cruise operations including sales and booking, food and beverages, hotel operations, security, recreation activities, shore excursions and personnel management. Examines historical foundations of the cruise industry, related leisure and management theory, and leisure trends specific to mass international maritime travel. Notes: Includes on-campus classroom lectures and week-long on-board cruise ship instructional experience. Must be 21 years of age by beginning of semester. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:  
Required Prerequisites: TOUR 200\textsuperscript{C} and 230\textsuperscript{C}.  
\textsuperscript{C} Requires minimum grade of C.

Students with a class of Freshman or Sophomore may not enroll.

Enrollment is limited to students with a major in Tourism and Events Management.

Enrollment limited to students in a Bachelor of Science degree.

Schedule Type: Lecture

TOUR 340: Sustainable Tourism. 3 credits.  
Studies the characteristics of environmentally, economically and socio-culturally sustainable tourism and assesses the possibilities and limitations for its implementation within a variety of destinations and product settings. Emphasizes conventional "mass" tourism and small-scale "alternative" tourism as they apply to hospitality, event, and tourism management. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Registration Restrictions:  
Required Prerequisite: TOUR 200\textsuperscript{D}.  
\textsuperscript{D} Requires minimum grade of D.

Schedule Type: Lecture

TOUR 352: Heritage and Cultural Tourism. 3 credits.  
Analyzes historical and cultural attractions, including museums, canals, monuments, pilgrimage sites, military sites, and cultural and heritage landscapes. Covers presentation and interpretation, African-American and Native American heritage, management and operational considerations, and marketing. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:  
Required Prerequisite: TOUR 230\textsuperscript{D}.  
\textsuperscript{D} Requires minimum grade of D.

Schedule Type: Lecture

TOUR 362: Cultural and Environmental Interpretation. 3 credits.  
Focuses on communication processes and practices used by professionals to explain and interpret special characteristics of cultural and environmental resource sites for visitors. Discusses conceptual principles for planning interpretive programs, as well as techniques for analyzing and disseminating information and entertainment through various media. Examines delivery of interpretive messages across a variety of audiences, strategies for programming interpretive services, and the administration and evaluation of interpretive services at tourism, event, and recreation sites. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit. Equivalent to PRLS 362.

Registration Restrictions:  
Required Prerequisites: PRLS 300\textsuperscript{C} or TOUR 352\textsuperscript{C}.  
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

400 Level Courses

TOUR 412: Hospitality, Tourism, and Events Management Marketing. 3 credits.  
Applies marketing principles, theories and concepts in developing strategies for hospitality, tourism and event management businesses. Emphasizes market segmentation, marketing mix, sales planning and public relations. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:  
Required Prerequisites: TOUR 241\textsuperscript{C} or PRLS 241\textsuperscript{C}.  
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

TOUR 414: Hospitality, Tourism, and Events Management Finance. 3 credits.  
Develops skills and competencies for the management of financial resources in hospitality, tourism and events management enterprises. Covers economic principles, the time value of money, revenue streams, pricing and expenditure management. Applies fundamental principles to personal financial management. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:  
Required Prerequisite: TOUR 241\textsuperscript{C}.  
\textsuperscript{C} Requires minimum grade of C.

Schedule Type: Lecture

TOUR 416: Hospitality Sales. 3 credits.  
Explores the principles of personal selling within hospitality sectors. Reviews the nature of buyers and sellers, situational selling, the sales process and relationship management. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:  
Required Prerequisites: TOUR 230\textsuperscript{D} and PRLS 410\textsuperscript{D}.  
\textsuperscript{D} Requires minimum grade of D.
TOUR 200: Tourism Planning/Policy. 3 credits.  
Principles of planning and policy that apply to integrated and sustainable tourism development at the international, national, state, regional, local, and site scale. Considers government, industry, and community perspectives. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Required Prerequisites:**  
TOUR 340\textsuperscript{D} and 241\textsuperscript{C}.

**Schedule Type:** Lecture

TOUR 230: Hospitality Facilities Operations. 3 credits.  
Reviews concepts and methods related to the achievement of strategic business goals through employee recruitment, training and development. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Required Prerequisites:**  
TOUR 241\textsuperscript{C}.

**Schedule Type:** Lecture

TOUR 241: Hospitality Human Resources Management. 3 credits.  
Reviews concepts and methods related to the achievement of strategic business goals through employee recruitment, training and development. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Required Prerequisites:**  
TOUR 241\textsuperscript{C}.

**Schedule Type:** Lecture

TOUR 240: Meetings and Conventions. 3 credits.  
Analyzed meetings, incentives, conventions, and exhibitions with respect to business environment and structure, industry suppliers, site and facility selection, human resource management, legal and financial issues, marketing and promotion, and event organization. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Required Prerequisites:**  
TOUR 241\textsuperscript{C}.

**Schedule Type:** Lecture

TOUR 450: Hospitality Human Resources Management. 3 credits.  
Reviews concepts and methods related to the achievement of strategic business goals through employee recruitment, training and development. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Required Prerequisites:**  
TOUR 241\textsuperscript{C}.

**Schedule Type:** Lecture

TOUR 460: Hospitality Facilities Operations. 3 credits.  
Explores the principles applied to facilities systems operations in hospitality sectors. Considers design, planning, layout and maintenance of hospitality properties and systems. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Required Prerequisites:**  
TOUR 230\textsuperscript{C}.

**Schedule Type:** Lecture

TOUR 470: Career Preparation. 1 credit.  
Focuses on current issues in tourism, events and hospitality management with an emphasis on career development strategies. Notes: Meets for half the semester. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Required Prerequisites:**  
TOUR 241\textsuperscript{D}.

TOUR 480: Special Topics. 1-3 credits.  
Selected topics reflect interest in specialized area of tourism and events management. Announced in advance. Offered by Recreation, Health & Tourism (p. 211). May be repeated within the term for a maximum of 9 credits.

**Registration Restrictions:**  
Students with a class of Freshman or Sophomore may not enroll.

**Schedule Type:** Lecture

TOUR 490: Hospitality, Tourism, and Events Management Internship. 12 credits.  
Provides 400 hours of advanced supervised professional experience in an approved tourism, events, or hospitality management setting for a minimum of 30 hours/week, and a maximum of 40 hours/week (summer term only). Provides a continuous and structured opportunity to apply principles and skills developed in the classroom to the solution of practical problems. Notes: Students must attend mandatory pre-experience orientation session before registering and must participate in the mandatory final presentations upon completion of internship. Can register for only one additional course for up to 3 credits. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Registration Restrictions:**  
Students with a class of Freshman or Sophomore may not enroll.

**Schedule Type:** Internship

TOUR 499: Independent Study. 1-3 credits.  
Faculty directed independent study of approved topics in tourism and events management. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

**Recommended Prerequisite:** TOUR 200 and 220, and 90 credits.

**Registration Restrictions:**  
Enrollment is limited to students with a major in Tourism and Events Management.

**Schedule Type:** Independent Study

500 Level Courses

TOUR 540: Sustainable Tourism Management. 3 credits.  
Examines components and interrelationships within tourism systems and assesses the potential economic, sociocultural, and environmental impacts associated with this sector. Considers managerial strategies that minimize the negative impacts and maximize the positive impacts, thereby attaining sustainable tourism. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.
Specialized Designation: Green Leaf Course

Registration Restrictions:
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

700 Level Courses

TOUR 710: Advanced Administrative Practices in Tourism and Events. 3 credits.
Explores best practices in the administration of tourism and events businesses. Particular emphasis will be placed on contract management, and strategic planning for dynamic markets and changing technologies, with specific applications to geographically dispersed consumers and suppliers. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TOUR 712: Marketing Tourism and Event Planning Services. 3 credits.
Focuses on the unique challenges and opportunities faced by tourism and event marketers in producing, delivering, pricing, and promoting tourism and event services. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

TOUR 720: Major Events and Convention Management. 3 credits.
Prepares graduate students for managing large scale events such as major festivals, conventions, sporting contests, cultural exhibitions, and commercial exhibitions. Management of human financial, information, and technology resources will be emphasized. Offered by Recreation, Health & Tourism (p. 211). May not be repeated for credit.

Registration Restrictions:
Enrollment is limited to Graduate or Non-Degree level students.
Students in a Non-Degree Undergraduate degree may not enroll.

Schedule Type: Lecture

Turkish (TURK)

100 Level Courses

TURK 110: Elementary Turkish. 6 credits.
Introduces elements of grammar, vocabulary, oral skills, listening comprehension, and reading. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Schedule Type: Seminar

200 Level Courses

TURK 210: Intermediate Turkish. 3 credits.
Continuation of the development of basic components of the language, with focus on listening, speaking, reading, and writing skills. Introduces students to the cultures and histories of Turkish-speaking regions. Offered by Modern & Classical Languages (p. 414). May not be repeated for credit.

Recommended Prerequisite: TURK 110, appropriate placement score, or permission of department.

Schedule Type: Lecture

University Studies (UNIV)

100 Level Courses

UNIV 100: Introduction to Mason. 1 credit.
This course assists first-year students with their transition from high school to college life at Mason. It helps students to be successful through academic skill-building, educational planning, and career preparation. It provides information regarding campus resources and ways to engage in the Mason community. Although all sections have a core curriculum, certain sections also focus on a particular theme, student population, or course of study. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 108, UNIV 140, UNIV 150, UNIV 160.

Registration Restrictions:
Enrollment limited to students with a class of Freshman.

Schedule Type: Seminar

UNIV 101: Extended Transition. 1 credit.
This course serves as a continuation of University 100 into the second freshman semester. It extends the transition support of international students, and other students in special sections of University 100. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 141, UNIV 151.

Schedule Type: Seminar

UNIV 108: Mason Transition. 1 credit.
Specialized transition to Mason courses with identified student populations. Notes: Only repeatable with department approval. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 2 credits. Equivalent to UNIV 100, UNIV 140, UNIV 150, UNIV 160.

Schedule Type: Seminar

UNIV 110: Academic Success. 1 credit.
Focuses on academic transition and planning issues for students in their first or second year. Emphasis is placed on resources and techniques to assist students with improving their academic performance. Students work closely with the instructor to track their academic progress over the course of the semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Schedule Type: Seminar
UNIV 140: INTO Mason Pathway Transition. 1 credit.
Assists first-year international and multilingual standard and accelerated pathway students with their transition from high school to college life. It helps prepare students for successful progression to their chosen degree plan the promoting acculturation to academic norms and expectations at Mason, the development of self-efficacy, and engagement with the Mason community. It encourages to seek out and take full advantage of a wide range of campus resources. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 100, UNIV 108, UNIV 150, UNIV 160.

Schedule Type: Seminar

UNIV 141: INTO Mason Pathway Extended Transition. 1 credit.
Serves as a continuation of UNIV 140. It provides extended first-year transition support for standard pathway students in the second semester. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 101, UNIV 151.

Schedule Type: Seminar

UNIV 150: First Year Living Learning Communities. 1 credit.
This course is available for students who are members of a first year LLC. It is the learning component of the program for students who live together on a residence hall floor. The course follows the core University 100 curriculum, but is tailored to the particular theme or academic discipline of the LLC. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 100, UNIV 108, UNIV 140, UNIV 160.

Registration Restrictions:
Enrollment limited to students with a class of Freshman.

Schedule Type: Seminar

UNIV 151: First Year Living Learning Communities Extended Transition. 1 credit.
This course serves as a continuation of University 150 into the second freshman semester. It extends the transition support of students in the First Learning Communities Program. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 101, UNIV 141.

Schedule Type: Seminar

UNIV 160: University Scholars Transition Seminar. 1 credit.
A first year transition seminar for students in the University Scholars Program. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 100, UNIV 108, UNIV 140, UNIV 150.

Recommended Prerequisite: Admittance to the University Scholars Program.

Schedule Type: Seminar

UNIV 170: Special Topics. 1 credit.
Varied UNIV course topics are offered to first and second year undergraduate students. Notes: May be repeated when topic is different. Offered by Provost's Office (p. 1102). May be repeated within the term for a maximum 3 credits.

Schedule Type: Seminar

UNIV 190: Introduction to Research Opportunities. 1 credit.
Provides an opportunity to learn more about participating in research and creative projects at Mason and acquire skills needed to be successful in research. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Schedule Type: Seminar

200 Level Courses

UNIV 220: Decide and Confirm Majors. 1 credit.
This course focuses on helping students clarify or choose a major or career. Students explore and assess their interests, values and skills, as well as research various majors, careers, and the world of work as information for the decision-making process. Notes: Only one of UNIV 220, UNIV 320, UNIV 420, UNIV 421, or UNIV 422 may be taken per semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Recommended Prerequisite: Second-semester freshman standing.

Schedule Type: Seminar

UNIV 250: Second Year Living Learning Communities. 1 credit.
Students in a Second Year Living Learning Community live together on a residence hall floor and attend this course together to fulfill the learning component of the LLC program. Notes: For students who are members of a Second Year Living Learning Community. Offered by Provost's Office (p. 1102). May not be repeated for credit.

Schedule Type: Seminar

300 Level Courses

UNIV 300: Transfer Transition. 1 credit.
This course assists new transfer students with a successful transition to Mason. This course addresses academic success, time management, and course schedule planning, as well as graduate school/career readiness, degree requirements, and other university policies and procedures. Students explore campus resources and opportunities for engaging in the Mason community. Notes: Only transfer students in their first or second semester at Mason are eligible to take this course. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 302, UNIV 303, UNIV 305, UNIV 308.

Schedule Type: Seminar

UNIV 302: College of Science Transfer Transition. 1 credit.
This course is intended for new transfer students in the College of Science to assist them with a successful transition to Mason. This course addresses academic success, time management, and course schedule planning, as well as graduate school/career readiness, degree requirements, and other university policies and procedures. Students explore campus resources and opportunities for engaging in the Mason community. Notes: Only transfer students in their first or second semester at Mason are eligible to take this course. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 300, UNIV 303, UNIV 305, UNIV 308.

Schedule Type: Seminar

UNIV 303: Veteran Transition. 1 credit.
This course is for students with veteran status. Based on theory and research specific to the needs of veterans, this course builds a foundation for success in college and beyond, including career planning, translating military experience on a resume, practical interviewing techniques, and networking and engaging with other veterans in a
military-friendly environment. Notes: Only transfer students in their first or second semester at Mason are eligible to take this course. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 300, UNIV 302, UNIV 305, UNIV 308.

**Schedule Type:** Seminar

**UNIV 304: Bachelor Individualized Studies Transfer Transition.** 1 credit.
This course serves new transfer students in the Bachelors of Individualized Studies (BIS) program, and assists them with a successful transition to Mason. Students develop relationships with peers, staff, and faculty. They are introduced to campus resources, with special emphasis on research and writing resources and tools, and work closely with BIS academic advisors and faculty. Notes: Only transfer students in their first or second semester at Mason are eligible to take this course. Only repeatable with department approval. Only one of UNIV 300, UNIV 302, UNIV 303, UNIV 304, UNIV 305, or UNIV 308 may be taken for credit. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 305: College of Humanities and Social Sciences Transfer Transition.** 1 credit.
Assists new transfer students in the College of Humanities and Social Sciences with a successful transition to Mason. Addresses academic success, educational planning, and career preparation, in addition to degree requirements and other university policies and procedures. Students explore campus resources and opportunities for engaging in the Mason community. Notes: Only transfer students in their first or second semester at Mason are eligible to take this course. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May not be repeated for credit. Equivalent to UNIV 300, UNIV 302, UNIV 303, UNIV 308.

**Registration Restrictions:**
Enrollment limited to students in the Humanities Social Sciences college.

**Schedule Type:** Seminar

**UNIV 308: Mason Transition.** 1 credit.
Specialized transition to Mason courses with identified student populations. Notes: Only repeatable with department approval. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 2 credits. Equivalent to UNIV 300, UNIV 302, UNIV 303, UNIV 304, UNIV 305.

**Schedule Type:** Seminar

**UNIV 310: Academic Success.** 1 credit.
Focuses on academic strengthening and planning issues for students in their third year or later. Emphasis is placed on resources and techniques to assist students with improving their academic performance. Students work closely with the instructor to track their academic progress over the course of the semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Junior, Senior Plus or Senior.

**Schedule Type:** Seminar

**UNIV 320: Internship and Career Readiness.** 1 credit.
This course helps students confirm major/career choices and actively pursue internships, research assistantships, and other career-related experiences. With a focus on career readiness, students prepare a resume and cover letter, practice interviewing techniques, and conduct career research. Notes: Only one of UNIV 220, UNIV 320, UNIV 420, UNIV 421, or UNIV 422 may be taken per semester. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 330: Peer Leadership: Peer Advisors.** 1 credit.
This course prepares upperclass students to serve as University 100 Peer Advisors, a role that helps first-year students transition successfully from high school to college. This course provides Peer Advisors with the necessary information, tools, and resources to co-teach University 100 effectively. Notes: For students who have been selected as a Peer Advisor by the University Transitions Program. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 331: Peer Leadership: Patriot Leaders.** 1 credit.
This course introduces students who will serve as Patriot Leaders to the principles of effective leadership. Students will apply knowledge gained through the course directly to their roles and responsibilities as Patriot Leaders through readings and discussions, experiential activities, and class assignments. Notes: For students who have been selected as a Patriot Leader by the Office of Orientation and Family Programs and Services. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 332: Peer Leadership: Resident Advisors.** 1 credit.
For students who have been selected for Resident Advisor education by the Office of Housing and Residence Life. Notes: For students who have been selected as a Resident Advisor by the Office of Housing and Residence Life. Enrollment is contingent upon approval by Student Academic Affairs - Advising, Retention, and Transitions - in consultation with the Office of Housing and Residence Life. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 2 credits.

**Schedule Type:** Seminar

**UNIV 333: Peer Leadership: Peer Mentors.** 1 credit.
Prepares students to serve as Peer Mentors in a variety of Mason departments and programs. Students learn and put into practice leadership approaches and strategies. They become familiar with communication tools and campus resources that will enable them to mentor fellow students successfully. Notes: For students who have been selected as a Peer Mentor in a Mason department or program. Only repeatable with department approval. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 350: Third Year Living Learning Communities.** 1 credit.
Students in a Third Year Living Learning Community live together on a residence hall floor and attend this course together to fulfill the learning component of the LLC program. Notes: For students who are a member
of a Third Year Living Learning Community. Offered by Provost's Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 370: Special Topics.** 1 credit.
Notes: May be repeated when topic is different. Offered by Provost’s Office (p. 1102). May be repeated within the term for a maximum 3 credits.

**Schedule Type:** Seminar

**UNIV 371: Dimensions of Well-Being.** 1 credit.
Introduces students to the terminology and basic science of well-being. Students will learn about evidence-based practices to cultivate resilience, optimism, mindfulness, and happiness. Practical application assignments will give students a chance to experiment with building a lifestyle to promote greater well-being. The course also addresses community and national well-being and the shared responsibilities of enhancing well-being in our society. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Schedule Type:** Independent Study

<table>
<thead>
<tr>
<th>400 Level Courses</th>
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</table>

**UNIV 420: College to Career.** 1 credit.
This course supports second semester juniors and seniors with transitioning into the professional workplace. Students develop a tailored resume and cover letter, refine their interviewing skills, and discuss important workforce issues, such as compensation packages and workplace dynamics. Notes: Only one of UNIV 220, UNIV 320, UNIV 420, UNIV 421, or UNIV 422 may be taken per semester. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 421: College to Graduate School.** 1 credit.
This course supports second semester juniors and seniors. The academic emphasis is on transition readiness for graduate or professional school. Students learn about application and testing options and strategies, interviewing skills, budgeting, and career development. Notes: Only one of UNIV 220, UNIV 320, UNIV 420, UNIV 421, or UNIV 422 may be taken per semester. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 422: Developing Your Professional Edge.** 1 credit.
This course simulates a professional work environment and provides an opportunity to demonstrate desired workplace competencies. The academic emphasis includes: applying basic consultation skills to diagnose and propose innovative solutions to a problem, developing performance management documents; giving and receiving feedback, building workplace relationships, and creating a professional image. Notes: Only one of UNIV 220, UNIV 320, UNIV 420, UNIV 421, or UNIV 422 may be taken per semester. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

**Schedule Type:** Seminar

**UNIV 490: Critical Decisions in Postgraduate Transitions.** 1 credit.
This course guides and supports students through the postgraduate fellowship application process and postgraduate decisions. Students create a resume, complete a fellowship application, prepare for a scholarship interview, and refine their educational and career goals. Notes: Enrollment through the Office of Fellowships. Only repeatable with approval from the Office of Fellowships. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 1 credits.

**Schedule Type:** Seminar

**UNIV 491: RS: Students as Scholars Individualized Scholarly Experience.** 9 credits.
Students actively participate in the process of scholarship and make a significant contribution to the creation of scholarly, research, or creative project. Students meet regularly with their project mentor, make satisfactory progress towards the completion of the project, and create a disciplinary product for evaluation. Notes: Enrollment only with permission from OSCAR. Offered by Provost’s Office (p. 1102). May be repeated within the degree for a maximum 27 credits.

**Specialized Designation:** Research/Scholarship Intensive

**Schedule Type:** Independent Study

**UNIV 495: RS: Undergraduate Research Scholars Program Seminar.** 3 credits.
Students accepted into Undergraduate Research Scholars Program participate in a weekly seminar, hold regular meetings with their project mentor, and make satisfactory progress on their research or creative project. At the end of the semester, students either complete their project and present the results in a professional context, or apply for continuation through UNIV 496. See oscar.gmu.edu for more information and application. Notes: Enrollment only with acceptance into the URSP through OSCAR. Offered by Provost’s Office (p. 1102). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive

**Schedule Type:** Independent Study

**UNIV 496: RS: Undergraduate Research Scholars Program Continuation.** 0 credits.
Students continuing their participation in the Undergraduate Research Scholars Program hold regular meetings with their project mentor and make satisfactory progress on their research or creative project. At the end of the semester, students either complete their project and present the results in a professional context, or apply for continuation. See oscar.gmu.edu for more information and application. Notes: Enrollment only with acceptance into the URSP through OSCAR. Offered by Provost’s Office (p. 1102). May be repeated within the degree.

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** UNIV 495.

**Schedule Type:** Independent Study
UNIV 497: China 1-2-1 Senior Thesis. 1-6 credits. Offered by Provost's Office (p. 1102). May be repeated within the degree for a maximum 6 credits.

Schedule Type: Independent Study

Urban and Suburban Studies (USST)

300 Level Courses

USST 301: Urban Growth in a Shrinking World. 3 credits. Examines process of urbanization historically and comparatively. For major world regions, attention is given to the political economy of urbanization and its impact on social and economic relations. Examines growing globalization of the world economy, implications for urban life, and urban political economy of the future. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Specialized Designation: Green Leaf Course

Schedule Type: Lecture

USST 390: Special Topics in Urban and Suburban Studies. 3 credits. Subject varies according to specialization of instructor. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Schedule Type: Lecture

400 Level Courses

USST 401: Seminar: The Future of Metropolitan America. 3 credits. Examines trends in the development of American metropolis, including impact of information economy and technological developments on metropolitan form and life, continuing outward growth and increasing decentralization of metropolitan areas, changing functional organization of urban space, and continued social segregation in metropolitan areas. Analyzes contemporary predictions about future of metropolitan life in America, and explores how alternative public policies can shape that future. Students work on research projects in metro area. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: 12 hours of USST approved courses, including USST 301, or Permission of Instructor.

Schedule Type: Seminar

USST 490: Internship. 3 credits. Approved work-study programs that focus on urban and suburban issues with an approved agency or firm. Placement depends on student qualifications and availability of positions. Students work on onsite supervisor and coordinator of urban and suburban studies. Offered by Schar School of Policy & Govt (p. 906). May not be repeated for credit.

Recommended Prerequisite: Open only to authorized students with 12 hours of USST; see USST coordinator. Individualized Section Form required.

Schedule Type: Internship

Women and Gender Studies (WMST)

100 Level Courses

WMST 100: Representations of Women. 3 credits. Explores ways women are portrayed in advertising, television, film, photographs, cartoons, performance arts, literature, religious texts, and news media from various worldwide sources. Through interdisciplinary study students will evaluate the powerful effects these representations have on the political, economic, and social lives of women throughout the world. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Mason Core: Global Understanding (p. 135)

Schedule Type: Lecture

200 Level Courses

WMST 200: Introduction to Women and Gender Studies. 3 credits. Interdisciplinary introduction to women’s studies, encompassing key concepts in the field, history of women’s movements and women’s studies in America, cross-cultural constructions of gender, and a thematic emphasis on the diversity of women’s experience across class, race, and cultural lines. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Mason Core: Social/Behavioral Sciences (p. 135)

Schedule Type: Lecture

300 Level Courses

WMST 300: Current Issues in Women and Gender Studies. 1-6 credits. Study of selected topics central to contemporary women and gender studies. Topics vary but include subjects such as women and violence, women and international development, women’s myth and ritual, LGBTQ topics, the history and politics of sexuality, psychoanalysis, and religion. Notes: May be repeated for credit when topic is different. Offered by Women & Gender Studies (p. 591). May be repeated within the term.

Recommended Prerequisite: WMST 200 or permission of instructor.

Schedule Type: Lecture

WMST 303: Psychology of Women. 3 credits. Behavior and attitudes of women, influence of sex chromosomes and sex hormones on behavior, influence of culture on sex role differentiation, and theories of sex role development. Offered by Women & Gender Studies (p. 591). May not be repeated for credit. Equivalent to PSYC 362.

Recommended Prerequisite: PSYC 100, BIOL 103, 104, or permission of instructor.

Schedule Type: Lecture

WMST 306: Topics in Communication and Gender. 3 credits. Exploration of selected topics involving gender and communication. Topics may include women in media, women as rhetors, male/female communication, and communication and sex roles. Specific interests are examined in a seminar setting. Notes: Course may be repeated with approval of department. Offered by Women & Gender Studies (p. 591). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: 60 credits.

Schedule Type: Lecture

WMST 307: Women and Work. 3 credits. Historical and contemporary accounts of women’s participation in paid and unpaid labor. Analyzes the nature of women’s work through the divisions in the labor market due to gender, race, nationality, ethnicity, and class. Provides a detailed look at occupational sex segregation, sexual harassment, the glass ceiling, and the role of religion, culture, and education in determining women’s opportunities and their value as
workers and as family providers. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Recommended Prerequisite: 30 credits.

Schedule Type: Lecture

WMST 308: Introduction to Lesbian, Gay, Bisexual, Transgender, Transsexual, and Queer Studies. 3 credits.
Explores major events in lesbian, gay, bisexual, transgender, transsexual, and queer culture and history in the United States and throughout the world to understand how identities, experiences, and movements have been socially constructed and have changed in different times and places, often as a result of race, class, and gender inequities. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

WMST 309: Black Social Movements: Gendering of Violence and Activism. 3 credits.
Examines racialized gendered conceptions of popular culture, violence, and the legal system and their role in structuring systems of segregation, discrimination and exclusion. Looks at the gendered strategies and conflicts of organizations that arose to combat racial violence and overturn legal and social barriers to equal opportunity and citizenship rights. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

WMST 312: Gender, Trauma, and Recovery. 3 credits.
Explores the experience of emotional trauma, the process of recovery and the etiology of healing in contemporary North American culture. Examines the complexity of how humans interact through popular culture, literature and film and through theoretical works that attempt to explain female violence (compared to male violence) and as it is seen by others. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

WMST 313: Women Who Kill. 3 credits.
Questions the assumptions that women are nonviolent by nature and commit acts of violence only in response to abuse. Explores the complexity of human interactions through popular culture, literature and film and through theoretical works that attempt to explain female violence (compared to male violence) and as it is seen by others. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

WMST 314: Stories of Gender and Human Rights. 3 credits.
Examines global human rights issues through memoir, poetry and fiction. Explores the ways women use literary expression to voice their dissent and to struggle against human rights violations. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

WMST 315: Women During the Enslavement Era. 3 credits.
Examines the general experiences of enslaved women and nominally free women. Includes the lives of female reformers involved in the public arena as orators, writers, preachers, abolitionists and women's rights activists. Explores the effect of gender, class, and race on the development of ideologies concerning abolition, colonization, women's rights, and enslavement. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

WMST 316: Gendered Pan-Africanism. 3 credits.
Gendered Pan-Africanism. Explores the writings and activism of African Americans who traveled to Africa in search of a shared cultural past and present or an opportunity to build pan-African allegiances. Examines these encounters within the context of the Cold War, US civil rights and African anti-colonial movements, and racial and gender ideologies of the time. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

WMST 330: Theoretical Perspectives in Women and Gender Studies. 3 credits.
Examines feminist and queer critiques and transformations of the theories, methods, and methodologies of the sciences and humanities. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Recommended Prerequisite: WMST 200 or permission of instructor.

Schedule Type: Lecture

WMST 390: Study Abroad. 1-3 credits.
Study abroad under supervision of George Mason University faculty. Course topics, content and locations vary. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

Schedule Type: Lecture

400 Level Courses

WMST 400: Internship in Women and Gender Studies. 1-3 credits.
Community- or campus-based service or experiential learning related to women's or gender issues. Independent course in which students develop, in consultation with a faculty member, individual contracts defining the learning and competencies they plan to gain from the experience. Includes a paper and/or portfolio component. Offered by Women & Gender Studies (p. 591). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Completion of 60 hours, WMST 200 or permission of instructor.

Schedule Type: Internship

WMST 401: Experiential Learning in Women and Gender Studies. 1-3 credits.
Community- or campus-based service or experiential learning as it relates to a specific WMST course, taken at the same time. Students develop, in consultation with faculty member, individual contracts defining learning and competencies they plan to gain from the experience. Notes: Only 3 credits of WMST 400 or 401 may be applied toward the women and gender studies interdisciplinary minor. Offered by Women & Gender Studies (p. 591). May be repeated within the degree for a maximum 6 credits.

Recommended Prerequisite: Concurrent enrollment in women and gender studies course and approval of advisor and instructor.

Schedule Type: Internship
WMST 402: *Queer Theory.* 3 credits.
Challenges rigid categories and definitions in order to create a space for marginalized voices. Examines the inconsistencies and erasures that often characterize notions of sex, gender, sexuality, and sexual desire. Explores categories that intersect with sexualized identities such as race, ethnicity, class, nationality, location, and age. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Schedule Type:** Lecture

WMST 405: *Social Dynamics of Family Violence.* 3 credits.
Through seminar readings, videos, assignments, and class discussions, course explores forms of family violence, including child abuse, elder abuse, and intimate partner, and same-gender couple violence. Includes discussions of intervention, prevention and solutions. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Schedule Type:** Seminar

WMST 406: *Gender and Violence in Social Institutions.* 3 credits.
Examines gender-based violence in institutions such as the military, prisons, the Catholic Church, sports, and fraternities that share structural qualities including sex segregation, high rates of violence, and internal systems of justice. Concludes by examining strategies to reduce violence in each institution. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Schedule Type:** Seminar

WMST 410: *Feminist Approaches to Social Research.* 3 credits.
Introduction to feminist approaches to social research for advanced undergraduate students. Students learn the techniques for collecting, analyzing, and writing-up research data as they examine many of the central methodological issues and questions raised by feminist scholars undertaking social research. Because an understanding of how to conduct social research is best gained through experience in the social world, this course emphasizes a learning-by-doing approach. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Specialized Designation:** Scholarly Inquiry

**Recommended Prerequisite:** 60 credits, including 9 credits of WMST courses, or permission of instructor.

**Schedule Type:** Lecture

Undertake a semester-long research project investigating an issue of importance to feminist scholarship utilizing a variety of methods typically used by feminist scholars, including quantitative, qualitative, historical, or textual. Enhance understanding of techniques for collecting, analyzing, and writing up empirical material as well as critical engagement with ethical, interpretive, and representational considerations relating to feminist research. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Specialized Designation:** Research/Scholarship Intensive

**Recommended Prerequisite:** WMST 410 or permission of instructor.

**Schedule Type:** Seminar

WMST 427: *Feminist Political Thought.* 3 credits.
Explores feminist political thought in historical context. Topics include feminist political movements, feminist critiques of political philosophy, and feminist contributions to political theory. Offered by Women & Gender Studies (p. 591). May not be repeated for credit. Equivalent to GOVT 427, PHIL 427.

**Recommended Prerequisite:** GOVT 101, WMST 200, 3 credits of PHIL, or permission of instructor.

**Schedule Type:** Lecture

WMST 450: *Current Topics in Women and Gender Studies.* 1-3 credits.
Studies selected topics central to contemporary women and gender studies. Includes topics such as women and violence, women and international development, women's myth and ritual, LGBTQ topics, the history and politics of sexuality, disability, transnational issues and religion. Offered by Women & Gender Studies (p. 591). May be repeated within the term for a maximum 18 credits.

**Schedule Type:** Seminar

WMST 490: *Independent Study in Women and Gender Studies.* 1-3 credits.
Reading or research on a specific topic related to women and/or gender issues, under the direction of a faculty member. May involve a combination of reading assignments, tutorials, papers, presentations, or off-campus activities. Offered by Women & Gender Studies (p. 591). May be repeated within the degree for a maximum 6 credits.

**Recommended Prerequisite:** WMST 200 or Permission of Instructor.

**Schedule Type:** Independent Study

### 500 Level Courses

WMST 505: *Social Dynamics of Family Violence.* 3 credits.
Through seminar readings, videos, assignments, and class discussions, course explores forms of family violence, including child abuse, elder abuse, and intimate partner, and same-gender couple violence. Includes discussions of intervention, prevention and solutions. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Seminar

WMST 506: *Gender and Violence in Social Institutions.* 3 credits.
Examines gender-based violence in institutions such as the military, prisons, the Catholic Church, sports, and fraternities that share structural qualities including sex segregation, high rates of violence, and internal systems of justice. Concludes by examining strategies to reduce violence in each institution. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Registration Restrictions:**
Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.
### 600 Level Courses

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Schedule Type</th>
<th>Prerequisites</th>
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<tr>
<td>WMST 600</td>
<td><strong>Special Topics</strong>. 3 credits. Study of selected topics central to contemporary women and gender studies. Topics vary but include representation and images, violence, public policy, international development, transmigration of labor, myth and ritual, history and politics of sexuality, disability, disability, transnational issues and religion. Offered by Women &amp; Gender Studies (p. 591). May be repeated within the term for a maximum 18 credits.</td>
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<tr>
<td>WMST 610</td>
<td><strong>Feminist Approaches to Social Research.</strong> 3 credits. Provides an introduction to feminist approaches to social research. Students collect, analyze, and write-up research data as they examine many of the central methodological issues and questions raised by feminist scholars. These include feminist critiques of positivism, feminist standpoint theory, social action research models, and feminist engagements with ethical concerns in doing research with human subjects. Emphasizes a learning-by-doing approach to prepare students to conduct research. Offered by Women &amp; Gender Studies (p. 591). May not be repeated for credit.</td>
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<tr>
<td>WMST 611</td>
<td><strong>Feminist Research Practice.</strong> 3 credits. Undertake a semester-long research project investigating an issue of importance to feminist scholarship utilizing a variety of methods typically used by feminist scholars, including quantitative, qualitative, historical, or textual. Enhance understanding of techniques for collecting, analyzing, and writing up empirical material as well as critical engagement with ethical, interpretive, and representational considerations relating to feminist research. Offered by Women &amp; Gender Studies (p. 591). May not be repeated for credit.</td>
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<tr>
<td>WMST 630</td>
<td><strong>Feminist Theories across the Disciplines.</strong> 3 credits. Multidisciplinary course examines the central issues of feminist theory and explores the various strategies of feminist theorists. Analyzes the ways in which feminist theories have challenged established disciplinary boundaries and contested the traditional assumptions of the humanities, the social sciences, and the sciences. Offered by Women &amp; Gender Studies (p. 591). May not be repeated for credit.</td>
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<tr>
<td>WMST 640</td>
<td><strong>Women and Global Issues.</strong> 3 credits. Multidisciplinary course explores the complex issues women face in different regions of the world. Addresses women's diverse and shared global concerns and provides students with the tools to analyze and understand women in a global context. Offered by Women &amp; Gender Studies (p. 591). May not be repeated for credit.</td>
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### Registration Restrictions

- Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.
- **WMST 610:** Recommended Prerequisite: 3 credits of 600-level WMST courses, or permission of instructor.
- **WMST 640:** Enrollment is limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.
- **WMST 650:** Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.
- **WMST 660:** Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.
- **WMST 670:** Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.
- **WMST 680:** Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.
- **WMST 690:** Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.
- Students in a Non-Degree Undergraduate degree may not enroll.
Studies (p. 591). May be repeated within the term for a maximum 9 credits.

**Recommended Prerequisite:** Admission to graduate program in woman's studies and permission of director.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Research

**WMST 695:** *Internship.* 3 credits.

Community or campus-based service or experiential learning related to women's or gender issues. Students develop, in consultation with a faculty member, individual contracts defining the learning and competencies they plan to gain from the experience. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Recommended Prerequisite:** Completion of 15 graduate credits in Interdisciplinary Studies, including 9 credits in Women and Gender Studies or permission of instructor.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Internship

**WMST 699:** *Capstone Portfolio.* 0 credits.

Prior to graduation and in consultation with their advisor, students will reflect on and synthesize their work in the women and gender studies certificate program by selecting three items taken from their work in the program and discussing these items in a 7-10 page essay. Work selected may include course papers, videos of their performances, exhibit photos, music recordings, and other items as agreed upon by student and advisor. Offered by Women & Gender Studies (p. 591). May not be repeated for credit.

**Recommended Prerequisite:** Students must have completed their course work for women and gender studies certificate or be in the last semester of their course work.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Independent Study
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